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THE
GARDENERS' CHRONICLE.

A Weekly Illustrated Journal

OF

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JANUARY TO JUNE, 1882.

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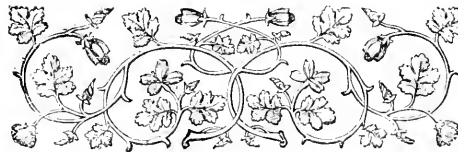
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K. AND A. MORRISON, The Nurseries, Elgin, N.E.

For Sale
LILY of the VALLEY ROOTS, 6s. per bushel, basket included. Apply to T. MILLS, Market Gardener, near Station, Chiswick.

BARTO VALLE and CO. have just received in good condition their DOUBLE ITALIAN TUBEROSE ROOTS: 3s. 6d. per dozen.
21, Haymarket, London, S.W.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

IMPORTANT NOTICE.—First-class NURSERY STOCK, specially cheap for Cash only, to clear the ground by March next.
CATALOGUES on application to WALTER DAWSON, Nurseryman and Seedsman, Coventry.

The Best Dwarf Roses in the Trade.
JAS. GARAWAY and CO. offer the above, 100 in Best English Varieties, their selection, packed and carriage paid to any railway station, on receipt of Post-office Order for 6s.; 50 for 35s.

ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz., 12s. and 15s.; extra selected for potting (specimens), 18s. per doz.
RODGER, McCLELLAND and CO., 64, Hill Street, Newry.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4 1/2-inch pots, £2 per 100, for cash. Now ready, Isabella Spirit, Gloire de Dijon, &c.
MAIRIS and CO., West-in-Gordano, Bristol.

LILIUM AURATUM.—Splendid direct Imported and Home-grown Bulbs, 30s., 40s., 50s., 60s., 75s., and 100s. per 100.—SANDER and CO., St. Alban's.

LILIUM AURATUM (Home-Grown).—"Imported Bulbs do die."
I have only a few to offer this season, but they are fine; 7 to 9, 9 to 10, 10 to 11, and 11 to 12 inches in circumference.
LILIUM GIGANTEUM, also fine. This is the time to plant.
CHARLES NOBLE, Bagshot.

Floral Commission Agency.
WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.

WANTED, Consignments of STEPHANOTIS, BOUVARDIA ROSES, and other CHOICE FLOWERS, also MUSCAT GRAPES, TOMATOS, CUCUMBERS, &c.—WISE and RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, Perpetual or Autumn-flowering CLEMATIS, good 2-yr. old plants. State price per 100 or 1000.
CRANSTON'S NURSERY and SEED COMPANY (limited), King's Acre, Hereford.

WANTED, Strong Transplanted ASH. State size, quantity, and price to RICHARD SMITH and CO., Nurserymen, Worcester.

WANTED TO PURCHASE.
1000 PEAR STOCKS.
1000 APPLE STOCKS.
500 COMMON PLUM STOCKS.
100 COMMON CHERRY.
Fit to Work. Apply to E. WILSON SEPPELL (late Postey), Nurseryman, &c., Plymouth.

DOWNIE and LAIRD, having now posted their Garden Seed and Gladiolus CATALOGUES to their Customers, will be glad to send a Copy to any ONE who may have been overlooked.
DOWNIE and LAIRD, Seedsmen, 17, Frederick Street Edinburgh.—January, 1882.

THORN QUICKS.—Very fine, 2 to 2 1/2 feet, at 10s. per 1000; 2 1/2 to 3 1/2 feet, at 2s. per 1000; 3 to 4 feet, at 7s. per 1000. All carriage paid to London. Apply to LEVAVASSEUR and SON, Nurserymen, Ussy, Calvados France.

CHESTNUT (Spanish), Hazel, Ash, Larch, Scotch, Birch, Alder, Willow, and Thorn Quick.—Stout, well-rooted, transplanted.
A large quantity to be sold.
GEO. CHOLEY, Coopers' Nursery, Midhurst.

LARCH, 1 to 2 feet, fine, 15s. per 1000.
SEEDS DOUGLASSI, 2 to 3 feet, 40s. per 100, fine trees.
PICEA NORDMANNIANA, 9 to 12 inches, 21s. per 100.
HORSE CHESTNUT, fine trees for Avenues, 12 to 15 feet, £5 per 100. Many other trees to offer.
W. JACKSON, Blakedown, Kidderminster.

English Yews.—English Yews.
ENGLISH YEWS, 3 1/2 to 4 1/2 feet, 15s. per doz., 100s per 100; 4 to 5 feet, 18s. per doz., 145s. per 100. All recently transplanted.
JOHN PEKINS and SON, 57, Market Square, Northampton.

OUR NEW CATALOGUE of SPRING FLOWERING PLANTS of all kinds is now issued, and will be sent post-free to all applicants.
RODGER, McCLELLAND and CO., 64, Hill Street, Newry.

To Oser Growers, Basket Makers, and Nurserymen.
BRADFORD and SONS, Yeovil, Somerset, now grow and Cut yearly 100 Acres and upwards of OSIER BEDS, and will quote prices to the Trade, according to quantity required. Samples and prices of Oser "Sets" on application.

WEBB'S PRIZE COB and other FILBERT TREES, Calcut Gardens, near Reading. Apply to Mr. COOPER, F.R.H.S., Calcut Gardens, near Reading, Berks.

QUICKS, 500,000 extra fine Transplanted, at 20s., 25s., 30s., 40s.; and extra extra strong for capping, at 50s. per 1000.—Also strong Spanish Chestnuts, WALDWOOD and SON, Nurseries, Herefield, Uckfield, Sussex.

HYACINTHUS CANDICANS.
Bulbs of 1. Quality, £1 per 100, £3 per 1000, nett.
.. .. " .. 12s. per 100, £5 per 1000, nett.
.. .. " .. 8s. per 100, £3 per 1000, nett.
L. SPATH, Nurseryman, Berlin S.O., Köpenick, near Strasse, 154.

Garden Seeds.—Agricultural Seeds.
SPECIAL FLOWERS on application to CHARLES SHARPE and CO., Sleaford.

CHRYSANTHEMUMS.—Shaw's Golden Madame Marthe is the finest yellow Pompon in the world. Will be grown by everybody, shown by everybody, and admired by everybody. Plants, 3s. per dozen; twelve very best varieties for Exhibition, including Golden Madame Marthe and Souvenir d'Un Ami, for 2s. 3/4, all post-free.
SHAW'S, The Leeds Florists, Knostrop, Leeds.

Hardy Rhododendrons and Azaleas.
ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds. Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.
AZALEA MOLLIS, seedlings, and best named varieties, covered with buds, many thousands.
Knapp Hill Nursery, Woking, Surrey.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

RHUBARB STOOLS for SALE.—3000 Victoria and finest early sorts. Stools extra fine. Apply THOS. BLACK, Seedsmen, Jedsburgh, N.E.

STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.
RICHARD SMITH and CO., Nurserymen, Worcester.

RASPBERRY CANES.—100,000 of the celebrated Carter's Profile (see *Market Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 200 for 5s. Also 50,000 Fastolf, at £1s. per 1000, 250 for 5s., on rail. The Canes are small, but being well rooted are equally so as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to A. and E. BATH, Colgate Farm, Sevenoaks, Kent.

PEACHES and NECTARINES, Half-Standard, Trained, for Sale. List of sorts and price on application to CRANSTON'S NURSERY and SEED CO. (limited), King's Acre, Hereford.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9d.; No. 2, 1s.; No. 3, 1s. 6d.; and the largest Bulbs imported, 2s. each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

FRISBY'S EXCELSIOR BEET.—The best and most distinct Beet in cultivation. It is excellent for the Flower Garden and for Table use. The top is small, with dark shining leaves; Root growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, of fine quality and exquisite flavour. Price per ounce packet, 2s. 6d. EDMUND PHILIP DIXON, Hull.

CHRYSANTHEMUMS, best and newest, now ready. Large stock of 300 distinct sorts. Purchaser's selection, plants 2s. 6d. per doz., 1s. per 100; W.E.'s selection, 2s. per dozen, 10s. per 100, post-free. Cuttings much cheaper. CATALOGUE one stamp. W. ETHERINGTON, Manor House, Swanscombe, Kent.

Gooseberries and Black Currants. GEORGE BUNYARD and CO. can offer the above in large or small quantities, in the best Garden or Market kinds, as recommended in Fruit Farming for Profit. The Old Nurseries, Maidstone.

HALF-STANDARD H.P. ROSES, in large quantities. GEORGE BUNYARD and CO., Maidstone.

GARDEN and FLOWER SEEDS.

THOMAS METHVEN & SONS

REG TO INTIMATE THAT THEIR DESCRIPTIVE PRICED

CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS, IMPLEMENTS, FRENCH HYBRID GLADIOLI, &c., for 1882, is now ready, and may be had, post-free, on application.

EAST LOTHIAN INTERMEDIATE STOCK (true).—White, Purple, Scarlet, and White Wall-leaved. In packets, 1s., 2s. 6d., and 5s. each colour.

NEW CRIMSON EAST LOTHIAN INTERMEDIATE STOCK.—A splendid novelty. In packets, 1s., 2s. 6d., and 5s. each.

CUCUMBER, CHARLES TENNANT'S FAVOURITE.—We have much pleasure in introducing this splendid Cucumber, considered one of the finest flavoured in cultivation. Has taken several 1st Prizes at Edinburgh Horticultural Exhibitions, and awarded a First-Class Certificate by the Royal Caledonian Horticultural Society. Per packet, 2s. 6d.

SEED WAREHOUSES:—15, PRINCES STREET AND NURSERY GATE, LEITH WALK, EDINBURGH.

NEW ROSES of 1882.

H. BENNETT (late of Stapleford, Wilts), will be prepared to offer, in March, a Selection of the best New French Roses.

Also, on June 1, SIX SEEDLING ROSES of his own raising, viz.:—

TEA ROSE. "PRINCESS OF WALES," seedling from "Adam" x "Elise Sauvage."

HYBRID TEAS. "COUNTESS OF PEMBROKE," seedling from "President" x "Charles Lefebvre."

HYBRID PERPETUALS. "EARL OF PEMBROKE," seedling from "Marquise de Castellane" x "Ferdinand de Lesseps."

"DISTINCTION," seedling from "Madame de St. Joseph" x "Mlle. Eugene Verdier."

"HEINRICH SCHULTHEIS," seedling from "Mabel Morrison" x "Mons. E. Y. Teas."

"LADY MARY FITZWILLIAM," seedling from "Devonians" x "Victor Verdier."

Descriptive CATALOGUE will be ready early in March, and will be forwarded gratis to former Correspondents on all applications.

An excellently coloured Chomo-lithograph, by De Pannemecker, from a drawing taken by Mrs. Duffield from outdoor blooms of "Lady Mary Fitzwilliam," will be sent, post-free, immediately, on receipt of 1s.

H. BENNETT, Shepperton (Middlesex), Walton-on-Thames.

"GENUINE SEEDS ONLY."



JAMES VEITCH & SONS

REG TO ANNOUNCE THAT THEIR

CATALOGUE of GARDEN and FLOWER SEEDS for 1882,

Containing Lists of Novelties, Horticultural Implements, and other Garden Requisites, is now published, and will be forwarded post-free on application.

Descriptions will be found therein of the following New and Choice Seeds:—

Table listing various seeds and their prices, including Beet, Broccoli, Cabbage, Cauliflower, Celery, Cucumber, Endive, and Lettuce.

POTATOS.

JAMES VEITCH & SONS hold fine selected stocks of all the leading varieties, including the best Exhibition Sorts and Novelties. For descriptions see

Seed CATALOGUE, post-free on application.

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

VEGETABLE and FLOWER SEEDS

OF SUPERIOR QUALITY.

CARRIAGE PRE-PAID.



DICKSON and ROBINSON,

SEED MERCHANTS, 12, OLD MILLGATE, MANCHESTER

Offer the following extra choice Seeds:—

Table listing various vegetable and flower seeds such as Beet, Broccoli, Cabbage, Cauliflower, and others with their respective prices.

DICKSON & ROBINSON, 12, OLD MILLGATE, MANCHESTER.

SINGLE DAHLIA SEED.

JOHN CATTELL

Has great pleasure in announcing that he has this season harvested a fine lot of Single Dahlia Seed, saved from upwards of fifty varieties of shades and colours. The demand for these popular flowers is sure to be very great this year. Early orders are respectfully solicited.

Price, per packet, 1s. and 2s. 6d., post-free. Trade price on application.

NURSERY and SEED ESTABLISHMENT, WESTERHAM, KENT.

PINUS AUSTRIACA.

1-yr. 1-yr. transplanted... 3/6 per 1000. Twice transplanted, 6 to 12 in. 10/6. Twice transplanted, 9 to 15 in. 18/0.

PINUS LARICIO.

1-yr. 1-yr. transplanted... 5/0 per 1000. Twice transplanted, 6 to 12 in. 18/0. All healthy and splendidly rooted.

Also strong transplanted Larch and Scotch Fir

Samples and Prices on application.

HOWDEN and COMPANY, INVERNESS NURSERIES, N.B.

GLADIOLI, DAHLIAS.

ANT. ROOZEN & SON OVERVEEN, HAARLEM, HOLLAND.

OUR AUTUMN LIST is now ready, and will be sent, post-free, on application to our Select and Genuine Messrs. MERTENS and CO., 5, Billiter Square, London, E.C., or to ourselves direct.

SPIRÆA PALMATA, the largest stock of forcing plants in Europe.

DWARF ROSES, good, 9s. per dozen. RHODODENDRONS, covered with buds, for forcing. STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.

CHARLES NOBLE, Bagshot.



SEVENTY-FOUR ACRES OF FRUIT TREES.—Apples, Peaches, Cherries, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarf, Pyramids, Bushes, Cordons and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Grafting, Treatment under Glass, also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for *id.* stamp.

TWELVE ACRES OF ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea-scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing. See Descriptive Price LIST, free for *id.* stamp.

TWO HUNDRED THOUSAND HERBACEOUS AND ALPINE PLANTS for Borders, Rock-work, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for *id.* stamp. R. S. & Co.'s selection of 100 good showy varieties for 25s.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-wired Planting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for *id.* stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivation, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for *id.* stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing, 2s. 6d. per dozen, 16s. per 100.



ROSES.

The Largest Rose Gardens in England

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

120 FIRST PRIZES, 1880-1881.

STANDARD and HALF STANDARD.

DWARF STANDARDS.

DWARFS on MANETTI, Magnificent Plants.

DWARFS on SEEDLING BRIER.

DWARFS on OWN ROOTS.

DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.

CLIMBING and PILLAR ROSES.

EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.

NEW ROSES, French and English.

CRANSTON'S NEW ROSES, "MRS. JOWITT," and "MARY POUCHIN."

Descriptive Priced Catalogue on application.

Special quotations for 100 and 1000 plants.

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CRANSTON'S NURSERY and SEED CO. (LIMITED),

KING'S ACRE, NEAR HEREFORD.

O N I O N .

CRANSTON'S EXCELSIOR.

NOVELTY 1882.

First-class Certificate, November 16, 1880.

We have pleasure in now being able to offer to the Trade Seed of this grand new variety, which we are confident will at once establish itself as the finest Onion ever raised. It has a very handsome globe-shaped bulb, with exceedingly small neck, and of a beautiful pale straw colour; it possesses mild flavour, and excellent keeping qualities. The Excelsior has been grown alongside the most popular varieties of spring and winter Onions, and proved superior in every respect, many specimens weighing over 2 lb.

It possesses several decided advantages over all others, which must secure for it general cultivation.

Per packet, 1s. 6d.

TRADE PRICE ON APPLICATION.

CRANSTON'S

NURSERY & SEED COMPANY (LIMITED), HEREFORD.

A LIST of our AGENTS will be published in Spring



WHOLESALE SEED CATALOGUE.

We have now published our Wholesale CATALOGUE of Vegetable, Flower, and Agricultural Seeds, containing, besides, all the best Novelties of the Season. It may be had on application. All our Regular Customers should already have received a Copy by post; any not having done so, will oblige by letting us know.

WATKINS & SIMPSON,

EXETER STREET, STRAND, W.C.

(Late of 1, Savoy Hill.)

Seed and Trial Grounds, Feltham and Twickenham, Middlesex.

TO THE TRADE ONLY.

Tea Roses—Tea Roses.

10,000 splendidly grown, extra strong and healthy TEA ROSES still on hand,

at £3 3s. per 100, less 10 per cent. for cash.

CATALOGUES FREE.

CHARLES WILSON,

SUMMERHAW NURSERIES, KENDAL.

CRANSTON'S NURSERIES.

(ESTABLISHED 1785.)

NEW CATALOGUES OF ROSES AND FRUIT TREES

Now Ready.

Over 100 First Prizes for Rose Blooms have been awarded by us during 1880 and 1881, being the largest number ever obtained to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

THREE NEW MELONS.



THREE FIRST-CLASS CERTIFICATES AND SILVER MEDAL.

A beautiful Coloured Plate of above is published in

J. CHEAL & SONS' NEW SEED CATALOGUE and CULTURAL GUIDE for 1882.

Fifty-four pages, and one hundred illustrations, post-free for seven stamps.

Or Descriptive LIST of NOVELTIES post-free.

J. CHEAL AND SONS, CRAWLEY, SUSSEX.

J. CHEAL AND SONS' NEW SEED CATALOGUE and CULTURAL GUIDE for 1882.

Fifty-four pages, one hundred illustrations, and beautiful coloured Plate of three NEW MELONS, post-free for seven stamps.

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CRAWLEY, SUSSEX.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

ROSES.—ROSES.

Important to Amateur Rosarians.

Having Purchased the whole of the Collection of Roses (upwards of 20,000) grown by Thos. Jowitt, Esq., of the Old Weir, Hereford, who has changed his residence, and given up Rose exhibiting, we are enabled to offer to Amateurs selections of his magnificent plants, comprising all the best exhibition varieties, at

8os. per 100, or 12s. per dozen.

CRANSTON'S NURSERY & SEED CO. (LIMITED), KING'S ACRE, HEREFORD.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants. Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants, 536, KING'S ROAD, CHELSEA, LONDON, S.W.

LAXTON'S "JOHN BULL" PEA,

A new 3-foot main crop blue-wrinkled variety, is

- The Finest and Best for Exhibition!
- The Best for Flavour and Quality!
- The Best for a Heavy Crop!
- The Best for General Cultivation!

Mr. R. DRAPER, *The Gardens, Seaham Hall* (a well-known authority on Peas, and who has tested the new varieties annually for many years past), writes spontaneously:—"What a grand Pea your John Bull is—the very best Pea out; which is saying a great deal for it."

Price, 3s. 6d. per sealed half-pint.

LAXTON'S MINIMUM PEA.

The dwarfest and earliest dwarf wrinkled Pea, very prolific, and the best of all for forcing.

Price, 2s. 6d. per sealed half-pint.

HURST AND SON, 152, Houndsditch, London, E.;
THOMAS LAXTON, Seed Grower, Redford;
AND RETAIL OF ALL SEEDSMEN.

SEEDS:
VEGETABLE, FLOWER, and FARM.

RICHARD SMITH & CO.

Spare neither expense nor trouble in obtaining the finest quality, and they invite a comparison of their prices with those of any other firm.

LISTS free on application.

RICHARD SMITH & CO.,

SEED MERCHANTS and NURSERYMEN,
WORCESTER.

SEAKALE, ASPARAGUS, and RHUBARD
ROOTS, for Forcing and Planting, to be had in large or small quantities. Also Globe and Jerusalem ARTICHOKES and HERB ROOTS of every description, at lowest prices.
H. THORNTON AND CO., Dancer's Nurseries, Fulham, S.W.

TO MARKET GARDENERS, GENTLEMEN'S GARDENERS, and others about to commence business.—**JAMES FARRAR AND CO.** have to announce the publication of their Trade Seed CATALOGUE, which will be forwarded post-free upon application.
Seed Warehouse, 35, Primrose Street, Bishopsgate, London, E.C.

Orchids a Speciality.

The stock at the Clapton Nursery is by far the largest hitherto seen in Europe, and is of such magnitude that without seeing it it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

CLAPTON NURSERY, LONDON, E.

CATALOGUES
POST-FREE ON APPLICATION
WITH
Cultural Instructions
BY
Mr. W. INGRAM,
BELVOIR
CASTLE
GARDENS.

5 per cent.
discount
FOR C.A.S.H.

CHARLES SHARPE & CO.,
SHARPE'S SPECIAL
COLLECTIONS OF
GARDEN SEEDS.

- 1—For a Large Garden .. 6s. 0d.
- 2—Do. { quantities proper. } 4s. 0d.
- 3—Do. { (moderately reduced) } 3s. 0d.
- 4—Do. { } 2s. 0d.
- 5—For a Small Garden .. 1s. 0d.
- 6—For a Cottage Garden .. 10s. 0d.
- 7—For Cottages or Artisan's .. 5s. 0d.

SEAKALE—Seakale.
SEAKALE, strong Crowns, 10s., 8s., and 6s. per 100. Trade prices on application.
JOHN HOUSE, Essexgate Nurseries, Peterborough.

SELECTED POTATOS for PLANTING.—Our LIST, which includes all the best kinds, with specially low prices for present delivery, is now ready, and will be sent post-free on application.
JOHN AND GEORGE M. HATTIE, Seed Merchants, Chester.

Eltham Nursery, Eltham, Kent.
One mile from Eltham Station, S. E. R., Loop-line.
JAMES W. TODMAN has this season an exceptionally fine collection of Specimen **CINQUEFOILS,** also **PURSET and FRUIT TREES, ROSES,** &c. Gentlemen who intend planting are invited to choose their own, there being upwards of 30 acres of healthy, well grown stock to select from.—Usual allowance to the Trade.

Deutzia gracilis.
WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.
Outhwaite Nursery, Chertsey.

To the Trade.
FINE BLACK CURRANTS, of sorts. For Price, &c., apply to
EDWARD HOLMES, Whittington Nursery, near Lichfield

TUESDAY NEXT.—(Sale No. 6033.)

CATTLEYA SANDERIANA

(PROVISIONALLY NAMED).

MR. J. C. STEVENS will **SELL** by **AUCTION,** at his Great Rooms, 38, King Street, Covent Garden, W.C., on **TUESDAY NEXT,** January 10, at half-past 12 o'Clock precisely, by order of Mr. F. SANDER, St. Alban's, a splendid **CATTLEYA,** believed to be new. There is no other **Cattleya** known to us with such gigantic bulbs, leaves, and flower-spikes as this species. It will be seen that some of the bulbs measure 4 inches in circumference; some of the spikes are 15 inches long, and show as many as eight large flower-seats. The species is extremely free flowering, almost every bulb on the plant having flowered. Individually the flowers measure from 5 to 8 inches across; sepals and petals deep rose, often purple; lip finely fringed, large, lower part crimson-purple; centre, golden-yellow—in some varieties very little of the yellow is seen. The importation is in fine health.

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

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THURSDAY NEXT.—(Sale No. 6035.)

PHALÆNOPSIS STUARTIANA and CHOICE BRAZILIAN ORCHIDS.

MR. J. C. STEVENS will **SELL** by **AUCTION,** at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT,** January 12, at half-past 12 o'Clock precisely, by order of Messrs. **HUGH LOW & Co.,** three healthy established plants of the new and lovely

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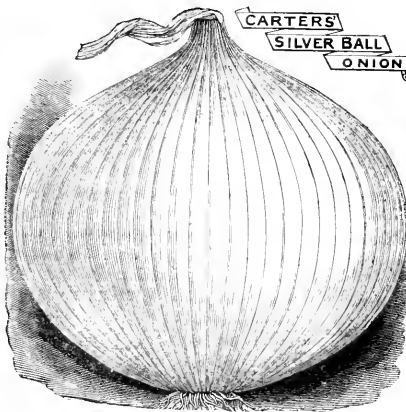
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THE
Gardeners' Chronicle.

SATURDAY, JANUARY 7, 1882.

THE BEST NOVELTIES OF 1881.

THE year 1881, ere it was laid low by the sickle of the Great Reaper, had furnished us with many pleasant leaflets, and many beautiful blossoms, some of the more striking of which it is now our task to gather up and store for future use, while they are still fresh in our recollection. Let us commence with those princes of the vegetable world, the regal

PALMS.

One of the prettiest novelties among these is the New Caledonian Kentiopsis divaricata, which has pinnate leaves, the leaflets of which are broadish and alternate; the leaves when first developed are of a rich brownish-red colour, and in this stage the plant is very effective. Another new pinnate Palm is the Pinanga patula from Sumatra, which has a dwarf, slender stem from 5 to 6 feet high, the leaves 4 to 5 feet long, with broadish leaflets. In Synchantaia fibrosa, from Guatemala, we have another dwarf and graceful species, with a trunk 4 feet high, and a crown of pinnate leaves, the linear-lanceolate leaflets of which are from 1—1½ foot long; the flowers of this Palm are succeeded by orange-red drupes. Ravena Hildebrandtii, from Johanna Island, attains to 10 or 12 feet in height, and its pinnate leaves are made up of numerous narrow lanceolate leaflets. In Nunnezharia tenella we get what has been designated as perhaps the dwarfest known Palm, the entire plant, in a fruit-bearing condition, being only 9 inches high; its obovate-oblong nervose leaves are bifid at the extremity, and the yellow flowers are produced in long drooping slender spikes, almost as long as the plant itself. The beautiful Pritchardia grandis, which has figured with such excellent effect in Mr. Bull's prize collections, has been named Licuala grandis by Mr. Wendland.

FERNS.

Some important additions have been made to this popular group, both amongst imported species and garden varieties. The Sagenia Lawrenceana, a bold Madagascar Aspidioid species mentioned last year, is remarkable for its ample pinnato-pinnatifid fronds, its black shining stipes, and its prominent sori. Plectipeltis Niphias, from the islands of the South Pacific, is a rather striking Fern amongst the simple fronded species, its fronds being obovate with a long narrow point or cusp, and thus altogether very like in outline to the profile of a swordfish, whence the name; the back of the frond is dotted over with rather prominent sori. Lastrea Richardsii multifida, a finely tasselled Fern from Polynesia, is remarkably like the Aspidium obliquatum Germinyi which has been published from the Continental collections. Asplenium Baptistii and Asplenium apicidens are both welcome additions from the South Sea Islands. The former is the larger grower, with leathery evergreen fronds 1½ foot long, bipinnate, with a few long, narrow pinnae, having linear-toothed pinnales. The latter is a pinnate Fern, a foot high, more in the way of A. Vieillardii (schizodon), but differs in the direction of the

veins and sori. The *Davallia fijiensis plumosa* is perhaps one of the most elegant of all known Ferns. The species itself is a strong growing one, with fronds of considerable size, and in the ordinary form is very beautiful, on account of the finely-cut segments; but this form—apparently one of several met with in its wild habitats—is peculiarly graceful in its very fine divisions and its plummy, somewhat pendent habit. Another beautiful acquisition is the *Gymnogramma schizophylla*, a finely-cut Jamaica evergreen species, with oblong tripinnatifid fronds, which are forked and proliferous in the upper part; it is exceedingly well adapted for basket culture. Of the hardier race—probably both of them hardy under favourable conditions—are the neat-habited *Polypodium Kramerii*, analogous to our own *P. phegopteris*; *Lastrea* (not *Lastrea*, as many persons persist in writing it) *Maximowiczii*, the analogue of *Lastrea dilatata*; and *Polystichum tripterum*, a singular Fern, with two enlarged basal pinnae, evergreen, and elegant in character: all three are Japanese.

Of garden origin we have some few new varieties which are really acquisitions. We specially note *Davallia elegans polydactyla*, raised by Mr. Schneider in Messrs. Veitch & Sons' nursery; it is, like the type, an evergreen plant, with glossy green fronds of coriaceous texture, having the apex as well as the tips of the pinnae divided in a multifid or many-fingered manner. *Adiantum cuneatum grandiceps* is a finely tasselled form of the extremely popular *A. cuneatum*. *Adiantum Lathomii* is a very ornamental form—hybrid or sport—obtained by Mr. Bause for the General Horticultural Company; it comes nearest to *Adiantum Ghiesbreghtii* (*alios scutum*), but has a more drooping habit, and is as useful amongst the bolder Maiden-hairs for decorative purposes as *A. cuneatum* is amongst those of more slender habit.

ORCHIDS

afford a much fuller choice of materials. These lovely and grotesque subjects appear to have lost none of their popularity; indeed, if we may judge from the Orchid Notes in our own and other journals, and from the separate publications devoted to them, we may well believe it to be on the increase. Amongst the novelties of the year probably *Phalenopsis Stuartiana* (*Gardeners' Chronicle*, xvi., 753, fig. 149) deserves the first mention. It is a splendid species, with the young leaves mottled with silvery-grey, and bears immense panicles of fine white prettily spotted flowers, the peculiarity of the plant lying in these spottings of crimson which, on the lower half of the sepals, are on a yellow ground, as they are also on the centre lobe of the lip, the tip of the lateral lobes of the lip being white. *Phaius tuberculatus* (*Gardeners' Chronicle*, xv., 341, fig. 67) is a most beautiful and distinct plant, the flowers reminding one somewhat of those of *Alpinia nutans*; it has plaited leaves and erect racemes of large showy white flowers, of which the lip has two large yellow side lobes spotted with purple-brown, and the middle lobe has prominent yellow crests, and its mauve-coloured or rosy at the edge; it comes from Madagascar. The group of *Acridies* has received a welcome accession in the *A. Lecanum*, which has dense drooping racemes of amethyst-coloured fragrant flowers; while to the *Saccolabium* has been added *S. Grafii*, a very fine species from the Fiji Islands, producing spikes of deep purple flowers. *Odontoglossum Marriottianum*, with panicles of large white flowers with numerous small purple spots on the sepals and petals and a yellow disc to the lip, a handsome plant from the United States of Columbia, is perhaps a natural hybrid between *Hallii* and *crispum*. *Odontoglossum excellens* is another fine plant, suggestive of a yellow *Pescatorei*, the sepals being yellow and brown with a white central area, the petals white with a yellow margin, the lip

white with yellow crests and purple blotches. *Odontoglossum Williamsianum*, which is of another character, being in the way of grande, but with broader petals, is a nice addition to this set. There are many more fine *Odontoglossum* on the list of last year's novelties but we have only further space to note *Odontoglossum Rossii rubescens*, a grand form of great beauty, with the flowers larger than in *Rossii majus*, the ground-colour of a light rosy tint, and the marblings of a deep purple turning to chestnut-brown. In *Calanthe bella*, bred between Veitchii and Turneri, we have a pretty Veitchian hybrid, with flowers of a pale lilac-rose, having a deep carmine eye; while another pretty hybrid of the same genus occurs in *Calanthe Sandhurstiana*, which has flowers in the way of those of Veitchii, but with an eye-spot at the base of the lip. Of another character altogether is the *Trichocentrum Flavii*, a Trichopilia-like plant from Central America, a pretty species with the flowers in pairs, the spatulate sepals and petals half brown, half white, the fimbriate lip crisp, white, with a rich red blotch on its unguis or claw. The *Pescatorei* have received an accession in *Pescatorea Dormaniana*, a fine species in the way of *Klabochorum*, from Columbia, one of those having the lip covered with papillae, the flowers white, with three median prolonged keels of a sulphur-yellow, the tips of the sepals being also sulphur-coloured. To the *Pleione*s must be added the beautiful *Pleione Arthuriana*, a Burmah species in the way of *maculata*, but with one or two long conspicuous lines on the petals, and a deep purple-mauve border to the front lobe of the lip, the pseudobulbs deep purple, with numerous light green spots. *Crologyne cristata hololeuca*, a variety with the crests of the lip white, though perhaps not superior to the type will, nevertheless, be useful where pure white flowers are desired. *Cymbidium eburneum Williamsianum* is a very handsome variety of a well-known species which occupies a place in the front rank of the Orchids; in this the front lobe and the tips of the two side lobes of the lip are purple, which adds much to the beauty of the flowers. Of hybrid Lady's Slippers the name now is legion, one of the best of recent acquisitions being *Cypripedium tessellatum porphyreum*, which has very finely marked leaves, and flowers suffused with the richest deep purple-brown on the sepals and petals and on the border of the lip; altogether it is a great improvement on the original *tessellatum*, though it came out of the same seed-pod. The *Anguloa purpurea* of the *Illustration Horticole* is simply the same thing as the already well-known *Anguloa Ruckeri sanguinea*. *T. Moore*.

(To be continued.)

New Garden Plants.

MASDEVALLIA PICTURATA, Rehb. f.

This is a very small species, but a gem par excellence. The tuft of small leaves seldom exceeds 2 to 3 inches in height. The peduncles are equal in length to the leaves, and one-flowered. The ribs of the small ovaries are exceedingly wavy; sepals totally free one from another, whitish, with green nerves, very oblong, with long green tails, and fine blackish-mauve spots on the oblong part; lateral sepals with orange at the base. The petals are very curious, falcate, with a strong tooth at the top, and a small one below it on each side, and a blunt one over the base in front; upper half white over the median vein, lower light sulphur. The lip has rounded side lacinia, and a ligulate central lacinia ending in three knobs, the middle one being more developed. Column light green. This lovely thing is just to hand, kindly sent by Mr. Fred. Sander. I do not know anything of its having flowered before in Europe. It has been collected by Wagener, Fendler, and Arnold. *H. G. Rehb. f.*

SUNBURY NURSERY.

Most people connected with horticulture have been long acquainted with Messrs. Osborn & Sons' well-known nursery establishment at Fulham, London, but their Sunbury nursery, where extensive additions to the glass department and important improvements in the grounds are now in progress, is not perhaps so familiar to the horticultural public. The Sunbury nursery is but a few minutes' walk from the station of the same name on the South-Western Railway. It is also easily reached from Paddington by way of Richmond via the District Railway. The private and business entrances to the nursery are off the road to which the nursery has given its name—Nursery Road, or the Staines and Windsor Road. The private entrance for foot passengers is naturally made as attractive as possible with the finest ornamental plants and Conifers, which seem to have been carefully selected for the purpose. They comprise a choice assortment of variegated and other Hollies, amongst them fine samples of Golden Queen, *Picea lasiocarpa* (a rather peculiar type of this variety, having a great resemblance in colour to *P. nobilis*), golden-capped Irish Yews, *Thuopsis luteivernis*, berried Aucubas, *Magnolia Soulangiana*, *Cupressus Lawsoniana lutea*, and many varieties of *Retinospora*, conspicuous either for symmetry of form or for colour. I should have stated that *Magnolia Soulangiana* is perfectly hardy as a bush without protection of any kind in the severest winters, and makes a charming flowering bush for pleasure or ornamental grounds of any kind.

Leaving the glass structures upon the left, the ornamental borders continue slightly varied in arrangement, with different kinds of trees and flowering shrubs, which are intermixed with small ornamental plants and choice Conifers, from 1 to 3 feet in height. Golden weeping Hollies are here in large numbers, Golden Irish Yews, *Populus canescens pendula*, the purple-leaved Birch, *Picea Nordmanniana*, *P. nobilis*, gaudis, and others; *Cryptomeria elegans*, *Retinospora ericoides*, very chaste in form, and well coloured; *Yucca gloriosa glaucescens*, and a host of other plants, remarkable for beauty of form or colour. The borders are edged with a broad band of the lovely *Gentiana acuta*—one of the prettiest spring flowering plants in cultivation. At the southern extremities of these borders are two long rows of pyramid fruit trees, Apples, Pears, and Plums, which are grown to test the fruiting qualities of varieties that are not commonly known, and about fifty varieties of Strawberries are planted in beds between the fruit trees.

It may here be stated that Messrs. Osborn are making a speciality of Rose and fruit tree growing, for which the soil in this nursery is especially adapted. Proceeding through the different quarters of the nursery the large breadths devoted to the cultivation of fruit trees for orchard planting is significant as forecasting the coming demand for trees of this particular form which have been too long neglected and despised. Indeed, since the old-fashioned English orchard has disappeared the well stocked fruit-room of twenty years ago has disappeared also. Therefore, while it is satisfactory to see an abundant stock of pyramid and other dwarf forms of trained fruit trees, it is a good omen of the future to see a general move in the direction of preparing material for new orchards. But as I have said, there is no lack of variety; there are large quarters of Apples upon the free stock as well as upon the Paradise stock, the latter being suitable for small gardens.

Pears upon the Quince, Plums, Cherries, Peaches and Nectarines are here in abundance, either for walls or espaliers or for planting as bushes or pyramids in borders. Roses are grown in thousands as dwarfs and standards upon the Brier and Manetti stocks, and also upon their own roots. Large and promising plots of Roses in dormant bud clearly indicate that Messrs. Osborn have gone into this branch of their business in earnest. But although fruit trees and Roses are specially grown there is no lack of other general nursery stock, of which Hollies perhaps comprise the largest element. The plants, both large and small, have been regularly transplanted, as indeed their health and compact habit of growth abundantly testify. The varieties are *Ilex latifolia*, *Hodginsii*, *Lawsoniana variegata*, *maderensis*, *donningtonensis*, *crispata*, *lutescens*, *aureo-cincta*, *ferox-argentea*, *Handsworth Silver-striped*, *Golden Queen*, *Fisheri*, *Silver Queen*, and *argentea robusta*. And of miscellaneous stock may be men-

tioned purple and common Beech, scarlet Oaks, Elms, Walnuts, Acer colechicum rubrum (the scarlet-leaved Maple), Limes, Cedrus Deodara and atlantica, Pinus Benhamiana, Jeffrey, Abies orientalis, Douglasii, and breadths of Aucuba japonica and flowering shrubs in variety. Messrs. Osborn's new hot-houses are, however, the taking feature of the establishment at present. Occupying a central position in the nursery, and within full view of the Staines and Windsor Road, their style and finish is sufficient to attract notice from those who are interested in horticultural pursuits, particularly in the glass department. Messrs. James Boyd & Sons, of Paisley and London, are the builders. Messrs. Doyd's system of ventilating is so simple that a child may perform the operation without an effort. The houses, both old and new, are span-roofed, and run north and south, with passages between each structure and with boiler-house and potting-shed situated about the centre of the block. Commencing with the recently built houses upon the east side of the block are two pot Vine houses with centre and side pits, and liberally furnished with top and bottom heat. Each house is supported by three upright iron columns. The depth of the centre and side pits does not exceed 2 feet 6 inches, and the walls of the pits are pigeon-holed about half-way up, say to a depth of 15 inches, in order to secure a uniform top and bottom temperature. Perforated iron gratings with round holes enclose the bottom-heat pipes at 15 inches from the floor line or centre of each pit, and over these gratings the plunging material is placed, which may be used or not at discretion. I noticed particularly that instead of wooden wall plates the pits are finished off with blue Stafford bricks set in cement—a very good idea for the nurseryman but not so good for the carpenter or painter, whose services will never be required either to mend or paint.

The system by which a supply of water is secured is worthy of special notice. There is a tank in each house, all being connected underground, and filling and emptying themselves together. These tanks communicate with a large tank out-of-doors which receives the overflow, and in case of protracted dry weather the large tank can be filled at any time by a pumping apparatus contiguous to the houses, where there is a never failing source of water from a spring. I think this arrangement for a supply of water is almost unique. Running parallel with these are several other smaller structures, about 60 feet long and 14 feet wide, with paths under the apex of the roof, and well supplied with top and bottom heat. These houses are so arranged that they can be converted to propagating, grafting, or any other purpose, and are equally eligible as plant-stoves, intermediate-houses, or greenhouse. There is bottom-heat, which may or may not be used; plants may either be plunged in the beds or set upon their surface, and where propagating or grafting is to be done there are cases made to fit each bed in divisions, which gives propagator and plant-grower every chance of succeeding with their work.

One of the houses was being prepared for starting to graft Roses during the present month. In another of the houses there is a good display of Cyclamens, Poinsettias, and Gilbert's double Primulas; and in a third a fine show of winter flowering Pelargoniums; while a fourth is to be utilised for forcing Roses. Messrs. Osborn are also making extensive provision for raising large stocks of Lapagerias. At the west side of the block, next the manager's house, a large double span house has been very successfully removed from the Fulham nursery. I believe it was a vineyard at Fulham, but at Sunbury it is to be a Rose-house, except what little additions may be required from time to time to render it attractive. There are three stout columns under the centre of each span, and a like number supporting the middle beam, under which there is a stage for pot plants 3 feet in width. Stages of equal width are fixed round the sides, leaving the whole body of the house to be planted with Tea and other Roses.

There is a good deal of foresight required in fitting up a nursery establishment at the present day, and the arrangement of the glass department of this nursery furnishes a striking example of how to make the most of everything—even a brick wall may be made to answer more than one purpose. Here is an example. Outside the walls of the Rose-house two pits are constructed, at a trifling cost, in which large quantities of small plants in pots are stored away for the winter. Plants that are hardy

enough in ordinary winters require a little protection when the temperature falls below zero, and in these pits, observes Mr. Munro (Messrs. Osborn's manager), "we get sufficient heat through the brick wall from the hot-water pipes in the Rose-house to protect certain classes of plants through the hardest winter with safety."

There are the usual ranges of heated and unheated pits, filled with a variety of nursery stock coming forward—from the rootless cuttings to the more established stock, which will have fresh quarters at the turn of the year. The offices, packing-sheds, &c., lie to the east of the houses, and when the work now in progress is completed a more compact nursery system need not be wished for in point of practical utility and despatch. *W. Hindle.*

A FRUIT WITHIN A FRUIT.

A SHORT time since we figured a case where pericarp Grapes were issuing from the interior of a

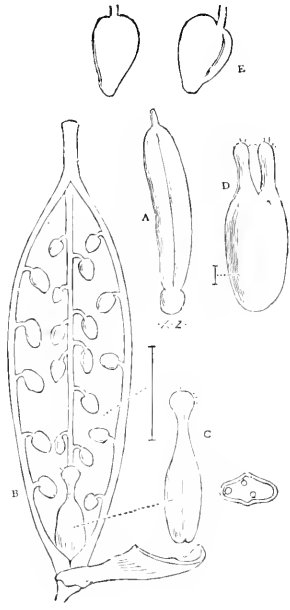


FIG. 1.—A POD WITHIN A POD.

berry, the supplemental Grape occupying the position usually occupied by the seed. Professor Sereno Watson, of Boston, U.S., now kindly sends us an instance of a somewhat similar nature in a Californian Crucifer (Tropidocarpum), with a long translucent pod destitute of the partition or "replum" so commonly met with in the seed-pods of Crucifers. On holding up the pods to the light it is easy to see at the base of the fruit a small ovary occupying apparently the very extremity of the flower-stem within the normal seed-vessel. Our illustration (fig. 1) shows, at A, a normal pod magnified twice; at B a pod with one valve removed to show the ovules and the supplementary pod at the base, the line by the side indicates the natural size; at C is the supplementary pod removed and a cut across the same; at D is a similar supplementary pod from another fruit, showing two styles; at E are shown two partially ripe seeds. We have seen and figured in other Crucifers adventitious pods occupying the place usually filled by an ovule; M. Bailion also has noted a similar occurrence, but we do not remember to have seen one originating from the very base, as in this instance.

THE CULTIVATED RYE.—Secale cereale is said to have originated in Central Asia. According to Regel, S. cereale var. anatolicum is the wild form from which the cultivated plant has been developed.

NELUMBUM LUTEUM.

In the *Gardeners' Chronicle*, August 13, 1881, p. 214, allusion is made to this plant by Mr. W. T. Dyer and myself in reply to Mr. Nesbit's remarks and queries in the preceding number, p. 183. At that time I could not recall any allusion to its having bloomed in cultivation: I have just had an opportunity of looking over Maund's *The Botanist*, and there, at t. 14, find a beautiful coloured plate made from a "plant which flowered splendidly" in 1836 or 1837 in the stove of "Mr. Miller, of Durdham Down Nursery, near Bristol." It is very interesting to find that the plant has really bloomed under home cultivation, and the following particulars, from *The Botanist*, may be of some interest to lovers of aquatic plants. *F. W. Burbidge, College Gardens, Dublin.*

This most beautiful species of Water Lily is native of the lakes, rivers, and stagnant waters of North America, extending from New Jersey to East Florida, and inwards as far as Louisiana. It is believed to have been introduced into the ponds and lakes in Brobston Meadows, near Philadelphia, its natural limits not being supposed to reach so far north; though Michaux appears to have met with it in the district of Illinois. Walter mentions having met with a variety with white flowers. Some writers regard this as a variety only of the *Nelumbium speciosum*, the sacred or Egyptian Bezo of the ancients. In this opinion Barton concurs, both in his *Prodromus* and also in his *Compendium Florae Philadelphicae*, ii., p. 27. Whatever may be the accuracy or incorrectness of this opinion, all will agree with him when he states "There is not surely in North America any plant comparable to this for grandeur, simplicity, and beauty. Truly it may be styled the Queen of American Flowers."

It is the largest flower produced in North America, that of *Magnolia macrophylla* excepted. It seems conscious of the place assigned it, and its beautiful flower, being raised on a flexible stem 3 or 4 feet above the water, waves to and fro in the most majestic manner. It generally keeps near the edges of the rivers, but Bartram has seen it extend across Cape Fear River, in North Carolina, though 2 miles broad and 12 feet water, its leaves covering many acres and forming a delusive way plain.

Nor are they merely ornamental plants, for independently of their affording shelter to the fish, and often a resting-place to birds, their seeds are sweet and pleasant eating, and are favourites with the native Indians and boys. The flower, like that of the *Nymphaea alba* or White Water Lily of the lakes of Europe, closes at sunset, and opens on the following day, the object being to exclude the humidity that is deposited from the air, and which, if it had access to the pollen while yet in the anthers, would rupture it prematurely and prevent the fertilisation of the ovules, thereby hindering them from becoming perfect seeds. This regularity in the opening and closing of the flowers, dependent upon the intensity of light, caused Lionneux to place the Water Lily on his *Dial of Flowers*, and has been frequently remarked by the poets as the most noted example of those plants which "dedicate their beauty to the sun."

The mode of germination of *Nelumbium luteum* has been most beautifully represented and illustrated by Poiteau, in the *Annales du Muséum d'Histoire Naturelle*, vol. xiii., p. 395, t. 29, f. 42-46.

This species of *Nelumbium* appears to have been introduced into Britain in 1810. The drawing in Maund's *The Botanist*, vol. i., t. 14, was taken from the plant which flowered in the stove of Mr. Miller, as above stated. It requires to be kept in a very warm situation in the stove. Sweet, in his *Botanical Cultivator* states that, "It should be grown in a large pot, in a rich loamy soil, and requires a strong heat to flower in perfection. The pot or tub should be kept full of water all the time the plants are growing, but may be allowed to get dry when the flowering season is over. The plant may be increased by dividing at the root, but is obtained more readily from seeds, which vegetate freely." In order to sow the seeds successfully, it is necessary to surround them with a mass of clay before they are thrown into the water, that they may be kept at the bottom. Some cultivators of *Nelumbium* always carefully open the points of their seeds, and then keep them in water in the stove till they begin to vegetate. They are then planted in large pots, half-filled with strong loam, and filled up with water, the water being frequently changed with care, and the plants reported as their size may demand. [For an account of the flowering of this plant, see *Gardeners' Chronicle*, 1853, p. 292. It also flowered in the Botanic Garden, Oxford, in 1874. Ed.]

SOME FACTS ABOUT CONIFERS.

WHILST preparing a paper on some fossil Conifers I collected the following statements for my own information from various sources. Their publication may save trouble to others who are seeking such facts, and may possibly lead to information which has not come under my notice being added to this nucleus. I relied for the most part on Government, English, and colonial Blue-books, jury reports on exhibitions, books of travel and text-books. For facility of reference the facts are grouped under sub-headings. *J. Stabile Gardener.*

SIZE.

The height of the Douglas Spruce has been variously stated at from 150 to 200 feet, and exceptional trees are mentioned by Herschell and Humboldt of 215 feet, with a girth of 57½ feet, and by Emerson of 300 feet. A section now in the Kew Museum, exhibited in 1862, was from a tree 309 feet high and 185 feet to the first branch. The spruce in Kew Gardens, 150 feet high, is from this tree. *Picea Menziesii*, or the tide-land Spruce, is usually stated to reach a height of 100 feet, but a section shown in the Philadelphia Exhibition was cut from a tree 318 feet high, with a diameter of 16 feet at the butt.* The height of *Abies grandis*, the White Fir, is usually stated at about 200 feet, but the State of Oregon exhibited sections from a tree 321 feet high and 15½ feet diameter at the butt, 6 feet 10½ inches exclusive of bark at 130 feet, and 5 feet 10 inches at 200 feet from the ground.

The Sugar Pine—*Pinus Lambertiana*—is stated to reach 230 feet (Lindley and Emerson), 200 feet (Gordon), 235 feet (Herschell), yet we learn from Professor Newbury that it attains a height of 300 feet. The height of the Weymouth Pine is similarly stated by Gordon as 100 to 150 feet; by Emerson, 130 to 140 feet; the *Kew Guide* mentions 120 to 160 feet; while Dwight, in the report on the trees and shrubs of Massachusetts, records it at from 250 to 264 feet. The Oregon Red Cedar, *Thuja gigantea*, is said by Gordon and others to be from 50 to 150 feet in height, and by Herschell, 200; but a section from Oregon was exhibited at Philadelphia cut from the trunk 118 feet above the ground from a tree 325 feet high and 22 feet in diameter. A similar height seems attained by several other species of Western North America. The height of *Sequoia gigantea* (Wellingtonia) seems, on the other hand, to have been exaggerated. Herschell calls them "the loftiest and grandest of trees, said to attain the almost fabulous height of 300 or even 400 feet, with a diameter of nearly 50 feet near the ground."† The maximum height assigned to them by Hooker is about 325 feet, but the largest tree recorded is broken at 300 feet from the ground, and measured at the break 18 feet. Its stump tapered regularly, and the tree, now I believe blown down, was calculated to have been 450 feet high. *S. sempervirens* reaches 300 feet according to the *Treasury of Botany*, and 270 feet according to Hooker, with a girth of 55 feet at 6 feet from the ground. Most of these examples are probably abnormally large, but it appears to me to be of interest that the maximum heights observed should be brought together. Illustrations and descriptions of the Conifers of the Sierra Nevada have appeared recently in *Scribner's Magazine*, which gives life-like representations of the trees themselves with artistically-managed atmospheric effects in the rest of the scenery.

Although America, and especially the Sierra Nevada, furnishes the most gigantic coniferous trees to be found on the globe, yet the Conifers of many other regions rival them in size. In the Himalayas *Pinus excelsa* reaches 200 feet, and bears cones 1—2 feet long; the stately *Cedrus Deodora* 200 feet, and 36 feet in girth; *Picea Smithiana*, 170 feet; *Abies Pinifera*, 150 feet; and the gloomy *Cupressus torulosa*, 150 feet, and 16 feet in girth at 5 feet from the ground. In China and Japan the sizes are conspicuously less. *Scladopyx* reaches 100—150 feet; *Ginkgo*, 100 feet, and 40 feet in girth; *Cryptomeria*, 100 feet. In Europe the Coniferæ, although less colossal, still attain magnificent proportions by comparison with other forest trees. *Abies pectinata*, the common Silver Fir, is stated by Gordon to reach 150 feet, and by Selby, in the *British Forest Trees*, to surpass 180 feet. The extreme height, according

to Goepfert, reached in Europe by *Pinus Laricio* is 120 feet; by the Austrian Pine, 120 feet; and the Larch, 120 feet. The common Spruce, *Picea excelsa*, grows to 120—160 feet, and Selby instances a tree of the enormous altitude of 180 feet in Britain. The English Yew, although never lofty, has been measured 56 feet 6 inches in girth.‡

In the southern hemisphere many of the New Zealand Podocarps exceed 200 feet in height. The *Araucaria imbricata* of Chili reaches 260 feet; *A. Cookii*, 200; *A. excelsa*, of the Norfolk Island Pine, 224 feet; *A. Bidwilli* and *A. Cunninghami* reach 150 feet. In Tasmania *Dacrydium Franklinii*, or the Huon Pine, reaches 100 feet; *Phyllocladus asplaniifolia*, or the Celery Pine, 150 feet; *Dammara australis*, 150 feet, and the latter in New Zealand attains 200 feet.

Contrasted with these is *Dacrydium taxifolium*, the most diminutive Pine known, fruiting specimens being, according to Kirk, sometimes only 2 inches high, while the average height is only 6 to 10 inches.

AGE.

The ages attained by some of the Coniferæ are scarcely less extraordinary than their colossal bulk. The greatest longevity assigned to any tree is perhaps credited to the celebrated Taxodium of Chapattepec in Mexico, 117 feet in circumference, which is thought by De Candolle to exceed in age the Baobab of Senegal, inferred to be 5150 years old. Goepfert states that Taxodium distichum has been ascertained by its annular rings to live 2000 years. The Mammoth tree has been estimated to live 4000 years in California. De Candolle quotes a number of instances of longevity in the Yew, and Endlicher considers one in Derbyshire to be 2096 years old, and the one at Grasford,§ in North Wales, 1400 years old. The Pines, Cypress, Firs, Larches, and Cedars, are credited with ages of 200, 300, and even 500 years. *Picea*, 200 feet in height, is mentioned by Goepfert, as ascertained by its annular rings, to be 460 years old, and a Larix of 120 feet to be 576 years old. The Scotch Pine, *Pinus sylvestris*, is said to require 200 years to mature its timber to perfection. In Veitch's *Manual of the Coniferæ*, the ages of some of these are stated at considerably less. Other examples of a longevity greater than 500 years are mentioned, there are *Cedrus Deodara*, 750 to 900 years; *Cedrus of Lebanon*, 600 to 800 years. It is important, however, to recognise the fact that rings of growth are not in all cases trustworthy guides, and the subject is still involved in some obscurity. The rings of growth in *Eucalyptus* have been ascertained to be biennial. White Cedars planted in England show symptoms of decay, as in Richmond Park, as if their full age, in this climate at least, were already reached.

HARDINESS.

Among the Coniferæ are to be found perhaps the hardest trees on earth. In northern latitudes they cease almost only with vegetation, reaching 68° and 70° latitude, and in the southern hemisphere are found growing as far as the 55° and 50 latitude. *Picea rubra* presents the last vestige of arborescent vegetation in arctic America. Trees of *P. alba*, 20 feet in height, were found by Sir J. Richardson on the Coppermine River in latitude 67½°, within 20 miles of the Arctic Sea. *Pinus sylvestris* extends to 70° 30' in Scandinavia, and *Picea excelsa* to 69° in Sweden and 67° in Norway. *Abies pectinata* forms vast forests between 66° and 67°, and extends to 69° 30', although of diminished height. The Larch, which does not extend far north in Europe, reaches 58° in the Ural, 67° on the Ob, 68°—69° in the Jenesei, and to the ultimate limit of trees in Kamshacka, and was even traced by Middendorf in Siberia as a trailing shrub to latitude 72°. Similarly *Pinus Cembra* will not grow in Europe north of latitude 48°, but reaches 66° 30' at 70° E. longitude. In Central Asia we find the genera *Pinus*, *Picea*, *Abies*, and *Cedrus* passing an elevation of 10,000 feet, while *Juniperus* and *Cupressus* reach 15,000, and 10,000 feet respectively. In Mexico the altitudes attained are as great, *Pinus Montezumae* reaching to 12,936 feet, and *Ephedra* 15,000 feet in

* At Fortingal, at the entrance to Glen Lyon, Perthshire, by Pennant.

† Jury Reports, Sydney Exhibition, 1879, p. 645.

‡ Jury Reports on Woods of Von Diemen's Land, Exhibition, 1874, p. 149.

§ Diameter according to Endlicher, 50 feet, and Selby 20 feet. The discrepancy is difficult to recognise, except on the supposition of a misprint.

¶ Humboldt, *Treves of Nature*, p. 326.

Peru. Where the climate is too vigorous to permit their growth as trees, they push beyond their natural limits as low creeping bushes. The magnificent *Abies Douglasii* crosses the summit of the Rocky Mountains, but at the higher points is dwarfed to a small dense bush less than a yard high. *A. Patagoniana*, a tree 150 feet in height, dwindles to a shrub but 4 feet high on the summit of the Mount Baker range in North California. The stately *Pinus sylvestris* and *Abies ovata* become diminutive bushes in approaching their arctic limit. *Picea excelsa* flourishes from 4000 to 6500 feet, but dwarfs at 7000 feet. *Pinus aristata* forms a prostrate bush at 12,000 feet on the Colorado Mountains, and *P. peuce* similarly diminishes in Turkey. *Fitzroya*, a stately Cedar, 100 feet high, on the west slope of the Patagonian mountains, dwindles to a small bush a few inches high on the confines of perpetual snow, and the Chilean *Liocedrus*, 100 feet high, on the Cordilleras, dwarfs to a small bush in Magellan. Of all the Coniferæ, however, the Junipers are the most hardy, extending as low scrub bushes on most mountain chains to far beyond the limits of trees, and occupying Cape Horn towards the south (J. uvifera), and Labrador, Newfoundland, Hudson's Bay, and Greenland in the north (J. canadensis).

(To be continued.)

SUNBURY COURT.

If there are two months in all the year when there is a dearth of flowers those months are October and January. One is, therefore, not a little gratified to meet with a display of flowers such as Mr. Pratt has brought together at Sunbury Court, the seat of Lieutenant-Colonel Harfield, near Hampton, Middlesex, which reminds one more of June than January. Foremost on the list must be mentioned some fine plants of *Dendrobium nobile* which have done good service through the Christmas festivities, and a good stock of *Cypripedium insigne* and *Zygopetalum Mackayii*—three old-fashioned Orchids, which are most useful for cutting through the winter months. For brilliancy of effect, however, the display of winter flowering Pelargoniums carries off the palm! Mr. Pratt grows a household of them in 6-inch pots, and no doubt owing to the mild winter they are better than usual.

Those who have not the best means for plant-growing, and who do not employ the best skill, will find in the scarlet varieties of these Pelargoniums a good substitute for the Poinsetta, which is not at all a convenient flower to deal with in a cat state. The kinds that struck me most are Mrs. Whiston, Charles Smith, Leverston, Titania (a beautiful striped variety, one of Cannell's raising, I think), and Madame Ballet, the best double white in cultivation. The Strawberry-house is gay with *Primulas*, Veitch's strain—and a very good strain it is. By the way, the house is constructed in a novel way, and I am much struck with it in point of utility as a garden structure, especially for Strawberry forcing and for winter flowers. It is one of "Beard's patent," in three tiers, the bottom and centre tiers projecting proportionately from the top lights, under which there are two shelves hung at about 2 feet apart. The shelves under each of the bottom tiers are made large enough for a double row of plants, which are quite close to the glass, and each tier is ventilated separately, which is of some consequence in Strawberry forcing.

But this is not all. The pathway is made of wood, and its peculiar construction suggests that there is something going on beneath it. And so there is. And the something is a Mushroom bed. Lots of people complain of having no Mushroom-house, and therefore cannot grow Mushrooms, but here is one that costs only the price of the boards to cover it, which are no more expensive than a common spar path. The temperature of the house is kept at from 50° to 55°, just the heat to suit Mushrooms. The crop is an excellent one, and a handy workman will make up three beds of any given length in this fashion for one he will make in orthodox fashion in a Mushroom-house. The double *Primulas* in this house are especially noteworthy, and *Cyclamens* and other spring flowers are fast coming forward. Some of the *Primulas* are beautifully fringed.

The plant-stove is gay with fine heads of *Euphorbias*, *Poinsettias*, winter flowering *Begonias*, *Justicias*, and other well known winter-flowering plants. The *Euphorbias* are grown in 8-inch pots, and trained to

* *Report Phil. Internat. Exh. 1876*, vol. iii., p. 300.

† *Physical Geography*, p. 311.

a wire trellis upon the roof, where they are shown off to good effect. I noticed grand pots of *Eucharis amzonica* nearly 5 feet across, which bear from twenty-five to thirty flower-spikes, and make a fine show when in flower. Early Tea Roses and other plants are coming forward in forcing-pits, and the occupants of the several fruit-houses are looking both healthy and prosperous. The young Vines planted by Mr. Pratt during the past season have made remarkable progress, and seem to luxuriate under the improved conditions prepared for them. *Albion*.

COLONIAL NOTES.

COFFEE-LEAF DISEASE.—Mr. Marshall Ward has made his third and concluding report on the Coffee-leaf disease, which has caused so much mischief in Ceylon. The disease is caused solely by the *Hemileia*, a parasitic fungus originally described in these columns by Mr. Berkeley. The whole direct damage done by the fungus is loss of leaves, whence, of course, arise evils consequent on starvation and suffocation. The spores are carried by the wind, germinate in moist weather, and run their life cycle in about three weeks, to begin again their course of destruction. External applications, owing to the countless number of the spores and the impossibility of reaching them all, are useless, nor have the attempts made to combat the fungus while growing within the tissue of the leaf been of any service. Mr. Ward recommends the collection and destruction of diseased leaves, not by burning, but by burying them and covering them with caustic lime, sheltering the plantation from spore-laden winds, and cultural proceedings so contrived that there may be as little young foliage exposed during the time when the monsoons prevail, and the spores are most blown about.

THE FORESTS OF THE SUTLEJ VALLEY.—Dr. Brandis has published *Suggestions Regarding the Management of the Leased Forests of the Bushahr in the Sutlej Valley of the Punjab*. Deodar is at present the only tree that can be exported from these forests on a large scale, but Walnut and Boxwood are available, and the latter especially should be looked after in view of the scarcity and large demand for this wood. *Pinus excelsa* or Blue Pine, is also of some commercial importance, and there are forests of limited extent of *Pinus longifolia*. The concluding paragraph shows the spirit in which the British Government in India is conducted:—"The management of the Bushahr Forests by the British Government not only gives to his Highness the Raja a large annual income, but furnishes remunerative employment to the people, of whom every year large numbers come forward to seek such employment on the timber works, and on the works of improvement. The terms of the lease give great power to the British Government, and the officer entrusted with the management of these forests must always bear in mind that, though one object of the agreement may have been to secure a permanent and steadily increasing supply of Deodar timber to meet the requirements of the plains of the Punjab; yet the chief aim of forest administration in Bushahr must be to promote the permanent welfare of its people."

THE GROSVENOR GALLERY.

The chief attraction of the winter exhibition at this gallery is a large series of pictures, chiefly portraits, with some allegorical pictures, painted by G. F. Watts, R.A. As many artists and judges of pictures have long been inclined to give Mr. Watts the first position in this country as a portrait painter, such a large collection as this is cannot fail to prove most interesting and instructive. One of the first points that must strike every visitor is the strange inequality of execution of these pictures. Very few dates are given in the catalogue, but it is evident that whilst some of the pictures are quite recent many of the examples have been painted for many years. The west and east gallery contain nearly 200 pictures by Mr. Watts, whilst other portraits and allegorical subjects are hung elsewhere in the galleries. A great and widespread interest is taken in good portraiture, whether painted in oils, as in this exhibition, or etched, or engraved on steel or wood, or photographed. Every visitor to the Grosvenor Gallery will now have a good oppor-

tunity of forming his own estimate of Mr. Watts' powers, and visitors may be assured beforehand that it is not an exhibition of portraits of "nobodies," such as one too frequently sees elsewhere, but a collection of portraits of some of the most remarkable men and women of the present generation. No doubt most of the portraits are admirable and life-like in a high degree; if there is a single failure it is, possibly, 112, the full-face portrait of Alfred Tennyson. Two of the best portraits are undoubtedly 122, Sir Charles Wentworth Dilke, Bart., and 30, the late John Stuart Mill. Leslie Stephen, 123, is also excellent, as is 108, the Duke of Argyll. One of the most extraordinary portraits is that of Thomas Carlyle, 125; this is an unpleasant picture, and must surely represent Mr. Carlyle in an unusually rough and repulsive condition.

Some of the allegorical pictures and illustrations of mythological subjects are remarkable, but we do not think the painter is seen at his best in these compositions. No. 55, "The Wife of Pygmalion" is a magnificent example of excellent drawing and painting, founded on an antique model of noble classic beauty. It seems extraordinary that Mr. Watts should have attempted such an unpaintable subject as 92, "The Creation of Eve—one of a series of compositions treating of the Creation of Man." The collection of Mr. Watts' works includes numerous landscapes.

There are very few pictures this year of special horticultural or botanical interest, although there are numerous well executed landscapes in water-colours. In 248, "May Blossoms," by Mrs. E. Pfeiffer, we have an excellent little picture of Apple blossoms with a Cabbage butterfly, and a very beautiful picture of "Lilacs," 375, by the same artist. In 348, Mrs. W. Duffield exhibits a picture of a large spray of *Odonotoglossum Alexandrie* (printed in the catalogue "Alexandra"), but though an admirable water-colour drawing it fails to impress us as a first-class variety of the Orchid in question. One of the best landscapes is a bold and excellent picture named "The Youthful Thames," 277, by Alfred Parsons. Amongst other contributors are the Hon. Mrs. Boyle, Richard Doyle, W. J. Muckley, E. J. Poynter, &c.

FRUIT NOTES.

Winter Pearmain Apple.—I have had here for several years some robust growing Apple trees, which annually fruit, and fruit well, under the belief that it was the Holland Pippin. I got this name for it some time since, but now find that, on a careful comparison of the fruit with Dr. Hogg's description of that kind, it is no more like than the moon to a green cheese. Of course I ought to have hunted out the correct name long since, but took it for granted that the name given was the right one. Taking down the *Fruit Manual* to look for something else, I lighted upon the name and description of Winter Pearmain—or the Old Pearmain—and there I found the exact appearance of the fruit of my *sub-ident* Holland Pippin most accurately described. "The tree is hardy and a good bearer"—just so. Mine are robust growers, almost as much so as the Blenheim Pippin. The fruit is well portrayed as "large, conical, somewhat five-sided towards the crown; skin smooth and shining, greenish-yellow on the shaded side, covered with deep red, and red streaks next the sun; eye large and open, stalk short; flesh yellowish, firm, crisp, juicy and sugary, with a brisk and pleasant flavour. Good kitchen or dessert kind, and in season from December to April." Well, if that is not a first-rate character for an Apple I do not know what is. How many new Apples can merit one half so good? I should here like to add that my note respecting King of the Pippins Apple was sent before Mr. Culverwell's correction of King Pippin appeared. What seems pretty evident respecting the "King" is this, that whilst it is a first-rate Apple in the South, it does not succeed well in colder districts. A. D.

Good Apples.—I have King of the Pippins now, good in size, and quite rosy in colour, as your correspondent "A. D." describes them, but wanting the fine aroma so abundant in Cox's Orange Pippin. I have the same objection to another one of the six dessert Apples named by "A. D." as first-class, that is, Blenheim Pippin. I am doubtful whether it should be called a Pippin at

all, but by the more appropriate name, Blenheim Orange. I grant that this Apple has everything in its favour to recommend it, except the delicious aroma so plentiful in the Ribston Pippin, and I will add another—Adams' Pearmain. Blenheim Orange is a grand Apple for kitchen use; the cook never tires of them. I care very little about another one of the six named, that is, Court-pendu-pâté. It has one good point to recommend it—its lateness in coming into flower, thereby generally escaping the frost in the spring. I must add to the list of those I have recommended to your readers the Lemon Pippin, a really good dessert Apple, medium in size, ripening to a fine lemon colour, abundantly aromatic, and a great bearer. The habit of the tree is upright, and not unlike the King of the Pippins. Old trees of it are to be found here and there in farmers' gardens, where the fruits are very much prized for eating. *Wm. Culverwell, Thorpe Perrow, North Yorkshire*.

Pear Knight's Monarch.—I fully assent to what Mr. Rust says in favour of the above, that it is the King of winter Pears when attainable in its perfect form; but how many of your readers can give such a glowing account of it? I am anxious to hear from different quarters as to the behaviour of this Pear. Will Mr. Rust kindly say upon what stock his trees are grafted, and if he has not experienced that peculiarity mentioned by him (and which I have always found so characteristic of this variety), viz, that of dropping its fruits, not only early, but prematurely, in consequence of which it becomes withered and shrivelled instead of attaining to that standard of excellence to which your correspondent has called attention, and of which he may well be proud, as the number of Pears possessing such merits as this are greatly in the minority after the month of December. *E. Morgan, The Butts, Harrow-on-the-Hill*.

King of the Pippins.—Two such big guns as "A. D." and Mr. Scott both firing at Mr. Culverwell, are rather formidable odds. But I can fearlessly put myself on his side, having grown the King not far from Merriott, and also in Sussex as well as in the North. The Apple is at the head of the second class, but far inferior to the five "A. D." mentions (p. 851), and fully five more which he does not mention. Mr. Scott says most truly, it is good for culinary purposes, and also for cider-making, but to rank it with Cox's Orange Pippin as a dessert fruit is to make Medoc equal to Château Lafite. Syke House Russet, as usual, has been grand this year. *W. Carmichael, Newton Court, Bury St. Edmunds*.

PLANT PORTRAITS.

- ALBUCA WAKEFIELDI, *Gartenflora*, t. 1031.—*Bot. Mag.*, t. 6429.
- ALOCASIA JOHNSTONI, *Ill. Hort.*, t. 395.—An Aroid introduced by Mr. Bull and characterised by spotted prickly leaf-stalks, supporting bold hasta leaves, green with the veins picked out in pink. Probably a species of *Lasia*.
- CHOISYA TERNATA, *Belg. Hort.*, t. xvii., 1880.—An Orange-like shrub, with dark green, stalked, palmate leaves, and terminal clusters of white flowers, each rather more than an inch in diameter.
- CHYSIS BRACTEESCENS, Lindl., *Illust. Hort.*, t. 398.—A Mexican Orchid, with elongated furrowed pseudobulbs, oblong acute leaves, and lateral racemes of large white flowers, with a 3-lobed saddle-shaped yellow lip.
- DIPLADENIA AMABILIS, Backhouse, *Illust. Hort.*, t. 396.—A cross between *D. crassinode* and *D. splendens*. A stove climber with shortly-stalked ovate oblong acute leaves, and racemes of large funnel-shaped orange-crimson flowers.
- DROSERA CAPENSIS and *D. SPATULATA*, *Belg. Hort.*, t. 314.
- HERIS STYLOSA, *Gartenflora*, t. 1029, f. 3.—A dwarf, compact biennial, with dense coryms of white or pale lilac cruciform flowers.
- PAULLINIA THALICTRIFOLIA VAR. ARGENTEA, *Belg. Hort.*, t. 19, 1880.—A variety of this new well known plant, with silvery foliage.
- STATICE TATARICA, Linn., *Bot. Mag.*, t. 6537.—A hardy perennial, long known in gardens, with stalked, spatulate leaves, and branching panicles bearing very numerous, minute flowers, with red corolla. S.E. Europe to Siberia.

The Rosery.

PROPAGATING ROSES IN WINTER.—The propagating of Roses in the summer is a matter more or less understood by most people, but few are aware with what ease and certainty they may be increased in other ways during the winter, the most certain being that of grafting, which may be done in comfort under cover of any warm house or shed. As a first preliminary in setting about the work, stocks must be procured which may either consist of Manetti or Briers, the former being the best for light soils on account of making a greater number of fibrous roots. To have the stocks in advance of the scions, which is of much importance, they should be laid in by the heels, or buried up somewhere in moist soil, where they can get a little heat just to give them a start. As soon as they begin to move, which may be seen by the buds breaking, they will be quite ready for operating on. To prepare them for the grafts, the tops should be cut off to within about 3 inches of the base, and then a notch made about half-way down on one side of the stem, when, by running the knife down from the point to the cut part, all will be ready for inserting the scion. To have this fit, it is necessary to shave off the lower end in the same way that would be done to a quill in making a pen; but, in addition to that, the shoot or graft must be so trimmed that the back of it may also fit into the notch. The two—the stock and the scion—may then be placed together, so as to bring the bark in immediate contact, when by binding both tightly round with a piece of bast matting or Raffia-band they will be held securely in position till union is effected. To bring about this a brisk moist heat is requisite, the most congenial being that given off by sweet fermenting material, in which the pots containing the plants should be plunged, and the frame be kept close and dark for two or three weeks, after which time light and a little air will be necessary to strengthen the shoots. The principal point towards success in the grafting of Roses is to obtain medium-sized well-ripened wood for the scions, and to get it before being injured by frost, which damages the inner bark, when instead of this forming granulating matter, as it should and must for a union with the stock to take place, it turns black and perishes. If Briers are used for grafting the best way is to have only the large roots, which make excellent stocks, as do also those of the Manetti, and one advantage in roots for stocks is that the plants may be had very dwarf with the union below-ground. *J. S.*

ROSE LADY MARY FITZWILLIAM.—Mr. H. Bennett, of Shepperton, sends us a coloured plate of this fine hybrid Tea Rose, raised from old Devonians, crossed with the pollen of Victor Verdier. The flowers are large, full, open, the rose-pink petals reflexed at the edge.

MADAME FRANCOIS JAMAIN ROSE.—This is a charming little Rose for button-hole bouquets in winter, its special quality being that of possessing a higher perfume than most other Roses in winter. In form and habit it somewhat resembles the old monthly, but in colour it is a deep yellow or buff. It has two distinct shades of colour, the centre of each petal being a deep yellow, inclining to orange. In bud it is not so handsome as Madame Falcoet, but exceeds it in fragrance, which is a high recommendation for a Rose in winter. *H. H.*

GERMINATION OF WELWITSCHIA.

SOMEHOW or other I did not remark M. Naudin's description of the germination of the *Welwitschia mirabilis* in your No. 398, of August 13 last, p. 217, till now, when I came to look over some back numbers of the *Gardeners' Chronicle*. I may be allowed to observe that his description possibly does not apply to the *Welwitschia* but to some other plant. [It will be seen from a letter from M. Naudin that our correspondent's surmise is correct, Ed.] and which may be said to have the appearance when young of an Olive tree. The germination of the *Welwitschia* is so admirably dealt with in Mr. F. O. Bower's paper that I need but refer M. Naudin to his (Mr. B.'s) article, further observing that the plant of *Welwitschia*, as you will see by the

dried specimen (see fig. 3)—a little over twelve months (the age M. C. Naudin quotes), and raised in my garden—has no other than the two primary leaves, or cotyledons, and the two true leaves, and that these primary leaves or cotyledons drop off when the plant is older, and only the two true leaves remain, and no more. The young plants present in the "tigellum" two scaly growths, which, I suppose, are the rudiments of the inflorescence, though my oldest specimens have not yet developed them any further. It is very true that a young plant of mine having lost one of its true leaves, one of the scales on that side has prolonged itself nearly a quarter of an inch, possibly to substitute the want, but has not progressed further.

I send you a photograph of the only specimen I have of a Mossamedes plant, which I suspect is a Composite plant, judging from the seeds, though the descriptions I have come across are very deficient

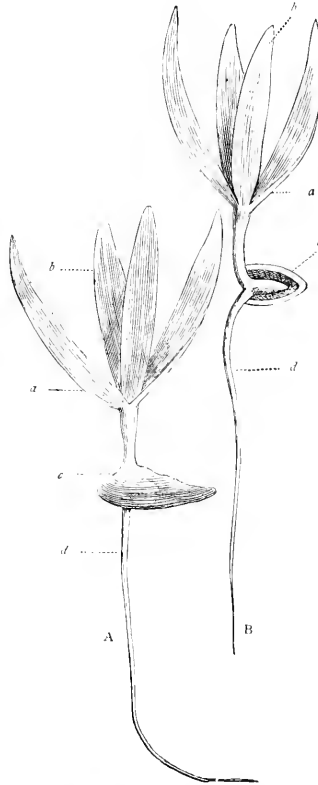


FIG. 2.—GERMINATION OF WELWITSCHIA (NAUDIN).

and confusing. This plant is the one in my African collection nearest approaching M. Naudin's description (but not the same, as we learn from M. Naudin, Ed.), but their seeds are much larger than those of the *Welwitschia*; they have not the leafy surrounding, and are exalbuminous, and when the two outer involucres are removed they present the appearance of a flattened earthworm, such as found during the dry season in the parched earth, with a not very perceptible germ until the process of germination begins. The seeds require further investigation. Mr. Charles Naudin may now be able to say which of the two has the appearance of this plant, or what are the differences. A description of the seeds would be highly obliging.

My friend, Dr. Jacintho A. de Souza has brought out four splendid living *Welwitschias*, two of the larger ones, 5 inches across, actually flowered on the voyage; one has nine, and the other eight flowers, which would prove them to be dioecious; they are

now in my garden. I trust they may become, when thoroughly settled, fine plants indeed.

Since I wrote the above on December 7 I have had more leisure to examine all the *Welwitschias*, now that I have them from a young seedling to an adult plant, and can now describe the growth of the two scaly growths in the centre. As seen in a very young plant they are two separate scaly bodies; these, as they advance in age, go on spreading and take the appearance of two mamillae, very similar to the remains of the flower of a ripe Pine-apple. These grow on, and filling the tigellum, oblige it to take a rather oblong form. When about five years old they are quite close together (as in the rough drawing fig. 3A), but are to all appearances separate. With an increase of age they coalesce completely (3B), and the jointure is imperceptible, though retaining the appearance of two mamillae, but when older they are so distended and rough that all traces of them are lost, and only a flat table-like surface remains, as seen in the dried specimens. The inflorescence springs from the two sides of these mamillae even before they have lost the trace of their origin, as a smaller specimen of mine (now received) shows them just sprouting in the form of three scaly heads rising from the margin on each of the longer sides of the mamillae (3C). These embryonic inflorescences spring from a round cavity, and the larger example that flowered during the voyage shows it better, and brings to my mind the germination of the Date Palm (*Phoenix*), which pushes from the margins in the albumen. I can go no farther with regard to the inflorescence, as those grown on the voyage had been broken off at the Custom-house. I send a sketch of a section I made of a sickly plant (fig. 3D), and you will see by it that the mamillae are separate from the leaves and outer ring, the leaves rising from below and between the outer rings and mamillae, or central table, whose (the leaves) proper vessels are visible through the vascular mass of the stem. The stem is full of a resinous sap, which gives a whitish to the knife, and freely exudes from any wound. I may further remark that besides the one I noted in my former letter I found another young plant with its leaves all perfect, having elongated a scale into a sort of leaf, but it appears to rise between the mamillae, and not to belong to them; both one and the other are narrow and bright green in colour. The following facts are now proved to be:—

That there is but one pair of true leaves.

That the two scaly growths form by coalescence the central table of the adult plant.

That from the margins rises the inflorescence.

That the inflorescence has a special cavity, from the centre of which rises a stalk supporting the flowering parts.

That the plants are dioecious.

That the sap and exudation are resinous.

That there are no concentric rings, the whole of the stem consisting of tough fibres.

That these plants appear to be endogenous and not exogenous in their growth.

These facts, and the form of their eight or nine flowers and fruits, and their mode of germination, taken all together, place these plants quite apart from all others, and constitute a special section, though a correspondence may be found for each of the several processes in other plants of quite different affinities, as explained in my paper on germinations. I place them among my section of Cryptorhizals, because they are neither true Endorhizals nor true Exorhizals, and if we were to class plants by their germinations there are many wrongly classed as plants of the same natural order do not begin their lives all after the same fashion. *Cher. D. G. de Naudin, Montevideo, Almeida, Fortuaga.*

I find that by an accident the seedling which I took to be that of the *Welwitschia*, having sown the seed as such, and which I described in your columns, 1881, vol. xvi., p. 217, is really not a *Welwitschia* at all. All my young *Welwitschias* (true) died, but I send you the drawing and notes relating to one of them, which now forms part of my herbarium, as a memento of an unsuccessful experiment. In 22 the references are as follows:—(A) *a*, cotyledons; *B*, primordial leaves very like the cotyledons, and, like them, glaucous; *c*, the seed with all its coverings; *d*, radicle, long, slender, simple, descending vertically. (B) In this specimen the letters have the same signification, except *c*, which shows the remains of the seed deprived of its outer covering, and showing a lateral process at the junction of the root and the tigellum. This is exactly what may be seen in the germination of *Euphorbia*, from which the young *Welwitschias* only differ in having narrower cotyledons. The transverse section of the tigellum between the cotyledons and the origin of the radicle shows four vascular bundles, which pass into the cotyledons; in which each of the bundles divides into three branches, that is to say, six for each cotyledon. In the radicle the transverse section shows eight vascular bundles arranged in a ring around the central pith. These bundles are made up of elongated cells and scleriform vessels. I omit many other details not necessary to be given in this place. *Ch. Naudin, Villa Thuret, Antibes.*

Notices of Books.

Frecks and Marvels of Plant Life; or, Curiosities of Vegetation. By M. C. Cooke, LL.D. (Society for Promoting Christian Knowledge.)

The staple of this book consists of a series of particularly written chapters relating to several of the most remarkable physiological phenomena in plants to which attention has of late years been so prominently directed in consequence of the researches of Mr. Darwin. Carnivorous plants, pitcher-plants, twining plants, sensitive plants, all pass under review, as well as the phenomena of movement, temperature, and luminosity.

There is no connecting link between these varied subjects, nor any method in their collocation. Each is treated separately, and without reference to any inferences that may be drawn from it. Even in the intro-

wise as one who should learn the letters of the alphabet or the words in a spelling-book without utilising the means thus acquired. In the old systems of arbitrary classification plants were thrown together much as plates on a shelf according to size or convenience, but once the principles of the natural system were understood, the dry bones of botany were made to live, and the story of that life has been rendered more interesting by the recent researches into plant physiology. Instead of a collection of lay figures, the botanist now has before him for his study creatures in many respects as wonderfully endowed as himself—replete with life, the living representatives of others which have gone before, and who had their history as the living ones are now making theirs. The life of a plant is in essentials the same as that of a man, and it partakes of engenders, in its degree, the same kind of interest which attaches to the study of man's organisation. Moreover, the study is infinitely easier, because not

animals, but where sentiment is allowed exclusive sway, reason and logic are disregarded. A perusal of Dr. Cooke's work—written, of course, without the smallest conscious reference to this matter—will, among its other useful purposes, serve to enlighten the understanding and enhance the intelligent apprehension of those well-meaning persons who are endeavouring to withstand the progress of knowledge, and to forbid what on the highest grounds of all, as well as on the lower ground of direct practical utility to animals and mankind, they ought to encourage rather than obstruct. By extending a knowledge of the physiology of plants the author of necessity promotes that of animals and of man, and leads people who otherwise would remain in ignorance of many of the mysteries and wonders of their own everyday life at least to feel some interest in the matter, and it may be to use better and more conscientiously those endowments, physical and mental, with which they have been created, and for

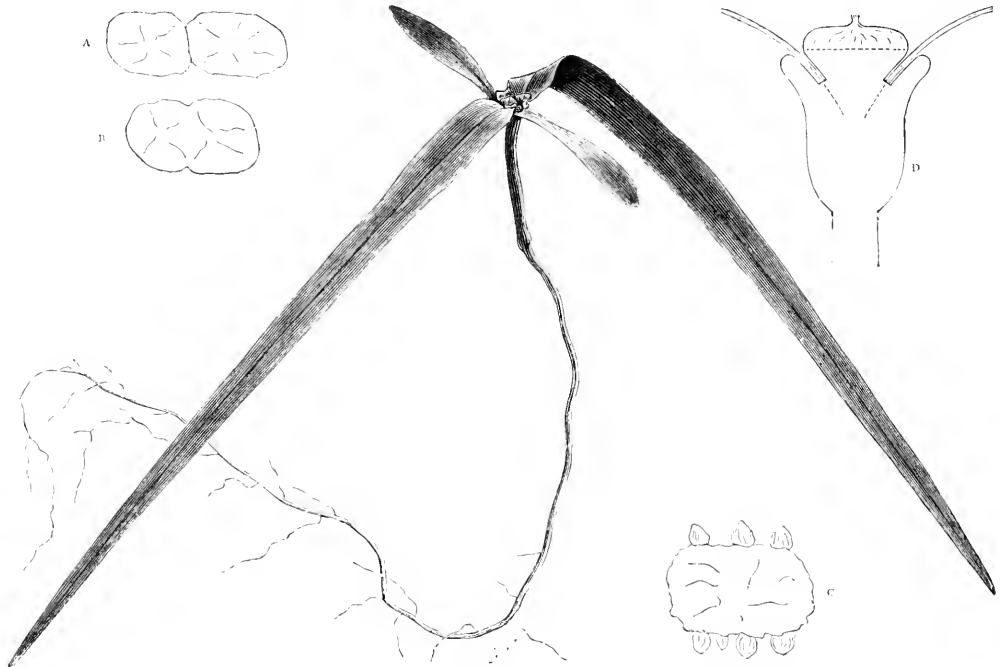


FIG. 3.—GERMINATION OF WELWITSCHIA (MONTEIRO). (SEE P. 14.)

duction we do not find any trace of the thread by which all these may be bound together; indeed, the introduction itself is but a *catalogue raisonné* of facts of like order to those described more at length in the body of the book. Viewing the book thus as a collection of isolated chapters we can but congratulate Dr. Cooke on having produced an agreeable and accurate work, one which should do service in awakening and stimulating a taste for botanical study. The mere collecting of wild flowers, and the counting of stamens and pistils or other superficial observation of plants may indeed furnish pleasant occupation, but they do not arrest the attention and stimulate the curiosity of the observer with the same intensity as do experiments or observations on the life-history, the manners and customs, so to speak, of plants. Too many, even now-a-days, look on botany as a string of hard words, the only object of which is to enable those familiar with the uncouth tongue to ascertain the name of any particular plant. Hard words and names are, however, only means to an end. To go no further than their tether is to act in such-

so complicated by the working of those higher characteristics of the mind and the will which distinguish the animal—at least the animal of high degree—from the plant.

To understand the machinery of the human body and its mode of action, it is therefore necessary to begin at the beginning, and to study in plants those structures and those modes of working which, as a rule, are so much simpler and so much more readily studied in plants than in animals. The most fanatical anti-vivisectionist will not object to experiments on a *Drosera*, and his moral consciousness will receive no shock on being told that the process of digestion in that little leaf is essentially the same as in his own stomach. He cannot but feel some interest in what goes on in the latter organ, even if he shrink from ascertaining what goes on in his own brain; while if he object to gain more direct information, he can at least avail himself of the more indirect knowledge afforded by the so-called carnivorous plants. Of course, logically, he has no more right to experiment with living plants than he has with living

the proper use of which they are responsible. From this point of view there is a peculiar appropriateness in the issue of this work under the direction of the committee of general literature and education appointed by the Society for Promoting Christian Knowledge. Had it been more systematically or didactically treated, it would have failed to secure the attention of the class for which it was designed; and even its title, though unwarrantable from a scientific point of view; may serve as a bait to attract those "non-scientific persons" alluded to by the author, who are terrified by the "outside" even of a scientific book. We commend Dr. Cooke's latest volume to the notice of parents desiring to give their children an interest in the physiology of plants, and should advise those who have the management of school and garden libraries to secure it for their bookshelves.

ROYAL GARDENS, KEW.—We are informed that no fewer than 836,676 persons visited the gardens during 1881—the largest number yet recorded.

Orchid Notes and Gleanings.

TRANSFORMATION OF FLOWER-BUDS TO AXILLARY LEAF-SHOOTS IN CERTAIN SPECIES OF ORCHIDS.—In my *Orchidophile*, p. 509, is recorded an observation that I made on *Vandates*, the flower-buds of which become converted into leaf-stems if by any means in the young state a superabundant supply of sap was diverted into the young buds. The same phenomenon was observed the following year in certain species of *Dendrobium* with deciduous leaves which M. Godefroy had sent me during the month of September. Wishing to get them established before the occurrence of frost I placed them in compartment No. 1 of my Orchid-house (East India-house), submitting them to a damp and warm treatment. The new roots were not long in making their appearance and my plants towards the end of December—which month had been very bright and warm—were in a thriving condition. In the month of January the cold became all at once very intense, hence I thought it prudent to deprive them of moisture and adopted a dry treatment such as they should have had when I first received them if the plant, had then been in condition to bear it. The result was that towards the end of February the buds which ought to have pushed in December showed themselves on *D. nobile*, *D. Freemanii*, *D. fimbriatum*, *D. Findleyanum*, *D. calceolus*, &c., in their accustomed positions along the old stems. The sun and heat having returned in March many plants in the compartment burst into activity, and this I promoted by giving a moist atmosphere necessary at that period. A very few days after I remarked a change of appearance in the nascent buds of these *Dendrobiums*, especially with those at the summit; the globular buds became elongated and pointed, as well as the outer scales. Finally, in April—May all the buds of *D. nobile* were converted into stems with buds, the others had only two or three of the uppermost buds changed, while the lower buds, not having changed, were in flower. This phenomenon confirms what I said of *Vanda teres*. A superabundant supply of sap took place at an unusual time, and the change was great in proportion to the amount of the nutriment supplied. In some cases the uppermost buds, being developed first, had in their growth availed themselves of all the superabundant sap; while in *D. nobile* it is the lower buds which are developed first, and as the sap is always directed towards the apex the other buds are developed in succession. Although this production of buds be a sign of bad culture, it may be employed with advantage to propagate these Orchids—especially as it does not prevent the formation of shoots from the base, and only affects the flowering. I infer that in a large number of species of Orchids that grow continuously, the difficulty experienced in getting them to flower depends on their being kept in too active a state, which prevents the formation of flower-buds by directing the sap towards the apex or into the latent vegetative buds. *Comte du Boysson*, in "*Orchidophile*."

ORCHIDS FROM SEED.—While admiring the beautiful Orchids raised by crossing distinct species, and fully appreciating their great value, the thought has occurred to me whether it is always the most profitable method of procedure thus to go on always crossing distinct species to obtain new varieties, which may be quite as good as the parents, though that is not always the case, although they are distinct from them. It is well known that there are very scarce Orchids; sometimes perhaps there are but one or two in the country, and these in some cases command a high price. Take, for instance, *Cypripedium Spicerianum*. A good plant of it may be worth 100 guineas, and unless it can be introduced from its native habitat it will always be dear; but being a distinct species it would doubtless reproduce itself from seed, and as *Cypripedium*, unlike *Cattleyas* or some other species of Orchids, flower in three or four years after the plants are up, it would surely pay to raise plants from seed as well, and prove better than raising to division merely. It is many years since *Cypripedium Stonei platycentum* was exhibited by Mr. Day, quite long enough to have strong flowering plants of it from seed; and yet I suppose the idea of reproducing the plant from seed never occurred to Mr. Day, while plants of it propagated by division, not of large size either, were sold at prices over 100 guineas—indeed, I question if a plant of it could be purchased under 100 guineas anywhere at the present moment. Amongst many importations of *Cattleya Warneri* again, one is found that

flowers in the late autumn months (*C. labiata*), while decent plants of it will always bring high prices and good ones 50 guineas each, owing to its slow increase by division. Would it not pay to raise seedlings of it crossed by its own pollen, and thus perpetuate the species or the variety? *J. Douglas*.

ORCHIDS AT GLASNEVIN.—There were fifty-six distinct species and varieties of Orchids in flower at Glasnevin on January 1, of which the following is a list:—

- | | |
|--------------------------------|--------------------------------|
| <i>Acerides giganteum</i> | <i>Dendrobium inervum</i> |
| <i>Anacochilus Dawsonianus</i> | " <i>nobile</i> |
| <i>Angulocymbium</i> | " <i>umbellatum fimbriatum</i> |
| <i>Bulbophyllum autumnale</i> | <i>Lidia autumnalis</i> |
| <i>Calanthe mastuca</i> | <i>Lycaste macropphylla</i> |
| " <i>Vetehina</i> | " <i>Skinneri</i> |
| " <i>venusta lineata</i> | <i>Mischobolus lineata</i> |
| " <i>rosea</i> | " <i>melanopus</i> |
| <i>Calya macrostachya</i> | " <i>ochrolepis</i> |
| <i>Colobrys asiatica</i> | " <i>polystachya</i> |
| " <i>guldiniana elegans</i> | " <i>bovatenis</i> |
| " <i>Masterei</i> | " <i>Vetehiana</i> |
| " <i>podanthum</i> | <i>Mastobolus picta</i> |
| " <i>senecae</i> | " <i>punctata</i> |
| <i>Cypripedium Argus</i> | <i>Mesospidium vulcanicum</i> |
| " <i>horridum superbum</i> | <i>Neesia picta</i> |
| " <i>Jovis</i> | <i>Odontoglossum Lisleayi</i> |
| " <i>Bullianum</i> | " <i>leopardinum</i> |
| " <i>Dominum</i> | " <i>pallidulum</i> |
| " <i>Hibernicum</i> | <i>Oidium renchobolium</i> |
| " <i>insigne</i> | " <i>unguiculatum</i> |
| " <i>Maadii</i> | <i>Restrepes</i> , species |
| " <i>platanum</i> | <i>Sophronitis violacea</i> |
| " <i>longifolium</i> | <i>Trichopoda fragrans</i> |
| " <i>venustum</i> | <i>Vanda furva</i> |
| " <i>podanthum</i> | " <i>lanellata Boxallii</i> |
| <i>Dendrobium altatum</i> | " <i>tricolor</i> |
| " <i>anceps</i> | <i>Warrea bidentata</i> |

Of these same plants thirty were in flower on December 1, and no less than fourteen have been flowering continuously since November 1. *Vanda lanellata Boxallii* is not only one of the most beautiful of recent introductions, but also one of the longest bloomers, as it has been almost three months in flower. Six are flowering for the first time at Glasnevin.

PISCATOREA LEHMANNI.—We note in your last issue that Mr. Makoy has this Orchid in flower, and that "Kr." describes the flower as striped white and pink. We send you a flower from our plant, and do not think that the colour can be called pink, although we confess that the English language is very rich in colour terms, especially as regards red and its different shades. We may perhaps have made a mistake, therefore we make you the judges of it, and if the colour of our flower is really violet, or purple, as we call it, then it will prove that there are two varieties, Mr. Makoy's and our own. As we do not know how Dr. Keichenbach has described this flower, we should like to know through your paper. [*See Gard. Chron.* Oct. 4, 1879, p. 424.] *E. Veruel & Co.* [The flower sent has obovate or spatulate segments, clear violet, as described by Professor Keichenbach, with white stripes and a curious lip strongly ribbed at the base, the terminal lobe covered with whitish setæ and with reflexed margins. We shall shortly give a figure of this beautiful novelty. ED.]

ODONTOGLOSSUM MIRANDUM.—Of the yellow ground *Odontoglossum O. mirandum* is a really fine species, which is the most valued because of its extreme rarity. A plant I saw recently bore a well developed spike, with eleven flowers. The sepals and petals are yellow, very distinctly marked with reddish-brown, the flowers being distinguished from all others of this class by a broad yellow margin to each sepal and petal. *J. D.*

Foreign Correspondence.

ANTHES.—My *Cucurbitaceæ* did not thrive well last year, for we had eighty days of torrid heat without a drop of rain; nevertheless I shall be pleased to receive seeds of new or rare species. Amongst others I have had the rare and extraordinary *Acanthoscyos horridus* from Mossamedes, but unfortunately I lost the plants in their infancy. I have had better luck with *Eucalypts*, of which I have now in cultivation a hundred species of all sizes and ages.

Carya cythrocarpa, &c.—The seeds you sent me (from Mr. Van Volken) succeeded well. I raised the male and female plants of *C. cythrocarpa*, both of which flowered; and it is worth noting that the male plant, though the ovary was abortive, yet produced two fruits, which, on account of the coldness of the nights, did not attain their full size. The female, after being artificially fertilised, produced several fruits, which were also checked by cold. The plants are, however, handsome shrubs about a meter in height. The hybrid between *C. cythrocarpa* and *C. cundinamaricensis* is a very fine thing, which I am keeping under glass for the present, with the view of planting it in the open ground in the spring. *Charles Naudin*.

The Kitchen Garden.

CROPS OF Broccoli, Cabbage (the latter too forward by two months), Kales, Spinach, and Parsley are still very luxuriant notwithstanding 12° of frost on the night of the 23d ult., and 8° respectively on the two preceding nights, and Cauliflowers are still being cut—not a very common occurrence the first week in January. If the present mild weather continues it will be advisable to make a planting of Cabbage from the nursery-beds next week in a warm situation, which will supplement the supply from the autumn-planted ones (from the same sowing), some of which are now turning in, at the same time advantage should be taken of the unusually mild nature of the weather to make a small planting of Cauliflowers in a favourable aspect, in drills 3 inches deep and about 24 inches asunder. Plants turned out of 3-inch pots, inasmuch as they will experience little, if any, check in being transplanted, will be the most suitable for early plantings. The Cabbage plants should be planted in the same way as the Cauliflowers, but need not be so far apart as the latter, and should be provided with a few bundles of Spruce boughs with which to protect the plants in the event of frosts or cutting winds ensuing, as a little timely forethought and judicious management in this direction invariably lead to good results.

AREARS OF WORK.—See that all areas of such work as the wheeling of manure on to vacant pieces of ground and the trenching or digging of the same are proceeded with as opportunity occurs, and do not postpone until a later and busier time work that and other circumstances will with ultimate advantage admit of being done now.

FORCING DEPARTMENT.—Put in another batch of Asparagus, Rhubarb, and Sealake roots in the manner described in the Calendar for October 29, p. 562, vol. xvi., and when the mould becomes a little dry on the surface water with tepid water in order to maintain the roots in a moist condition, otherwise the produce will be wanting in flavour and crispness. Make fresh sowings of Mustard and Cress at intervals of a fortnight or three weeks. French Beans are best sown in the pots in which they are to pod at once, in order to prevent the plants receiving any check subsequently in the transferring of them out of the smaller pots into the larger ones, of which the 8-inch is the most suitable size. However, in the event of being rather limited in this size—which is sometimes the case—it will be necessary to raise the number of plants requisite for a "batch," and as soon as the most advanced lot of plants have done bearing throw them out, wash the pots, and transplant the young plants into them. See that pits and frames in which Potatoes, Carrots, and Radishes are growing, have sufficient air to prevent them from making a weakly growth if they are inclined in the latter direction it will be advisable to draw the sashes off for a few hours on fine days, and leave a little air on to the frames at night. Shift young Tomato plants into suitable-sized pots, and put them back in heat near the glass, and stick each plant. *H. W. Ward, Longford Castle, Wilt.*

MUSHROOMS WITHOUT HEAT.—So many cases of failure occur in modern Mushroom-houses, that one is tempted to ask whether more fine Mushrooms are not gathered without heat than with it. On a recent visit to the Royal gardens, at Hampton Court, I saw a grand show of Mushrooms in beds made upon the ground-floor with only walking room between the beds. The building in which the Mushrooms are grown is simply an ordinary shed built against a north wall. There is, however, a kind of second roof to the shed in the inside, leaving a space of about 18 inches, which is filled with straw. It is well-known that straw is a non-conductor of heat, it regulates the temperature, which if low is equalled at this season, and in summer Mr. Laytham is very successful as well. Gatherings are made from the same beds for five to seven months, without being renewed, and at the present time there are such crops of Mushrooms as are seldom equalled in fancy heated houses. The quality and flavour is also much better than is obtainable from heated houses. No one will of course find fault with modern houses, but the hint as to temperature may be useful. In a second Mushroom-house of more substantial construction the

crops are equally good but no better. The house is from 50 feet to 60 feet long and about 12 feet wide. The beds in this house are also made upon the floor, 5 feet wide each, with walking space between; and although from 15 to 20 lb. of Mushrooms had been gathered that morning the surface of the beds was nearly white with young Mushrooms. Mushroom growing must up under Mr. Laytham's simple mode of cultivation. *Visitor.*

SEAKALE IN MARCH.—The old plan of covering Seakale in the open ground is not practised nearly so much as it used to be before forcing it in Mushroom-houses came into vogue, and yet the quality of produce gathered from the open ground in March is as much superior to that forced in Mushroom-houses as the best English hot-house Grapes are to imported ones. If the crowns are covered at once with any short light open material, the finest of Seakale will be ready for use early in March with little or no labour, except to keep the covering material sufficiently deep to have the crowns thoroughly blanched. *Cultivator.*

WINTER CULTIVATION OF RHUBARB.—This is perhaps one of the best paying crops a market gardener can grow, and at this season of the year he lays the foundation of a good supply by heavily manuring and digging the ground between the roots. Advantage is taken of frosty weather to get the manure, which has been lying in a heap for some little time, drawn on to the ground, and this can be done by means of a horse and cart without doing material injury to the crowns. The manure is spread thickly between the rows of Rhubarb, covering the whole of the ground, and it is then deeply dug into it, and the surface left a little rough. By-and-bye, when the crowns show signs of swelling with growth, a good coating of long stable manure is spread over the surface of the ground, and especially over the crowns which screen the young growth from frost and the influence of frosty winds; and as the leaves grow the covering is lifted with them, and still forms a screen until such times as it falls aside. The covering thus applied forms an excellent mulching in the case of a spell of dry weather in early spring until such time as the leaves grow sufficiently to shade the surface-soil.

CAULIFLOWERS.—To have a supply of these when they are most appreciated, and of the greatest value, no time should be lost in sowing seed in heat of Veitch's Early Forcing and Autumn Giant; to be pricked off in boxes when large enough, and be duly hardened off and planted out in favourable weather—the latter variety to come into use in August, and the first-named towards the end of May or beginning of June. If it is desired to have them a little earlier a few may be grown in 4 or 6-inch pots; to be liberally supplied with liquid manure when the pots are full of roots. With such a valuable sort in existence as the Early Forcing, autumn sowing and wintering in frames for an early supply is no longer a necessity. We ourselves have quite given up the practice, and have come to regard it as a good old-fashioned plan of our grandfathers which may now be said to be obsolete. *H. J. H.*

NOTES ON VEGETABLES.

SUTTON'S GOLDEN GLOBE SAVOY.—In large establishments it is not often that a Cabbage of any kind is made use of in the dining room (at least such has been my experience), but I think where this has once found its way there it will be asked for again and again. The variety is very distinct, so much so that it takes the eye of almost every one, having the appearance of anything bleached. It is rather tall-growing, of medium size, and very hardy, having stood all the hard weather of last winter without damage. The flavour is that of a good Brussels Sprout. *J. Corbitt, Fawley Court.*

CABBAGE-BROCCOLI.—Through the kindness of Mr. Gilbert, of Burchley, in sending me a pinch of his Cabbage-Broccoli seed in the early part of last summer, I have been able to grow this excellent winter vegetable here this year for the first time—a circumstance which enables me to speak more decidedly of it than I was before in a position to do. And as I like, in growing new varieties for the first time, to grow them in a small way—by way of testing their merits and in some cases preventing loss and disappointment—I only planted a few rows, from

which we have during the last few weeks been cutting nice white Cauliflower-flavoured heads, which all who have partaken of them here agree in pronouncing as delicious. While the form and constitution of this "Burchley Novelty" are those of the Cabbage, the character of the outer leaves, flavour and crispness of the heads, resemble strongly those of the Broccoli, but is quite distinct from any of the varieties of the respective kinds after which it is named; and I consider it a decided acquisition to our winter vegetables. I shall—in the event of my being able to procure the seed with which to raise the plants—make a larger planting of it next July, and I would strongly advise my brother gardeners to do the same. *H. W. Ward, Longford Castle Gardens.*

Grapes and Vineries.

GOLDEN QUEEN GRAPE, &c.—What mimics we gardeners are! Such and such a great gun says that we only need two varieties of Vines—Muscat of Alexandria and Black Hamburg—when, lo! and behold! everybody else thinks it is the proper thing to follow suit. I have often been applied to to confirm this verdict, but have just as often replied, "It is simply a personal matter; if you think so, why not have the courage of your convictions, and grow no other." Ah, there's the rub!—how many are there that do? Well, excellent as those two popular kinds are, they have not a monopoly of excellence—to wit, Muscat Hamburg, Madresfield Court, Mrs. Pince's Black Muscat, Mrs. Pearson, the little grown but finest flavoured of all, Chasselas Musque, the highly-flavoured White Frontignan; and, lastly, the much-maligned Golden Queen, which, strange as it may appear to some recent critics, a connoisseur in fruit told me last Friday that he infinitely preferred in flavour to that of the Muscat of Alexandria; and he added, "I can eat with greater relish a larger quantity of Golden Queen than of the Muscat, the spicy aroma of which cloy on the palate." This testimony, I think, confirms what I said, viz., that the question of variety of Grapes is a personal matter. I have the honour to serve an employer who requires Grapes, and has them, every day the year round, and I therefore dare to be singular, according to some, and grow several varieties, and further dare to announce that I grow largely those so-called coarse varieties, Alicante and Lady Downe's, and that their quality is appreciated. I have generally during February and March all too abundant evidence by the daily clearance of the dishes. *H. J. H.*

THE CHATSWORTH GRAPE.—Referring to the note on this Grape at p. 852 of your last volume, seeing that the writer at first sight thought it was Black Alicante, Mr. Horsfield must have it in better condition than it has been on either of the two occasions on which it has been before the Fruit Committee of the Royal Horticultural Society. As shown on both these occasions it was fine in both bunch and berry, but in colour a dingy red; the bunches were handsome—what I should term perfect in shape, being tapering and having moderate-sized shoulders, and bore abundant evidence of the robust character of the Vine, and if it can be coloured at all like Alicante there is no doubt but that it would soon become popular. Perhaps Mr. Horsfield may be able to send up a bunch to the next meeting of the Committee at South Kensington. *H. J. H.*

Peaches and Nectarines.

WITH a continuation of exceptionally mild weather Peach trees in early houses have come on very fast indeed during the past fortnight. We had a few blooms expanding on Christmas day, and now some of the trees are nearly in full bloom. Discontinue syringing as they come into bloom and keep the atmosphere somewhat drier, only damping the pathways and borders as they become dry. Fertilise the blooms daily with a camel-hair brush, or hare's tail. I prefer the latter, as the pollen hangs to them better than to the pencil, and is the means of carrying pollen from free-setting varieties to blooms of shy setters. Keep the temperature a little higher in mild weather—say 50° to 55° by night, with a corresponding rise by day. If Strawberry or other plants subject to greenly have been introduced, a sharp look-out must be kept, and if any appear they must be settled with at once by fumigating if the trees are not in bloom; if in bloom they are had to deal with until the fruit is set, when they may be syringed with a weak solution

of Gishurst Compound, or other insecticide. Pull off blooms on the underside of the shoots where the blooms are plentiful enough to allow of doing so, but where they are thin they may be left, as pale coloured fruit on the underside of the trellis are better than none at all. Proceed with pruning and cleaning succession-houses according to directions given in former Calendars, for owing to the mild season they are very forward, and the sooner they are done the better. *J. Wallis, Keele Gardens.*

PEACH GEORGE THE FOURTH.—This comparatively old and somewhat scarce variety is well growing, and ought to find a place in all collections. Of the many varieties our American cousins have from time to time sent us over, this, which I believe was one of their first, is, so far as my experience goes, one of the best. The fruit may be briefly described as large, nearly globular, footstalk set in a deep cavity; skin, slightly downy, dark crimson next the sun, creamy yellow and profusely spotted with crimson on the shady side; flesh, pale yellow, highly coloured at the stone, rich, melting, and juicy; flowers, small. It is also a free bearer, has a hardy constitution, and is a strong grower. *J. Horsfield.*

Plants and their Culture.

PLANT HOUSES.—Another year having now run its course it is just as well to reflect upon its failures and its successes in the various methods of plant cultivation, as in other departments of horticulture generally. The earlier part of the year just ended was characterised, as most of us know from experience, by unusual severity of the weather, causing an additional pressure to be put upon all hot-water apparatus. This is in all cases prejudicial to the health of plants, frequently causing rapid inroads to be made by insects in many forms. In contrast to all this the end of the last year was as mild as most of us can recollect, besides being favoured with a greater amount of sunshine during the month of November especially. As cultivators of plants we can but congratulate ourselves upon the favourable conditions we have to chronicle at the beginning of another year. Young cultivators should not be lulled into a sense of false security by the mild time of late, and be tempted thereby to increase the temperature in all departments devoted to plant cultivation too early. We may yet have severe weather, and where high temperatures have been kept up failure will have to be recorded against them. In the cooler houses, only kept at a safe degree above freezing-point during frost, abundant ventilation should be given, and if signs of excessive moisture are apparent a little heat should be applied on favourable occasions to dispel the same. Reverting to the remarks at the commencement of this Calendar, each of us will have added somewhat to our experience during another year, those of an observant turn of mind and attentive readers of the *Gardeners' Chronicle* especially. Where failures, through whatever cause, have been experienced, endeavour by extra attention to avoid the same another season. Where successes have been attained, maintain the same by all means, and improve on them where possible. Any contemplated alteration or addition should now be well thought over before the work becomes too pressing.

It adds greatly to the interest derived from plant culture if each succeeding year some alteration or variation is made. I mean by this, avoid if possible one year being a counterpart of another by maintaining the same stock of everything, thereby causing a monotony in the arrangements. Every year brings some new and serviceable plant to light, that may with propriety be added to the most limited collection. Each year also some old and frequently neglected plant is produced in better condition than usual; an instance of this is to be seen in the splendid racemes of flowers of *Bignonia venusta* that were sent to the last meeting of the Royal Horticultural Society (Floral Committee) by Mr. Greco. This and many more climbers might with advantage be added to most collections, causing less use of artificial shading during the summer, besides giving a good return in cut flowers. No doubt climbers are best grown than they would otherwise be, through the harbour they give to insects and the difficulty of getting at these pests when the plants are trained on the roof. Every true lover of plant culture will make a determined stand against such as mealy-bug, brown and white scale; where the first-named is once eradicated (which I am glad to say is the case here) a far greater amount of time can be given to other subjects that are appreciated. New orders for a few weeks, an extra exertion should be made towards cleanliness where any of these insects are troublesome. *J. Hudson, Gunnersbury House, Acton.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Jan. 9	Sale of Lilium auratum and other Lily Balls, at the Auction Mart, by Frotherick & Mort.
TUESDAY, Jan 10	
WEDNESDAY, Jan 11	Royal Horticultural Society: Fruit and Floral Committee, at 11 A.M.; Scientific Committee, at 4 P.M.
THURSDAY, Jan 12	Sale of Orchids, at Stevens' Rooms.
FRIDAY, Jan 13	Sale of Roses, Shrubs, &c., at Stevens' Rooms.
SATURDAY, Jan 14	Sale of Imported Orchids, at Stevens' Rooms.

HORTICULTURE is just now far in advance of the Calendar. Like most of the Christmas annuals, many of our plants and flowers are a long way ahead of the season. It would in fact be nearer the truth to affirm that modern horticulture aims at making summer perpetual. It goes far towards linking all the seasons into one grand perpetual galaxy of beauty and plenty. There may be some reason to complain of the perpetuity of beauty. Nature's order in these temperate climes is first bare boughs, then in succession tender leafage, glorious blossoms, rich luscious fruits. Were spring or autumn permanently with us neither would be so keenly enjoyed. Change not only quickens the perception but intensifies our enjoyment of beauty. Time is also needful for each season to make its proper impression, hence there may be some danger in over-accelerating the order of Nature. There is more still in upsetting it by presenting a permanent mixture of all the seasons throughout the entire year. No doubt such mixtures are rich as the cream of the season, but what they gain in this direction they lose in freshness and distinctness; and change of scene or of subject is as needful to the gratification of a healthy taste as change of food is to the preservation of our bodily health.

The dawning of a new year suggests such changes, though every season it becomes more difficult to make them. For weeks, perhaps months, past, autumn, as represented by hosts of Pelargoniums, has been overlapping such characteristic spring and summer beauties as Lilies of the Valley, Cyclamens, Hyacinths, Narcissus, Tulips, Violets, Lilacs, Spiræas, Deutzias, Roses, Primroses, &c. Avaleas and Camellias in not a few cases, too, seem about to exchange places—the former flowering earlier, and the latter later than usual. Then there is the emphatically winter-flowering Chrysanthemum, no longer satisfied with lighting up our fogs in November, but flowering in the open air at Midsummer, and some of the later Japanese varieties attempting to soften the stern winds of March with the rich glare of their beauty. This is too bad; and however we may condone the mixture of the seasons by other plants, the Chrysanthemum might surely be content to warm up, if not chase away our dreary November fogs. Still, with the new year ought to come new plants and fresh arrangements; perhaps we ought to add, more verdure and less glare. The latter cannot well be overcome from November to January. With the sun out of sight, or out of power, there is little fear of an excess of colour, but the new year brings more light, and mostly a fair share of sunshine. An April-like verdure is seldom more welcome under glass than in January. The fresh, tender leaves of Roses, Lilacs, Crataegus, &c., are welcome to the eyes after the glare of Chrysanthemums, Pelargoniums, Camellias, as summer showers; not, however, that Camellias, unless over-bloomed, are deficient in verdure. On the contrary, no plants preserve a better balance of green and gay. Still their leafy leaves are far more suggestive of wintry hardness than of springlike tenderness, and there is a most forcible contrast between Camellia and Rose leaves.

Notwithstanding the growing love for Ferns and foliage plants, it will hardly be disputed that many show-houses are ruined by glare. There is little objection on grounds of taste to a blaze

of beauty now and again, but to have houses ever ablaze is well-nigh as oppressive as if the sky were without a cloud from January to December. To cultured tastes greens are as grateful as clouds at sultry noon. By thus lessening the amount of bloom we heighten its effect, but the chief point we wish to dwell on here, is the desirability of adhering to seasonable arrangements inside as well as out. The climate arranges the latter for us, and we need not blindly follow Nature either in regard to time or material.

For example, instead of one spring a year we might have two or four, and the same holds good with other seasons. The main thing is to see that we have spring, summer, autumn—in a word, to conjure up by our own arrangements any of the seasons at will. This would, no doubt, prove more difficult than the usual mixtures, but it is far more satisfactory. Indiscriminate mixtures result in monotonous weariness, while seasonable arrangements possess the charms of freshness, naturalness, and novelty. There is no need for the seasons inside and out to run abreast; in fact, such arrangements would be mistakes. When winter reigned without, April could be represented within; when April arrives, June or July might be represented indoors; and so on of any other seasons.

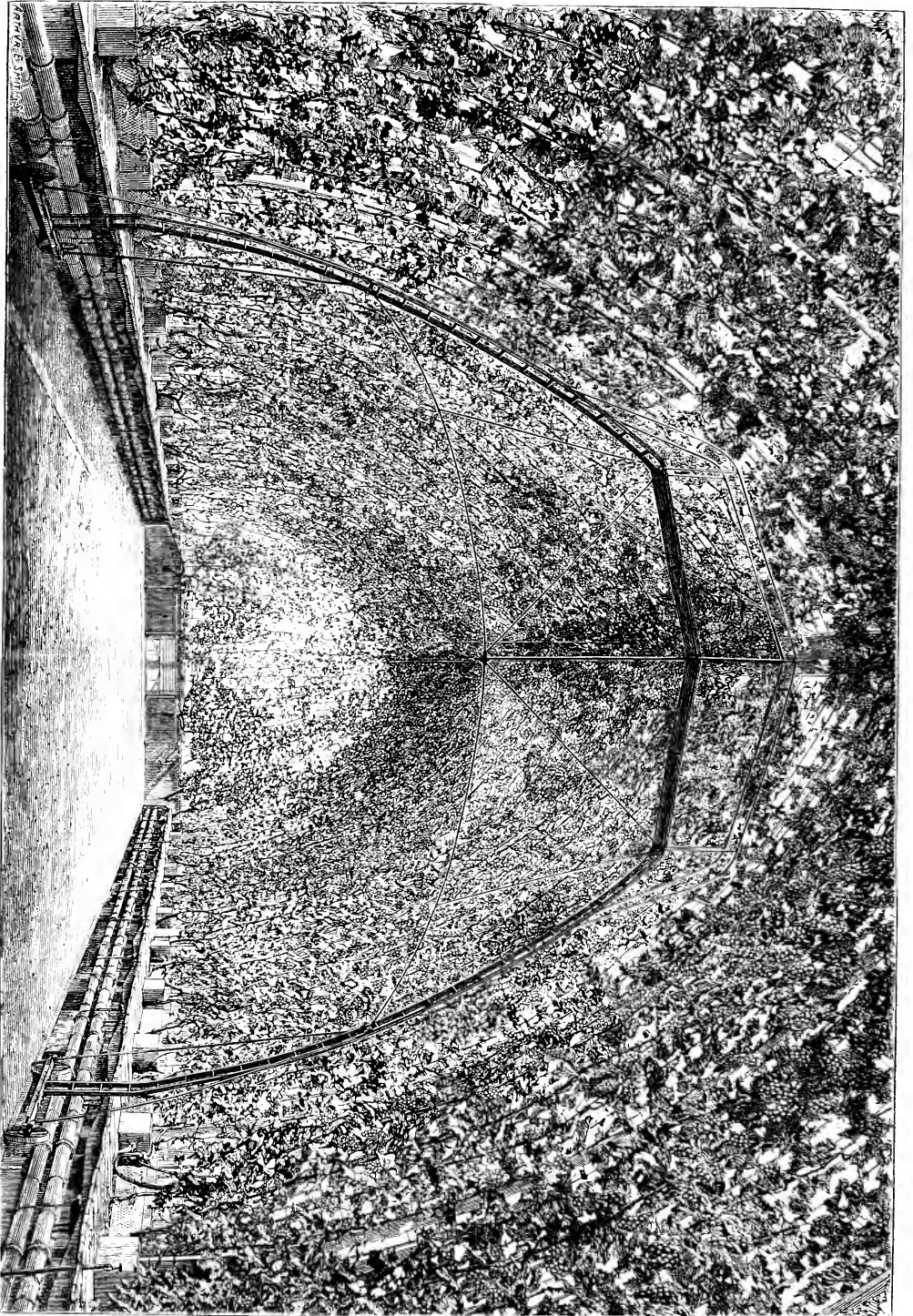
The adoption of some such ideas would do much to alter mere capricious or erratic modes of arrangement, and lead decorators to reach a higher art, of studying to imitate Nature in her best moods and richest seasons, and aim a fatal blow at that monotony which fetters taste and renders freshness and originality almost impossible.

IN the Report of the New Products Commission appointed to report on the question of the introduction and cultivation of new cultures in Ceylon, we find a letter of Mr. THISELTON DYER'S, giving some inkling of what some of the Colonial planters seem to expect from Kew. Applications from Ceylon only, at the rate of two or three a-week, pour in, and "bushels" of seed of the Para (Hevea) and Ceara Rubbers (caoutchouc) are requisitioned. It is obvious that Kew could not be expected, consistently with its many other duties, to fulfil such demands as these, and having succeeded in introducing the plants to India and Ceylon, the Kew authorities not unnaturally think that their work is done, and that it is for the Colonial authorities themselves to develop the resources thus placed within their reach. Kew supplies the respective botanic gardens; it is the office of these latter establishments to propagate and distribute the plants received from Kew. On their side the Commissioners appointed to consider the matter in Ceylon come to the conclusion "that it is not the function of the Government botanical gardens to supply seeds and plants of new products in quantities, but that it consists in, and terminates with, their successful introduction and acclimatization."

This conclusion may be sound in principle, but it is easy to see that unless great latitude and elasticity in carrying out the details are permitted, the introduction of valuable plants into the colonies will not be much helped by the mere introduction of a relatively small number of plants, even when multiplied as freely as the resources of the establishment will allow. In addition to the botanic garden, where the nurslings make their first appearance, and are carefully reared during their infancy, experimental gardens on a larger scale are required where the plants can be propagated and grown on a sufficiently large scale to satisfy the reasonable requirements of the planters, who should in some way or another, best determined by the authorities on the spot, directly contribute

towards the cost of the experiments. Dr. TRIMEN'S memorandum on the work done by the Ceylon Botanic Garden in the way of introducing plants of economic value is interesting, in many ways. Particularly we have it shown, when the gardens were for twenty years directed by a succession of gardeners, next to nothing was done, and the gardens languished. Here, as in all similar establishments, scientific knowledge and sound utility have gone hand in hand, and a "practical" head of the gardens has meant stagnation of enterprise and the decline of influence and ability to be of public usefulness. Dr. TRIMEN goes on to show what has been done by the gardens towards the introduction of economic plants in general, Coffee, Tea, Cocoa, and a large number of other food plants, "while the lucrative industry of Cinchona planting was wholly the creation of the Government botanical department; and a course has been since successfully steered which, while affording very great assistance to the planters, has never attempted to enter into competition with them, nor at any time made addition to revenue to be the main object or an object of importance, as in the case in South India and Jamaica, and in Java.

— THE GREAT VINERY AT CHISWICK.—To very many of our readers—gardeners who have passed through the Royal Horticultural Society's Garden at Chiswick during the last quarter of a century—we anticipate that the view on the opposite page of the interior of the great vinery (fig. 4) will be a welcome illustration of a familiar object. As many old Chiswick men will remember, the great house was not originally intended for the cultivation of Grapes, but was built for a conservatory, and was so used until 1857. It is of iron, resting on stone. Its position or aspect is due east and west; its length 180 feet, its width 30 feet, and its height to the apex of the span 30 feet. In 1857, during the tenure of office of Mr. McEVEN as Superintendent, the Camellias and other fine greenhouse plants were cleared out, and the house converted into a gigantic vinery. Inside borders were made to the depth of about 18 inches or 2 feet, leaving a path down the centre about 6 feet wide. The Vines, originally planted alternately one inside and one out, included every known sort that could be procured, and the discovery of some curious facts has been the result of planting such an indiscriminate mixture. The first year after planting the Vines suffered terribly from mildew, so much so that the scheme came near being considered a failure. However, they got over this, and have made a brave show ever since. When many of the sorts planted had been proved and found worthless, the process of weeding out commenced while Mr. EYLES was Superintendent, and has been still more vigorously carried out by Mr. BARRON, who also some ten years ago had the whole of the inside borders cleared out, so that now all the Vines are in the outside borders, which are due north and south, and we need scarcely add that those on the latter and most favoured side thrive and give the best returns. For some few years past Mr. BARRON has been carrying out the extension principle, cutting out a few old canes every year, and running up new ones. The greater number of the present canes are of Black Hamburg, and good late sorts; the average number of bunches is about 4500, which average about 1 lb. weight each; and the annual value of the crop about £400. As may readily be imagined, the labour involved during the thinning and training season is very heavy, and was still more so a few years ago when the whole of this work had to be done on ordinary ladders—and very tedious work it was, as well as somewhat dangerous. The heaviest pressure of work lasts for about six weeks, but does not require so many hands to get through it since Mr. BARRON has had the travelling ladder made, on which eight or ten men can work comfortably, and which two can easily move. We have already alluded to the acquisition of some curious facts with reference to the Vines, and may appropriately mention one or two by way of conclusion. Perhaps the most interesting is that with reference to the Black Hamburg and the Frankenthal, which are now believed to be the same, but



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FIG. 4.—INTERIOR OF THE GREAT VINERY AT CHISWICK. (SEE P. 13.)

[January 7, 1863.

which the Fruit Committee, when they examined the Vines some years ago, considered, and justly so, according to the evidence then before them, to be quite distinct, the Frankenthal having larger and more hampered berries. But (and like an "if" there is a great deal in this) Mr. BARRON subsequently made the discovery that all the canes which had the before-mentioned characteristics of the Frankenthal were planted outside, and all that were considered Black Hamburgs were growing in the inside borders, so that the difference between them as regards the hampering and the extra size was the result only of the difference of treatment. Next in interest to the above is an observation that has been made of the behaviour of a Barbarossa (the Vine seen on the left-hand of the doorway, the west-end of the house), grafted on the Black Hamburg. For a series of years these canes produced magnificent fruit, when the influence of the stock began to decline, and ultimately its good nature became completely exhausted—a fact patent to all familiar with the plant. As regards the heating arrangements we should say that there are two flow and two return pipes on each side of the house, heated independently by one or both of two BURKIDGE & HEALY'S upright boilers; and which have done the work well for over thirty years. Our engraving has been prepared from a very successful photograph, taken last autumn by Mr. FOX, landscape photographer, Market Street, Brighton.

—THE RETIREMENT OF MR. THOMAS MOORE from the joint editorship of the *Gardeners' Chronicle* may now be regarded as an open secret. Whatever his claims to "public and personal regard" may be, it is not exactly for us to say, for as co-workers heretofore with him in the conduct of the *Gardeners' Chronicle* it may, even now that he has left it, appear as though he himself were speaking. But we may make record of facts and bear grateful testimony to the cordial and most valuable co-operation he has given to the conduct of this Journal since the retirement of Dr. LINDLEY—a co-operation never marked by a shadow of unpleasantness, but always marked by a spirit friendly and loyal to his colleagues, to the interests of the Journal, and to the welfare of horticulture. It will gratify many of our readers to hear that a movement has been made towards a public recognition of our friend's labours in horticultural literature as well also of his constant and disinterested devotion to social matters connected with horticulture. The result of the first step in this matter was the formation of a committee charged with instructions to provide—for a time and place heretofore to be determined—a substantial presentation, and with it some suitable expressions of appreciation and good wishes. We are informed that it is the wish of the committee that the subscription should be as general as possible. The Honorary Treasurer is WILLIAM PAUL, Esq., Waltham Cross, Herts; and the Honorary Secretary is MR. SHIRLEY HIBBERD, 15, Brownswood Park, London, N.

—THE NEW YEAR.—Whilst the reflections appropriate to the death of the old year are essentially retrospective, the birth of a new year naturally induces thoughts of a sanguine kind, and "hope springs exultant in the human breast" for the moment, even though sad experience may perhaps chill and wither it ere many weeks have passed. Few of us perhaps can remember a pleasanter or more truly hope-inspiring new year's morn than was that of Sunday last. Eighteen hundred and eighty-two came in like a lamb—a playful frisky lamb, exciting the most pleasurable anticipations of the genial character of its temperament, and of its ultimate development into a quiet, patient, but thriving season. Truly the country presented an unwonted spectacle for the season of mid-winter, for it is a winter robbed of all its terrors, and is as mild as SAMSON shorn of his locks. The records of flowers found out of season and of other unwonted natural phenomena, continue to illustrate that gardens are rejoicing in the winter's leniency, whilst with equal kindness it has done nothing yet by its softness to excite undue alarm in the breast of the oft-perturbed gardener. How pleasant will it be if in this first day of the new year shall be somewhat a type of the hundreds of days that are to follow. We shall yet perhaps get frost, and it may be severe, but if in season it will be productive of no material harm. We shall get storms and

tempests, for they are inevitable visitants, and with them we are now too familiar; but we hope to get in the ascendant warmth and sunshine, a favourable seed-time, a season of generous growth, and finally a harvest of abundance and healthy maturity. Granted these blessings, we can smile at the new year's few inevitable ill-humours.

—NEW CROCUSES.—Mr. MAW tells us that since the completion of his Synopsis he has flowered a new and very curious species from Jaffa, with black anthers, concerning which we hope to hear more shortly.

—THE GENUS ESCOBEDIA.—In looking over, the other day, some very clever water-colour sketches of Guatemalan plants, made in Guatemala by Mrs. OSBERT SALVIN, we were struck with one of the handsome Escobedia linearis. The genus Escobedia belongs to the Scrophulariaceæ, and comprises two species—one, E. scabrifolia, ranging from Mexico to Peru and Uruguay; the other, E. linearis, being apparently restricted to Mexico and Guatemala. Both are very showy herbaceous plants, having unbranched stems, 2 or 3 feet high, and long, tubular, white, fragrant flowers. Neither, we believe, has been in cultivation, and the reason, we suspect, is that they are parasites, though there is no such indication on any of the labels of the numerous dried specimens that have come under our observation. E. linearis has long, narrow, rather rigid leaves, and the white, or rather cream-coloured flowers are curved 5–6 inches long. The rather narrow, slightly curved tube of the corolla suddenly expands into a limb from 2–2½ inches across. Collectors have noted the beauty of the flowers of both species; and as seed is produced in abundance, there can be little doubt that their cultivation has been tried, if it has not succeeded. We are not by any means sure that they are parasites; but, if they are, they cannot be very exacting as to the species of nurse-plant, judging from the variety of localities they inhabit, and the wide geographical area of E. scabrifolia. The latter ranges through about 50° of latitude and nearly 70° of longitude. The thickened roots of both species yield a yellow dye or colouring matter, and bear the names Azafraan and Azafranilla. HARTWEG states that E. linearis yields a dye; and SPRUCE, on a label accompanying a specimen of E. scabrifolia collected in Peru, has a note to the effect that the roots are said to be used for colouring gravies. E. scabrifolia has comparatively short, broad, very rough leaves, and flowers scarcely inferior to those of E. linearis.

—IKORA COCCINEA IN WINTER.—Valuable as these lovely stove shrubs for purposes of exhibition, they are no less valuable as decorative subjects in the plant-stove or for supplying charming trusses of cut flowers for vases during the winter months. A bold truss of I. coccinea in the centre of a flower vase has an imposing effect at any time, and with plenty of green, and a few small choice bits of other flowers, will keep a vase fresh and bright looking for the best part of a week at this season—sometimes longer. Where there is a fair stock of such plants, the matter of half-a-dozen kept at rest six weeks longer than usual would give a supply of flowers of which half-a-dozen trusses would be more thought of than a bushel of Chrysanthemums or such-like flowers, which are called common.

—THE "GARTEN ZEITUNG."—This journal, which is the direct lineal descendant of the *Deutscher Garten* and of the *Monatsschrift des Vereins zur Beförderung der Gartenbau in den Königl. Preussischen Staaten und der Gesellschaft der Garten Freunde Berlins*, is heartily welcomed on its advent. One reason alone should make those who have to write much and cite much rejoice at the change—the tremendously long title of one at least of the parents disappears to be replaced by the much more convenient *Garten Zeitung*. It is edited by Professor WITTMACK, a guarantee of careful and accurate editing and of wide knowledge. The first plate is a coloured one of *Nymphaea zanzibaricensis*, of CASPARY, with a full descriptive notice by that eminent botanist. A descriptive article on the Palm-house at Herrenhausen, with woodcut illustrations, follows, and a plan and illustration of the Rose garden in the grounds attached to the new palace at Potsdam, the residence of the Crown Prince and Princess of Prussia. The text of the new Vine-loose Convention, held at Berne,

is given in full, together with reviews of new plants and various other subjects of interest. The promise of the new journal is high, and we have no doubt that it will be realised. PAUL PAREY, of Berlin, is the publisher.

—CONTINUOUS FLOWERING OF ALLAMANDA HENDERSONI.—Plants that are easily and rapidly cultivated like the Allamanda are those which are best suited for winter flowering, and the only requisite indispensable in their cultivation in winter is plenty of heat. We recently saw a pair of plants trained up the end of a Fire-stove that have been flowering for nearly nine months, and the plants are not much over eighteen months old from the cutting. They are now bearing a profusion of flowers which are much sought after, much below the normal size, but none the less pretty. There is no secret in the production of winter flowers in the case of this plant; all that is necessary is to keep a plant or two at rest as long as possible, and to place them in a house where they can have plenty of heat in winter, when they will grow and flower *ad libitum*.

—"ILLUSTRIRTE MONATSHEFTE FÜR DIE GESAMMT INTERESSEN DES GARTENBAUES."—This is the first number of a new series of Dr. NEUBERT'S *Deutsches Garten Magazin*. It is edited by M. MAX KOLB, Curator of the Munich Botanic Garden, and Dr. J. L. WEISS, of Munich. Like its Berlin contemporary this periodical likewise opens with a plate and description of the new Zanzibar Water Lily, raised from seed sent home by the late excellent traveller HILDEBRANDT from Zanzibar, and described by Professor CASPARY. Another coloured plate represents the singular orange-red Tillandsia Zahnii. GUSTAV WEISE, of Stuttgart, is the publisher.

—THE SEASON.—MR. HENRY FARRANT, Treew Gardens, Letterston, South Wales, sends us evidence of the unusually open character of the season in his locality, in the form of a handful of flowers gathered from the open air, and including monthly Roses, Stocks, Pansies, Polyanthus, double Primroses, Vinca major, Virginia Stock, Pyrus japonica, Berberis Darwinii, and Snowdrops.

—EXTRAORDINARY GOOSEBERRIES.—The most extraordinary Gooseberries we ever saw, to surpass which the most accurate memory of the oldest inhabitant must be severely tested, are two now before us measuring 1½ inch in circumference, and sent us by an obliging correspondent in South Wales—MR. FARRANT, Treew Gardens, Letterston.

—STATICE PRO USA IN WINTER.—We are often not so familiar with the usefulness of common plants as we might be. We grow them to flower at a certain season, and we expect no more. The plant under notice is not often seen as gay as it is now at Manor House, Hampton, where several plants are quite aglow with the bright blue spikes of flowers and healthy green leaves. The variety, as is well known, is of dwarf habit, and Mr. CATCHOLE by liberal cultivation succeeds in keeping the plants in flower nearly all the year round.

—PERSIAN LILAC IN JANUARY.—A remarkable example of the forward condition of flowering shrubs is now exemplified in the gardens of Manor House, the seat of J. P. KITCHEN, Esq., near Hampton, Middlesex, where several bushes of the Persian Lilac are in full flower and have been for some time past. Two months ago the plants were in an open border, were lifted, potted, and put in an ordinary greenhouse, from which they have never been removed. The temperature of the house never exceeds that of a warm greenhouse, say a mean of 50°. The fragrance of the Lilac is always welcome, but it is especially so when associated with Roses in bud and other choice flowers, as it is in Mr. KITCHEN'S garden at the present time.

—TROPÆOLIUM BALL OF FIRE.—Most people will have heard of GARRICK'S Villa, or if they have not we suppose there are few who have not heard of the great actor who gave it its name. Among interesting as well as useful plants now in full beauty at the place, which is occupied by Mr. GROVE, is a fine plant of Tropæolum Ball of Fire. The plant occupies a little house by itself, in which Melons are grown in summer. After the Melon crop is cleared

away the plant which is the subject of these remarks was lifted from the open ground and planted in the Melon bed, where it has flourished amazingly, and covers the trellis from end to end of the house, and produces large quantities of its bright scarlet flowers. The wires are within a short distance of the glass, which no doubt increases the floriferousness of the plant, and its strength is maintained by its rich root run in the Melon bed. The plant was taken up out-of-doors at the end of September.

— AGAVE AMERICANA.—From Nice Mr. W. O'MAHONY has obligingly sent us a photograph of a plant which flowered there last season, the height of which was 31 feet, and the circumference of the flower-stem, close to the ground, 3 feet. Our correspondent remarks that several plants flowered at Nice last season, but none equal to that under notice, which grew in the gardens of the Château de Barla.

— ALKALI, &c., WORKS REGULATION ACT.—The Act "to consolidate the Alkali Acts of 1863 and 1874, and to make further provision for regulating alkali and certain other works in which noxious or offensive gases are involved" (44 and 45 Vict., cap. 37) came into operation on Jan. 1. It provides for the registration of alkali, sulphuric acid, chemical manure, gas liquor, nitric acid, sulphate and muriate of ammonia, and chlorine works. The owners of such works are to use the best practicable means for preventing the discharge of noxious and offensive gases from them, and they are to be under the supervision at all reasonable times of the inspectors appointed by the Local Government Board. The penalty for an infringement of the Act is £20 for the first offence, and £50 for every subsequent offence, together with a further sum, not exceeding £5, for every day during which such subsequent offence has continued, to be recovered in the County Court from the owner, or (if he has used due diligence to comply with the Act) the actual offender, in his employ.

— WHEAT-MILDEW AND BARBERRY BLIGHT.—Once upon a time farmers believed that the blight of the Barberry developed into the mildew of the Wheat, or at least that the two were in some way connected. The notion seemed so improbable that it was ridiculed. Then a reaction came, and it was established, as supposed, that the crude observation of the agriculturist was after all correct. But now Mr. FLOWRIGHT contributes to the controversy the record of a considerable series of carefully conducted experiments, from which he concludes that while 76 per cent. of Wheat plants, purposely infected with *Ericium* from the Barberry, ultimately showed the presence of Uredo, 70 per cent. of similar plants, grown in various places and which were not infected, yet showed signs of the presence of the Uredo. We must still keep "an open mind."

— GAILLARDIA PICTA, VAR. LORENZIANA.—We have already noticed this beautiful and singular variety, in which the ordinary strap-shaped ray florets are absent and the whole globular flower-head consists of tubular 4-5-lobed florets like those of an *Asperula* or *Galium* and variously coloured. M. LORENZA, of Erfurt, the fortunate raiser of this novelty, sent us several specimens last autumn, and has now issued a nicely executed coloured plate, showing various specimens of this variety, which, if a good grower, is sure to become a favourite.

— ANNUAL DIANTHUSES FOR CUTTING.—It is only those who have some glass at their disposal that can enjoy the pleasures of the fragrant Clove Carnation and Picotee: but this loss can to some extent be compensated for by growing in the open air during the summer some of the fine annual Dianthus, which the Continental raisers have so improved of late. They lack the fine fragrance which rises up from the petals of the Carnation; but they are not without some sweetness. The best forms to cultivate are the double white and double red varieties of *D. Heddewigii*, and the double white and double crimson of *D. chionensis*, the latter for choice. The seed can either be sown early in spring, in pans, and transplanted when large enough to some good soil in the open air; or sown thinly in drills in the open ground. But good soil is a necessity, if fine flowers and plenty of them are to be had by the grower. The flowers can be made of great use in many ways, and they are very durable.

— OUR ALMANAC.—With the present number we present to our subscribers a Coloured Supplement in the form of an Almanac, from the hand of Mr. W. H. FITCH, who, it will be seen, has incorporated in his design portraits, in miniature, of many of the leading floral favourites. Besides the Calendrical matter proper, our readers will find the dates recorded on which the principal meetings of various scientific societies will be held, as also the days appointed for holding the floral exhibitions of the leading horticultural societies during the year, so far as was known at the time of going to press. The column of mean temperature is taken from the average of forty years' observations at Chiswick, as reduced and verified by Mr. GLAISHER.

— COMPARATIVE STUDY OF THE VEGETATION OF VESUVIUS AND ETNA.—The *Nuovo Giornale Botanico Italiano* for the current year contains a detailed comparison of the floras of these two mountains by P. BACCARINI. Independently of an interesting introduction, there is an enumeration of the flowering plants and Ferns found in the two regions in parallel columns. The most striking feature is the disparity in the number of species. The total number on Mount Etna is 3132, whilst there are only 2042 in the whole kingdom of Naples.

— PENTAS CARNEA.—Among winter-flowering subjects this pretty Rubiaceous plant should find a place, as it is not difficult to manage, and is easily grown into specimens. It is one of those useful things that are receding from cultivation, and that is sufficient reason why attention should be called to its undoubted merits. A successful grower of this pretty plant strikes cuttings in March and April, taking care to screen them from strong sunshine, and cautiously supplying the plants with water while young to prevent them from receiving injury from either cause, as a check at this stage prevents good plants being formed. When rooted they are repotted in a soil composed of equal parts of loam and leaf-mould, with a fair sprinkling of sand. They are then plunged in a gentle bottom-heat, and grown on with care. To have the plants in flower in winter it is necessary to stop them during the summer, and shifting must be carefully attended to keep the roots from becoming pot-bound. The time at which the stopping of the shoots should cease depends upon the time when it is required to have the plants in flower; and when this arrives a profusion of large heads of flesh-coloured blossoms of tubular shape are produced. The plant is of such an accommodating character that it is scarcely run out of bloom, and the flower-heads are well adapted for use in bouquets. There is a pretty rose-coloured variety which is similar to the type in all respects, save in the deepened colour found in the blossoms, and it is equally useful.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending January 2, issued by the Meteorological Office, London.—The weather has been cloudy or dull everywhere; but while it was comparatively dry at our eastern and south-eastern stations, in all the south-west and western parts of the kingdom it was unsettled and rainy. The temperature has been above the mean in all districts, the excess in "Ireland, S." and over Scotland being as much as 4°. Readings, although lower over central and eastern England than elsewhere, were rather uniform. Very little frost occurred in any part of the country, the lowest reading (28°) being registered at Markree on December 28. The maxima were lowest (51°) over "England, S.," and highest (55°) in "Ireland, S." The rainfall has been rather less than the mean in the "Wheat-producing Districts," and a little more than the mean in the "Grazing Districts." The bright sunshine percentages show a slight increase in most places, but are still low, varying from only 2 in "England, S.," and 8 in "England, N.W.," to 38 in "Scotland, E." Depressions observed:—During the whole of this period the barometer has been highest over the southern portion of our area and lowest to the northward and north-westward. Several depressions (none of which, however, were very serious) have passed in a northerly or north-easterly direction over, or outside, our western and northern coasts. Southerly to westerly winds have been general, and though moderate to fresh on most days, they rose to a slight gale in the west on the 29th, and to a fresh to strong gale in several parts of the kingdom on January 2.

KING'S MEADOWS,

The seat of Sir Robert Hay, Bart., is situated in Peebleshire, 22 miles south of Edinburgh, and 1 mile east of the county town of Peebles. It is nearly 500 feet above the level of the sea, and nicely embellished with woods of great extent, with many grand specimens of the hardier sorts of trees. A few years ago this place was rather celebrated for its collection of Conifers, Rhododendrons, &c., but these severe winters of late have played sad havoc among all sorts of shrubs, and only the most hardy have escaped. It has been nothing uncommon, last winter especially, for the glass to register from 36° to 40° of frost for nights in succession. What struck me as rather remarkable was to see large specimens and groups of Rhododendron ponticum killed outright, and others nearly so, while the hybrid section of equal size were hardly touched. The district here is extremely healthy, and excepting in the valley of the Tweed the surroundings of King's Meadows are hilly, many of the mountains are finely curved in their form and beautifully verdant, having none of those wild precipices which characterise many of the mountains in the Highlands.

On many of these mountains are the remains of British camps, while the district is rich in classic associations. Looking west from King's Meadows, about half a mile distant, the eye takes in the new town of Peebles, or as it is known by the name of King's Muir. Here there is St. Mary's Mount, the beautiful residence of Alex. Tod, Esq., with its grand conservatory, also King's Muir Hall, the residence of — Ritchie, Esq., a place long noted for the immense number of bedding plants turned out and their artistic arrangement. To the south is Hayston with its grand avenue of trees and stately old mansion whence the family of Hay take their designation, and about 5 miles south stands the Black Dwarf's cottage, celebrated in Sir Walter Scott's novel of the *Black Dwarf*. Chambers in his *History of Peebleshire* records that Sir Walter visited the Black Dwarf, where doubtless he received those impressions which afterwards figured in the character of Elshender, and on to the south is Dalwick House, the seat of Sir James Naesmyth, a place long celebrated for its fine old trees, but more recently for its extensive and rare collection of Conifers; but here as elsewhere, frost has played sad havoc, but not so much as at King's Meadows. Many fine varieties have been entirely killed, and others so much injured that they are past recovery. About 2 miles west is situated Stobo Castle, the seat of Sir Graham Montgomery, Bart., which stands on a rather high elevation facing the River Tweed—one of the most beautiful and picturesque mansions in the county, celebrated for the extent of its park scenery; and 2 miles distant is the Roman camp at Lyne, dating from the era of Agricola, 1800 years ago, and which is in a wonderful state of preservation. To the north again as some distance is Dringletie, the residence of J. Wolfe Murray, Esq., a place long noted for its majestic trees; and further on, still northward, there is Darnhall, the seat of Lord Elibank. Here had been got together (the work of years) a grand collection of trees and shrubs many of them of great size, but here I may mention, the intense frost of last winter has done its dire work—little escaped its ravages. On towards the north-east is Portmore, the seat of Colin J. McKenzie, Esq., where there is one of the finest collections of Camellias in the country, and of which the owner is justly proud. Here lived John McLean, a name well known in the gardening world, who served as head gardener at Portmore for the long period of fifty-three years. The old man now has his free house on the estate, and a substantial pension. About a mile above Peebles there is Neidpath Castle, an old baronial fortress built in 1300. It was here that the now well-known Neidpath Vew originated.

Peebles proper is a very pretty town. The quaint Dr. Pennecook enlarges on it in his usual style of verification—

"Peebles, the metropolis of the shire,

Six times three crosses hath from me require.

Three streets, three ports, three bridges it adorn,

And three old steeples by three churches borne.

Three miles do serve their turn in time of need,

On Peebles' water and the River Tweed.

Their arms are proper, and point out their meaning,

Three salmon-fishes nimbly counter-swimming."

Peebles for many years has supported one of the most flourishing flower shows in the country; it has also its Chambers' Institution, which cost many thousand pounds, and has a library of 17,000 volumes, all the gift of William Chambers, Esq., LL.D., whose seat, Glenmiston, is in the neighbourhood, situated on the southern slope of Leech-pen, one of the highest hills in the district, and about 1 mile east from Peebles, and equidistant north from King's Meadows. On the Toonhouse Brae stands the new Peebles Hydrostatic Establishment, which for beauty of situation, elegance of architecture, and for the comfort of the visitors is allowed to be one of the finest of the kind in Scotland. Another fine feature connected with this establishment, to be introduced by-and-by, is that all shrubs, trees, and plants of note are to be correctly and legibly named.

About 1 mile east of the Hydrostatic, the River Tweed is crossed by a very handsome iron bridge; to the left lie the beautiful woods and policies of Kailzie, belonging to W. C. Black, Esq. To the right from the bridge the walk curves round sharp, by following the windings of the river till the mansion-house of King's Meadows is reached. Although the house stands in rather a low situation, the views from it are very extensive and varied; the river flowing past within a few hundred yards of the house adds an additional charm to the grounds. From the house an 8-foot walk leads on to the south-east in gentle curves through a mixed plantation of shrubs and trees till the kitchen-garden is reached, which is in two divisions; that to the north is the kitchen-garden proper (which outside and in is over 3 acres in extent), surrounded by a substantial wall 12 feet high. Here in ordinary seasons all sorts of outdoor fruit are had in abundance.

The glass erections are rather extensive, and placed to the south of the kitchen garden. Entering from the west the first, No. 1, is a Peach-house, 55 feet by 9 feet, with curved trellis in front, back wall planted also. The sorts grown are Noblesse, Barrington, Late Admirable, Lord Falkenstein; the last mentioned is a great favourite, being large in size and of fine flavour. Nectarines Filruge and Violette Blâve are both planted here, and a better display all over the house no one could desire to see. No. 2, early Peach-house, 55 feet by 9 feet: at the time of my visit the crop was nearly finished, but the few remaining showed examples of large and fine fruit. No. 3, 27 feet by 14 feet, Black Hamburg-house, excellent crop. No. 4, 27 feet by 14 feet, also Hamburg-house (early), very fine crop all over, many of the bunches being extra large. No. 5, 27 feet by 14 feet, late viney, newly replanted with the most approved sorts. No. 6, 27 feet by 14 feet. Late viney, very fine regular crop; in this house Mrs. Pine's Black Muscat and Alicante, extra large both in bunch and berry; on the back wall two trees of the Brown Ischia Fig bearing excellent crops—this variety never fails here. No. 7, 55 feet by 9 feet: Peaches on back wall, one year planted, and Tomatos in front. No. 8, 55 feet by 9 feet, Fig-house, planted front and back, good crop all over, Castle Kennedy being especially fine. No. 9, span-roofed, 25 feet by 10 feet, principally used for growing soft-wooded plants for the conservatory. No. 10, stove, 22 feet by 12 feet, span-roofed, contains a miscellaneous collection of plants, principally for cut flowers, in fine condition. No. 11, 12 feet by 20 feet, span-roofed: in this I found a fine collection of plants. The roof was covered with Stephanotis, Dipladenas, Allamandas, and Bougainvilleas, a mass of bloom, the latter extra fine. No. 12, Melon-pit, 37 feet by 9 feet: a very excellent crop all over the house, Bechwood and Perfection being especially good. No. 13: in connection with this house is a span-roofed conservatory, facing south, a very handsome erection, containing many beautiful and well-grown plants. The following were very conspicuous:—*Lagerflora rosea*, beautifully flowered, trained on a wire balloon, 4 feet in diameter; several *Statiche Rattayana*, averaging 3 feet in height, and as many through a very fine plant of *Tasmania Van Volsenii*, and some finely-managed *Camellias*, *alba plena* being particularly fine. Here is grown a very select collection of *Fuchsias* and *Delphiniums*.

The flower garden lies in front and to the south of the glass erection, and is about an acre in extent. The Peach and Vine borders are all ribbed with the most approved sorts of bedding-plants, and in front of these there is a gravel walk, 7 feet wide, which runs the whole extent of the garden from east

to west; to the south of this walk there is a very pretty design of figures cut in the grass filled with the ordinary bedding-plants. I may mention here that Lady Hay takes great personal interest in this department, hence the arrangement of colours is particularly well carried out. As the glass accommodation is extensive, every exertion is used to have the plants well forward before being turned out, so that the bloom may be well over before the early autumn frosts set in; by the above system a very brilliant bloom is had early in summer. What is rather strange, the Hollyhock grows and blooms here magnificently without any trace of disease. Mr. McFarlane, Sir Robert Hay's head gardener, has filled his present situation for the last twenty-six years with much satisfaction to his employer and credit to himself.

Mr. McFarlane is an ardent horticulturist, and been one of the most successful competitors in the district. Although not the originator of the Leek Club, he has been one of its keenest supporters; it had its small beginning, but is now one of the most flourishing societies of its kind in the South of Scotland, and at which all sorts of vegetables are competed for, and has been of immense advantage to the working classes in the district. It has been no unusual thing, when Leeks were exhibited from King's Meadows at it, for one Leek to weigh over 5 lb., and six over 22 lb. *John Doonan*.

THE GENUS MAURANDIA.

IN the collection of dried plants made by Dr. E. Palmer in the North-eastern States of Mexico, a set of which has been acquired for the national herbarium at Kew, is a very distinct new species of *Maurandia*, for which I propose the name *erecta*, because it differs from all the other species in not being either a climber or a trailer. As an ornamental plant it is perhaps not equal to any of its congeners, reminding one rather of the genus *Martynia* than *Maurandia*; but as apparently good seeds of it have been sent to Kew, it may be worth while giving a brief description of it here. It may also be worth while giving an account of the genus *Maurandia* as now commonly circumscribed, especially as some confusion exists in the garden nomenclature of one or two of the species. Thus *M. erubescens* is commonly cultivated as *M. scandens*, and the true *M. scandens* is seldom seen. These plants are better known to gardeners as *Lophospermum scandens* and *L. erubescens*. Dr. Asa Gray was the first to propose the amalgamation of *Lophospermum* and *Maurandia*, retaining the latter older name for the genus; and this proposal has been adopted in *Dentham and Hooker's Genera Plantarum*. As thus constituted, the genus includes six species, which may be distinguished from each other by the following key:—

- Erect herbaceous plant M. ER. EA.
- Climbing or trailing; herbaceous or somewhat woody plants.
 - Seeds small, corky rugose or granular, wingless.
 - Flowers dark blue, calyx furnished with long glandular hairs M. BARLAYANA.
 - Flowers pale purple, calyx quite naked M. SEMP. FLORES.
 - Seeds oblong, nearly flat, slightly auriculate and furnished with a narrow entire wing M. WISLIZIENI.
 - Seeds corky rugose, and furnished with a circular, lacinated wing.
 - Leaves and flowers downy M. REIDENSIS.
 - Leaves and flowers almost quite glabrous M. SCANDENS.

Like many other plants that were first described from cultivated specimens, several of the species of *Maurandia* were described and figured by different authors under diverse names. Fortunately in amalgamating the genera *Maurandia* and *Lophospermum* it has been possible to retain the specific names commonly in use. All the species inhabit the Mexican region. The synonymy and references to published descriptions and figures of each species follow:—

1. *M. erecta*, Hemsley, n. sp.

* *M. erecta*, Hemsley, n. sp.—Herba erecta ramis, undique glandulosa pilosisque viscosa; FEMUR crassiusculis, dense foliosis. Filio longe pedicellato, crassiusculo, lamina orbiculati cordata vel intertenui fere rotundata, obscure lobata vel grosse crenata, usque ad 1/2 pollicem petiolo, subgloboso vel globoso, usque ad 1/2 pollicem longis. Flores axillares, solitarii, coccineo rubri; poll. longi; antheris filibus longis, calycis segmentis glandulosis villosis, pediculis 5-6 lineas longis, 5-6 lineas longis, 1-1 1/2 lineas viscosis, oblongis, obtusiusculis, calycis segmento glanduloso villosis, lobis longis, leviter oblongis. Capsula calyce persistente circumscissile, alba imbricata vel lacinata.—Mexico boreali-orientalis, a cl. Palmer lecta.

An erect, glandular, hairy, herbaceous plant, with Mallow-like foliage, and medium-sized flowers, the colour of which is unknown to me. These seeds are almost exactly like those of *M. erubescens*. San Lorenzo de Laguna, (Cahulla, North Mexico) lately discovered by Dr. Edward Palmer.

2. *M. Barlayana*, Lindley, Bot. Reg., t. 1108; Loddiges, Bot. Cab., t. 1381; *Chivanensis*, Monogr. des Antirrhin., t. 2; DC. Prodr., x., p. 267.

First cultivated by Mr. Robert Barclay in 1827. A handsome greenhouse climber, succeeding well in the open air in summer. North-east Mexico, in the mountainous regions, at considerable elevations.

3. *M. sempiflorens*, Ortega, Nov. Gen. Hort. Matr. decas, ii., p. 21; Jacquem. Hortus Schoenbrunnensis, iii., t. 283; Bot. Mag., t. 450; Reichenbach, Exotic Flora, t. 291. *Usteria scandens*, Cavailles, E. Pl., ii., t. 116; Andrews, Botanist's Repository, t. 63; Herbar. général de l'Amateur, t. 279. *Maurandia scandens*, Persoon, Synops., ii., p. 165, not of A. Gray. *Reichardia scandens*, Roth Catal., n., p. 64.

This, as we learn from Andrews, was first cultivated in this country by the Marchioness of Bute in 1797, having been raised from seed sent to her ladyship from Spain by Dr. Ortega. A native of South Mexico and Guatemala.

4. *M. Wislizeni*, Engelmann, in Torrey, Bot., U.S. and Mex. Bound. Surv., p. 111; A. Gray, Synoptical Flora N. Am., ii., p. 251.

As far as I am aware this species is not in cultivation. It inhabits the banks of the Rio Grande del Norte, and is remarkable in the genus for its calyx becoming indurated.

5. *M. erubescens*, A. Gray, in Proc. Amer. Acad., vii., p. 377. *Lophospermum erubescens*, D. Don, in Sweet's Brit. Fl. Gard. 1830, ser. 2, t. 75, in a note; Zuccarini, in Flora, 1832, ii., Heubl., p. 61; DC. Prodr., x., p. 267; Bot. Reg., t. 1381. *Lophospermum scandens*, Sweet's Brit. Fl. Gard., ser. 2, t. 68; Bot. Mag., t. 3037 and 3033, not of Don.

This is the plant commonly cultivated up to the present time as *Lophospermum scandens*, in consequence of Don himself having confused it with his *L. scandens* about fifty years ago. The mistake was made in the October number of Sweet's *British Flower Garden* for 1830, and rectified in the November number for the same year; and it is another instance of the impossibility of suppressing erroneous names that have circulated in gardens and garden literature. Botanists, too, with the exception perhaps of Lindley in the *Botanical Register* as quoted above, have overlooked Don's rectification, and attributed the name *L. erubescens* to Zuccarini. The true *M. erubescens* is easily distinguished from *M. scandens*, by its being clothed with a soft clammy down, by its coarsely-toothed almost 3-lobed leaves, and by its paler rose-red flowers. This species was first cultivated in this country about fifty years ago; and the first plants were raised from seeds taken from dried specimens in Lambert's herbarium, collected by Moçino and Sessé, A native of the mountains of Southern Mexico.

6. *M. scandens*, A. Gray (not of Persoon), in Proc. Amer. Acad., vii., p. 377. *Lophospermum scandens*, D. Don, in Trans. Linn. Soc., xv., p. 353; Sweet's Brit. Fl. Gard., ser. 2, t. 401; Bot. Mag., t. 3650; Marten, Botmist., t. 17.

First cultivated in this country about 1835 from Mexican seeds raised in the Liverpool Botanic Garden. Easily distinguished from *M. erubescens* by the leaves and heart-shaped being nearly glabrous, by the leaves being heart-shaped in outline, and by the deeper hue of the flowers. I have not seen living plants of this species, but the dried specimens are distinguishable at a glance. Neither have I seen wild specimens of it.

Maurandia antirrhinoides, Humboldt and Bonpland (*Bot. Mag.*, t. 1043), from the same region, is now referred to *Antirrhinum* (*A. maurandioides*, A. Gray), on account of its personate corolla.

Another plant that one can hardly avoid mentioning here, is the allied *Rhodochiton villosa*, Zuccarini, *Bot. Mex.*, t. 3367; *Fl. Rep.*, t. 1755. *Lophospermum Rhodochiton*, D. Don, in Sweet's *Brit. Fl. Gard.*, t. 250. It is likewise a Mexican plant, and remarkable for its ample purple calyx associated with a darker purple corolla, *W. B. Hemsley*.

HOME CORRESPONDENCE.

Cratægus Azarolus.—Without doubt the above is one of the most showy and attractive species of the family to which it belongs, and to those of your readers who at the present time are engaged in planting—no matter whether on a large or small scale—I would unhesitatingly say, do not fail to include this Thorn in the list of what are intended to form permanent objects of beauty and interest. It is admirably adapted for planting out either in parks or on lawns, and is well adapted for the advantage of being either standard or planted out singly. Its bright orange-scarlet haws, which are of great size, render it for many weeks in the autumn a very conspicuous object indeed, and a few well-established standards with their beautiful umbrella-shaped heads, dotted about here and there, would add much to the scenery of any English domain where it does not already exist. *J. Horsfield, Heyshbury.*

Crinum amabile.—I send you a flower of *Crinum amabile*, one of an unusual of twenty-two flowers and buds; a most beautiful flower and noble plant for large stoves at this season. In Mr. Baker's valuable synopsis of all known species of *Crinum* there is a good description of this plant. *W. R. Latham, Birmingham.*

Amaryllis aulica.—Visiting the gardens of Coedryfan, the residence of Mr. Traherne, a few days ago, a fine plant of this free-flowering bulb attracted attention. It is a very handsome specimen, bearing five trusses of bloom, which are thrown up from 2-3 feet high, forming a perfect canopy of brilliant crimson-coloured flowers well above the ample deep green foliage beneath. With the exception of two yet unexpanded the whole of the trusses are each carrying five or six blooms of some 4 or 5 inches in diameter, in which the brilliancy of the colouring is enhanced by the contrast afforded by the central stripe of greenish-white about each petal. The specimen is grown in an 11-inch pot, and is, with a few inches of soil, the product of a single bulb shifted on as required, but not otherwise disturbed. The result reflects credit on the system of giving the plant a long rest, adopted by the gardener, Mr. Moor. Associated with *Eucharis* in full bloom—as is the case here—no more effective plant for winter flowering can well be imagined, and it is certainly one that is well worthy of extended cultivation, but, like many others of the order bulbous-rooted plants, is now seldom seen in general collections. Fotted in fibrous loam and thoroughly rotten coddling with a plentiful admixture of coarse sand, well drained to prevent stagnant moisture, and rested during the summer, it will not fail to give satisfaction in the beauty of its flowers and the freedom with which they are produced during a season of the year when they cannot fail to be appreciated. *K. C.*

Mr. Rochford's Boilers.—I have not "condemned" Mr. Rochford's boilers; my power to do so—even if I had the wish—is too insignificant. At the same time, I did not rest my criticism on imagination, but on the facts supplied by "T. B." himself, coupled with the opinion of the "eminent hot-water engineer" whom he quoted as conclusive on the question of the economy of these boilers—the only point I ventured to doubt. I have just received information of a similar boiler fixed only two weeks ago to 1400 feet of piping in a nurseryman's establishment, which, three nights ago, unkindly broke its own heart—or rather an artery—extinguishing its fire with its own life-blood, which overflowed the stoke-hole while its owner peacefully slumbering, confident of his young plants' safety with such a friend and protector. To conclude, I think we have got beyond both "pack-horses" and "carts and waggons" (to which "T. B." compares the boilers) for heavy work; and now-a-days, if I am not mistaken, we steam and even electricity as occupying less space and being far more powerful. *B. W. Warhurst.*

A Plant Label.—May I be allowed to mention a cheap and durable, if not an elegant plant label? It can be made for £1 2s. 6d. per 1000. A hundred-weight of No. 6 galvanised iron wire is cut into lengths varying from 10 to 15 inches, and two cuts are made for each length, one-half through, half an inch from the other, which divides the wire. This wire costs £1, makes 1500 pieces, and the ironmonger charges 2s. 6d. for cutting it up. You lately mentioned Holly and Box-wood labels made by Messrs. Wolstenholme, of Manchester, price 5s. 6d. per 1000. At my suggestion they are now making some square-edged and perforated at both ends. Nine inches of thin galvanised tying wire is passed through the holes, and with this the label is tied to the thick wire, the indenting cut mentioned above preventing it slipping. The tying wire is 5½d. per pound, and a pound makes 500. Last, not least in im-

portance, I must speak of the paint. I have observed that the yellow labels sent by Continental nurserymen continue legible longer than those painted white, which are commonly used. The material used is yellow-brown mixed thick with insect oil; it may be laid on with a bit of rag or tow, but gardeners generally do it with their forefinger. The thinner the coating the better. This when dry presents a surface, on a Boxwood label, to which no dirt will adhere, and the writing of a common lead-pencil will remain visible longer, I believe, than on the commoner wooden label. I enclose specimens. *C. Wolley Dod, Edge Hall, December 20.*

Cineraria Growing.—Visiting the gardens of Thos. Lloyd, Esq., the Priory, Warwick, the other day, I was much struck with the fine lot of plants grown by Mr. Greenfield, the gardener, from seeds sown in the last week in April. They measure from 1 to 2 feet in height, and from 2 to 2½ feet through, with flowers of various colours, and as large as a crown-piece. Plants like these, full of flowers, are very useful at this time of year. The large plants are in No. 8 pots. Mr. Greenfield is the raiser of two new double varieties, named Mr. and Mrs. Thos. Lloyd, the flowers of which are very distinct and valuable for cutting, as they last so long. Fine plants of these will shortly be in flower. *H.*

Rhododendron præcox.—The earliest of *Rhododendrons*, and a never-failing plant to flower at midwinter, is a most useful one, and well worth the moisture. The habit of the plant rather detracts from its general usefulness, but considering that it is amenable to almost any temperature, it is a safe plant for beginners in forcing to invest in. Some years ago it was all the rage for forcing in large establishments, but is now partially neglected. It is most useful for cutting at this season, and supplies a distinct shade of colour which is improved by gaslight. It should be cut in clusters and touched off with Maidenhair ferns. Large bushes of it forced into flower are also useful at this season for other decorative purposes, but on account of its stiff habit it should be associated with Ferns or other plants that would in some degree conceal its deficiency of foliage. *W. Hinds.*

Caladium Tubers.—Who shall decide when doctors differ? is a question which might well be put in reference to the above. I do not presume to decide, neither do I exactly differ from those who have given their ideas upon the matter; but I maintain that it is utterly unsafe to dogmatise upon a point of this kind. Having grown these plants for many years, there can be no harm in giving my opinion, without for one moment attempting to lay down any rules whatever for the guidance of others, which in fact, as will be seen, I am very ill-qualified to do. I have found no difficulty at all in keeping the tubers, and that without any special care. When the leaves have died down in the natural way, after a gradual drying I have simply put the pots anywhere; some have been left on the stages, getting occasionally a good soaking with water, others have been left entirely dry, some have been placed under a stage close to the hot-water pipes, and got as dry as anything could well get; and some have stood where they got a pretty constant supply of water from the stages above. Now in spite of this utter carelessness in their management I can safely say that I never found the tubers the least unsound when I turned them out for re-potting in the spring. But there is one point, and that an important one, which must not be lost sight of. My pots were always kept in a warm house—that is to say, an ordinary stove, where a minimum temperature of about 60° was maintained through the winter. I will not attempt to draw any conclusions, but leave your readers to make what they can of my experience of *Caladium* culture. If I might venture an opinion, it would be simply that it is a matter of slight importance whether the tubers are kept wet or dry so long as they are thoroughly warm. *G. E. Cox, Leytonstone.*

Wall Coping.—Not having noticed any communication in reply to the inquiry of G. R., on p. 82, I will revert to the cheapest and most durable form of coping for kitchen garden walls. I think a few remarks on the subject may elicit information by again drawing attention to what must be, as your correspondent remarks, "of general interest." In the inquiry in question the requirements are cheapness and durability, to which, of course, may be added efficiency, without which no coping would be good, to say nothing of "best." Now, cheapness is a relative term, and in the common acceptance it is scarcely compatible with durability, but in its true sense would include the latter requirement. It may, therefore, be suggested that good stone coping will be found least costly in the end, and will be effectual in the preservation of the wall as well as in the protection of the blossoms and fruit

from wet. The cost of stone will of course greatly depend upon the suitability of that of the district for the purpose, as where it is necessary to procure it from a great distance the carriage alone is a considerable item of expense. Some seven years ago a large proportion of the walls under my charge here were recoped with Forest of Dean stone, which came to hand cut to the required thickness—apparently by machinery, but the face-dressing, grooving, &c., were done by the estate masons, so that I am not able to give cost, but doubtless it will be cheap a hundred years hence. The stones project 11 inches from the walls on the south side, and 8 on the north, so that when they are made to dip. The coping is drilled for bolts at intervals of a foot, and their square heads are counter-sunk and fixed with cement, so that no wet can find its way through, or ice form and split the stone. Temporary wooden coping made of 4-inch loads 12 inches wide, is attached in the spring, as an additional protection from frost, by means of these bolts to which it is tightly screwed up with strong nuts. Bands of iron, which strengthen the boards and prevent splitting, also serve to take the bearing of the nut-bolts by being placed at the same distance apart that the bolts are in the wall. An additional strip of sheet-iron projecting from the end of each board serves to secure it to the next, and when screwed in position prevents warping. In order to stop wet from running back to the edge of the permanent coping on the south side, a bevelled strip of board is attached to the upper edge of the temporary coping, where it is screwed up, to such an angle as to throw off the rainfall from the walls by giving a little dip outward instead of to the wall. Tenter-hooks, which are driven into the edge of the boards at 1 foot apart, serve to fix the protecting material. It is only necessary to keep the boards painted occasionally, which an ordinary labourer could do, and housed out of the wet when out of use, to have an effectual means of protecting the blossom of wall fruit trees that may serve a lifetime; while the permanent coping will protect the fruit and walls from wet as long as the walls are likely to stand. Whatever means of protection be adopted, it seems to me necessary that the wall itself must first be effectually coped and kept dry, and that the temporary shelter be light, durable, easily put up and removed, and neither rendered unsightly by clumsy supports nor left insecure against storms of wind by insufficient fastenings. Perhaps others may give their opinion on glass used for projecting copings, which appears rather liable to breakage in removal and storage, and the supporting framework, which fixed, does not improve the appearance of the walls during the rest of the year. *K. C.*

Leucoum vernum flore-pleno.—It is satisfactory to hear from Messrs. Krelage that they have *Leucoum vernum* fl.-pl. actually growing in their nurseries. I sincerely hope that when it blooms next spring they will send over a bloom, so that it may be figured. I have been searching for this plant ever since I had a garden of my own, but I never met any one who has seen it in the flesh. Krelage is mistaken if this sort goes for nothing. I have this evening been looking through Hill's *Éden*, published in 1757, and Miller's *Gardeners' Dictionary*, 1753. Neither of these authors appear to have either seen or heard of this variety, though they were familiar enough with the single form. The former writer gives plates of several flowers which seem to have been common in his day, but as far as I know are now quite extinct, viz., *Sternbergia lutea* fl.-pl.; the double form of the common yellow Cowslip; and *Polyanthus* variety apparently of *Crocus biflorus*, having a number of flowers and leaves on a stem; a very double form of the old Orange Lily; and last, but not least, "the double yellow Cowslip," which must have been a very fine plant. About twenty years ago Messrs. Youell, of Yarmouth, had in their nurseries a double white Cowslip; they told me it died out gradually, seeming to defy propagation, and had, they believed, become quite extinct. I have not seen for years the double yellow Wallflower with variegated leaves, but doubtless it still exists in some collections. The singular *Narcissus corcyvensis*, which Dean Herbert had in cultivation for thirty years, is quite lost, and also seems to have disappeared from the island of Corfu, where in the Dean's day it grew wild. How is it that no one reintroduces from the Cape the beautiful little *Erodium incarnatum*, which has only died out of cultivation within the last eight or ten years? Why have people ceased to grow the lovely *Monarda*? *H. Hartley Crooks, Drapton-Park, Hampshire, Retort, Tring, Dec. 28.*

The "Caution to Nurserymen."—The object of my letter, which appeared in your issue of the 24th ult., was simply to caution such of my brother nurserymen who might be placed in similar circumstances to myself, and to bring before them the question whether it be, or be not, the custom of our trade for a nurseryman to plant fresh trees in the

event of those dying which were planted by him, it being understood that there is no express condition to that effect. A word or two as to my alleged overstepping the bounds of veracity. That I have done so in any one particular I can safely challenge Mr. Young to prove. My statement was, not that the defendant selected the trees himself personally, but that he selected trees of too large a size, which was the chief cause of their dying. This distinction to nurserymen of my own class would be apparent enough. The instructions I received from the defendant were to select trees of not less than from 18 to 20 feet, which were to be planted on the very spot to which Mr. Young refers, and that for a special purpose, viz., to conceal a tennis lawn from neighbouring windows. This fact discloses of Mr. Young's criticism on that point. As to my burying the stems of the trees to the depth of 15 inches, that is a mere inference from subsequently altered conditions. The trees, when I left them, had each a deep basin round the stem for watering, but these basins had been filled up by an inexperienced servant of the defendant when Mr. Young saw them. Hence his mistaken conclusion as to the 15 inches.

William Aitke, Meadow Nursery, Goldsmiths, Jan. 4.

The Apple-tree Canker.—What is it? What does it proceed from? To these questions there does not as yet appear any satisfactory answer to have been given. On the one hand we are told that it is frost that kills certain portions of the bark, but why is it then, if such be the case, that we find canker on young wood of this year's growth, that had not been under the influence of frost? I enclose two pieces of the wood of the Ribston Pippin, that were cankered before there was any frost. Then again we are told that it proceeds from the roots being in a cold, uncongenial soil, had drainage, &c. But the tree (a Ribston Pippin), from which the pieces sent were cut, as will be seen, was and is in good health and made strong, clean growths of wood, very healthy, with large leaves, bright, downy, and good in colour, and it is growing in about 6 feet to 8 feet deep of yellow loam well drained and on a subsoil of white sand. I merely select one tree out of many that have of Ribston, Cox's Orange, King, and other Pippins. For a number of years I have paid much attention to this subject, and I have come to the conclusion, either rightly or wrongly, that the Apple-tree canker is caused neither by frost nor soil, nor is it constitutional of the sorts I have mentioned. My belief is that it is caused by an insect, but what that insect is I am unable to say. Through a Colingridge lens I have found a number of red nodules, but I cannot determine whether they are the ova of an insect or not. But there is a curious fact about the matter, and that is, that the canker is much more prevalent in the finer sorts of dessert Apples, and also that when I have put on a coating of Gishurst's Compound, mixed with soot and clay, twice a year, there has been no canker in those parts of the tree; and further, when I discover canker is first shown, if I cut out the parts and put on Gishurst's Compound, the bark grows gradually over it. In mentioning this to several eminent entomologists, and most seen to have the same idea as myself—that the canker is caused by some insect. If this be so, what is it? As will be seen from the pieces of wood sent, the bark and wood of the tree is perfectly healthy up to and around the cankerous wound, in fact so full of vigour and growth that it is lagged out around the wound, which has stopped the flow of the sap. Is it caused by an insect that sucks out the juices of the wood just there and so exhausts, poisons, and kills that spot, or what? I am not giving my theory as a correct one, I am only giving my views with the hope of getting more observational information on the subject. One thing is clear to my mind, and that is that the canker is not caused by frost, and I feel myself nearly certain that it does not proceed from the roots being in a wrong soil, as it is found in young thriving trees on the best of soils, and good drainage. Then I ask the question again, what is the cause, and how is it to be prevented? [We refer our correspondent to the article by Prof. Burill published at p. 596 of our last volume, showing the probability that some forms of canker may be due to Bacteria. L.J.] *Harrison Weir, Weirleigh, Brockley, Kent.*

Imantophyllum miniatum.—This beautiful greenhouse plant will now be fast pushing up its flower-spikes, and any one possessing it will do well to expose it to all the light possible in that position. The flowers will be of a deeper orange colour than if left in the shade, where they come pale and are not much to look at. The flowers last a considerable time either on the plant or in water, and come in at a good time of year, when flowers of this description are scarce. It can well be placed in the background, except at the flowering season, without taking any harm, and I have never found it susceptible to insects. It does best when left in the same pot for a long time, and kept well supplied with water at all seasons.

F. Cobitt, Fawley Court.

Florists' Flowers.

SOME NEW PRIMULAS.—It is but a few years since the number of varieties of Chinese Primula was very limited, but now, thanks to the perseverance of our florists, varieties are offered to the public that are a great advance in the novelty of their colours and substance. Passing through the nurseries of Mr. James Tomkins, of Birmingham, the other day, the pleasure was afforded me of seeing a beautiful show of these most useful plants. Staged in a span-roofed house, 60 feet by 11, with a path down the centre, were numbers of the most choice varieties, and close to the older, but still first-class, Princess Louise and Marquis of Lorne, stood a hundred or more specimens of a new one, which Mr. Tomkins has named The Queen. It is a striking variety, characterised by its compact though robust Fern-like leaves, which curve over the pot in a remarkable manner, and bears from three to six trusses of very fine flowers, the individual blooms measuring from 2 to 2½ inches in diameter, of remarkable stout substance, the young flowers opening pure white with yellowish eye, the white changing with age to a beautiful blush. The flowers from their thick texture remain in perfection considerably longer than the ordinary varieties, and being a free seed-bearer it promises to become a novelty. It has received two First-class Certificates (the Royal Horticultural Society and Manchester Botanical, 1881). Mr. Tomkins is also sending out another fine variety of a reddish-scarlet colour, named Emperor, a grand acquisition to the dark varieties, of which at the time of my visit there were some superbly-bloomed plants. Any one interested in Primulas would do well to pay the Sparkhill Nurseries a visit. *F. Denning, Park Grove Gardens, Edgbaston.* [Flowers of both varieties are before us, and we must say they are superb. ED.]

THE FLORISTS' TULIP.—It passeth one's understanding why the Tulip should have become so lightly esteemed during recent years, as it flowers at a time when there are few other hardy flowers in the garden. When the seasons are favourable they flower splendidly without any protection whatever; indeed, favourable or unfavourable, ours always take their chance, and they are always interesting. It is only during the last quarter of a century that the Tulip has fallen into comparative neglect. When John Parkinson wrote his *Paradisus Terrestis*, about the middle of the seventeenth century, the Tulip was one of the choicest flowers in English gardens, and continued to be highly esteemed for 200 years. There were numerous species of Tulips grown at that early date, and one can glean from Parkinson's figures and descriptions that the late-flowering Tulip had taken the form of Roses and bizarres, if not the byblomen as well. There are twenty-four species and varieties figured in *The Garden of Pleasant Flowers*.

Parkinson calls the late-flowering Tulip by the name of *Tulipa serotina*, and one variety is described as being "rose-colour deeper or paler;" another is "yellow with red edges," the type of a feathered Tulip; and one is "yellow with red spots and veins, the bottom black or discoloured." This would be the type of a flamed Tulip. Indeed, several are described as "flamant." Thus one is "white streamered with crimson flames;" another is "a yellow flamant of divers sorts"—that is, the whole flower more or less striped or spotted on the inside, the bottom in most being black, yet in some yellow. The colours in those days were even more varied than they are now. There were white with blush edges, white with blue veins, white with great blush edges, dove-colour, vermilion, orange, ash-colour, snow-white with yellow bottom, pearl-colour, purple, crimson, &c. Parkinson's descriptions of about a hundred varieties shows to us how much the Tulip was cherished by our ancestors. Some of the Northern growers do not care to plant until quite the end of November; we like to get ours in about the second week in the month. We insist on having a deep well-manured soil, but the bulbs are planted in pure loam without any manure. The roots are fine and very numerous; they also run deeply into the ground. The bulbs ought not to come in contact with the manure, and this is the object of planting them in loam; some fine sand is also placed around

them. They require but little attention during the period of growth. We mulch the surface of the ground with rotten stable manure, and nothing more is required until the bulbs are lifted. The time for this is when the flower-stems will bend without breaking. As soon as the Tulips are taken up the beds may be planted with any other flowers to bloom in summer and autumn; the rich soil will do well for Asters or Dahlias. *J. Douglas.*

LATE FLOWERING CHRYSANTHEMUMS.—Attention has lately been directed to the importance of securing a stock of late-flowering Chrysanthemums, than which few subjects can be more appropriate at this time of year. There is always a famine in the matter of flowers after Christmas, notwithstanding that it is quite possible to have a good show of Chrysanthemums for quite another month. Too much time and attention is given to the cultivation of the early-flowering kinds, which are practically over after November, while late-flowering sorts are grown, or rather exist, as individual plants. Mr. Shepherd, at p. 824 of the *Gardener's Chronicle* for December 24, recommends two varieties named Bouquet Parfait and Nelly as good late-flowering kinds, and I desire to supplement the list. I should be glad, however, in the first instance, to be permitted to make one or two suggestions. I think there are a good many varieties of Chrysanthemums that would come in after Christmas if cultivators only took the trouble to find them out; and I further think the Royal Horticultural Society would be doing good service by inviting growers to send stands of cut blooms to one of their meetings about Christmas. There would not, of course, be great variety at first, but I venture to predict that in a few seasons a very respectable show would be the result. Now what is there in the way to prevent us doing so in the present year? A comparison of sorts could be made at the exhibition, and an accurate report of the kinds exhibited would, I am sure, be of more practical value to cultivators generally than the dreary repetition of names that takes place during the second and third weeks of every November. At all events, it is worth a trial. As a first instalment, then, there must be some general idea of how the work is to be commenced. It is important to know the names of a few varieties to begin with, and also to glean a few hints as to cultivation. I must candidly admit that, as far as my knowledge goes with respect to late-flowering kinds, the object suggested will have to be achieved by growing a goodly number of a few trustworthy varieties, which would be added to every year as cultivators gained experience. I am not writing of a dream; I have personally experienced the utility of what I suggest. Of course it takes time to get a useful collection together. My list, then, would include the following:—Princess Teck, the best late-flowering incurved variety that I know of; Mr. Gladstone, dark red; Ethel, white Japanese; Julia Lagravère, Splendens, Saul, and The Car—the three latter all Japanese. Of the above mentioned the three very best sorts are Princess Teck, Ethel, and Splendens, the latter of which I had in good condition last year up to the beginning of February. Where there is a large conservatory to be kept gay, and a constant supply of cut flowers to be kept up, I would not hesitate to grow a hundred plants of a good showy kind such as Princess Teck, which can be kept quite fresh until Christmas. But although I have named only a few kinds, there are many others that might be added to the list. At present the chief point is for those who have not got proper kinds to secure them at once, and for those who possess them to make the most of them. After being cut down the stools should be kept in a north aspect, in order to keep the cuttings late. March is quite soon enough to propagate them. Plant out as soon as danger from frost is past, and pinch two or three times, to make nice bushes, or, if necessary, let them grow tall. When lifted in the autumn they should be placed in a north aspect, and if properly handled a good show of useful flowers will be the result. *W. Hinds.*

—The value of Princess Teck as a late-flowering variety cannot be over-estimated, and being white greatly enhances its value. Its progeny, Hero of Stoke Newington, is likewise useful for this purpose as a pink, and Grandiflora, a yellow Japanese, is a useful late variety. Fair Maid of Guernsey, although a grand thing, is not so well adapted for late blooming. I have a variety which, in my opinion, beats any with which I am acquainted for this purpose, but

unfortunately I got it without a name, and have never yet been able to ascertain what it is. I may describe it as a reflexed flower, with quilled petals, averaging 2 inches in length, and pure white. This variety is specially adapted for cut bloom, on account of its light appearance. *Virgine* is another kind well worthy a place in every collection as a late bloomer of the *Anemone* type. I think if more attention was given to late *Chrysanthemums* the blooming period could well be extended into the month of February. *E. Morgan, Harrow-on-the-Hill.*

Natural History.

BIRDS AND THEIR HABITS.—I was interested in a communication in the *Gardeners' Chronicle*, at p. 825 of the last volume, in reference to the question whether the blackbird does or does not devour slugs. I think it is very desirable that the habits of the various birds which usually frequent gardens should be generally better understood or ascertained than is the case, the lack of this knowledge being no doubt the cause of unnecessary cruelty being sometimes inflicted upon them. But to return to the question at issue—viz., "Does the blackbird devour slugs?" If it could be proved that he does so, it will no doubt be a feather in his cap, and will go far to cover a multitude of his many transgressions in the garden, such as his well-known propensity to unceremoniously help himself to ripe fruit, such as the Cherry, Gooseberry, Strawberry, &c. In many gardens slugs, as is well known, are a very serious pest. The rook, I have ascertained, will feed upon the small grey slug. But so far as my observation has gone, neither the blackbird, the thrush, nor any other bird I am acquainted with, will touch the large grey or the black slug. Ducks, I have heard it said, will do so, but I never saw them do it; they are certainly far from being particular as to what they swallow, but I have offered them to hungry storks, and to tame seagulls, which have invariably refused them. With snails the case is very different, and the thrush may very frequently be seen using a stone or other convenient object as an anvil, upon which to break their shells. Blackbirds may also do this, although I have never seen them do so; and generally speaking, notwithstanding their delightful song, they are hardly a desirable visitor to the fruit garden, as they are even disinclined to wait until fruit is fairly ripe before they begin to help themselves; and the condition of the weather has even less to do with this matter than might be supposed, the present season being confirmatory of this assertion, as they have already consumed nearly all the ripe haws and Holly berries long before anything like severe weather in any degree lessened their supply of insect food. Prolonged dry weather, however, during the fruit season renders both the blackbird and the thrush exceedingly bold and determined in their attacks upon ripening fruit of nearly all kinds.

THE STARLING is possibly a better friend to the gardener than either of the birds mentioned; he consumes large quantities of insects of various kinds, and if he occasionally helps himself to a little ripe fruit he seldom does very much harm in this respect. The small blue tom tit is generally blamed for removing the buds from fruit trees and Gooseberry bushes, &c., in bullfinch fashion, and on that account not infrequently shares the fate of the latter well-known marauder. But I must say that I have never been able to ascertain that he does so, and I am inclined to think that he is perfectly innocent of this offence, notwithstanding his admittedly suspicious movements on fruit trees and Gooseberry bushes, &c., when he is no doubt diligently searching for minute insect food. Has any one ever found buds in his crop? I never did so, although I have looked for them more than once. One thing, however, it cannot be denied he will do, viz., dig small holes near to the stalks of nearly ripe Peas, which has the effect of making them decay rapidly, but in some measure to atone for this very objectionable practice, he will, if admitted into the greenhouse, in a wonderfully short time, free the plants from aphids, as effectually as a thorough fumigation would do.

THE HOUSE SPARROW is also sometimes blamed for picking the buds from fruit trees, &c.; yet I have never ascertained that he did so. But he is never-

theless a sad rogue in the garden, and like the bullfinch has little mercy shown to him, nor can he be said to deserve more. In town gardens he is possibly more mischievous than he is in country places, and in such gardens it is one of his favourite amusements to pull the blooms of the *Crocus* to pieces apparently with no other object in view than the fun of doing so. A thread, however, stretched along the lines of these plants will effectually prevent him from interfering with them; but the gun is the only thing that will prevent him from destroying crops of early Peas.

THE CHAFFINCH, the greenfinch, and in a less degree, the sweetest of British songsters, the grey linnet, are the most troublesome as regards the destruction of seeds; while the beautiful goldfinch is perfectly harmless, and feeds only upon the seeds of weeds, and his presence is a sure indication of slovenliness in the garden or on the farm. The hawfinch is a shy and somewhat rare bird, but he has a weakness for green Peas, and sometimes makes considerable havoc with the Cherry crop, disregarding that portion of this delicious fruit which is generally appreciated, in order to secure the stone, which he readily breaks with his wonderfully powerful bill, and feasts upon the kernel. How he gets to know that the cherry contains a stone is not so easily explained.

All the small soft-billed birds may be considered as harmless in the garden, and should not be molested, as they do little or no harm; and as the feed almost entirely upon insects, they must necessarily do much good, such as the hedge-sparrow, the wagtail, the wren, the robin, &c. The last-named, it is true, will help himself to a few ripe Currants, to which he is generally welcome enough; and during severe winter weather he has no objection to being imprisoned for days together in a greenhouse, or rather in ainery containing ripe fruit, and where, should there happen to be any uncertainty as to which of the bunches are of the best quality, he will very quickly decide the matter, and that pretty correctly. And on such occasions the blue tom tit does not object to keep his company.

THE OWL is regarded as a bird of ill-omen, and as such is generally destroyed wherever he is found. This is no doubt a great mistake, as in a garden he does no harm, but, on the contrary, much good, feeding as he does in a great measure upon mice, which in most gardens are exceedingly destructive. He is blamed, it is true, for sometimes mistaking a young chicken or a young partridge for a field mouse, but this is not likely to occur often, as he only feeds at night, and chickens and young partridges ought not to be abroad at such times.

THE KITE.—In some parts of the country the common kite is also regarded as a bird of ill-omen, and persecuted accordingly; but he is a shy bird, and does not often frequent gardens, and does no harm when he does so. The black-cap and the white-throat are both troublesome in the Raspberry quarter at the time when the fruit is ripe, but they also destroy great numbers of insects, and the song of the former is remarkably sweet.

THE CUCKOO does good service in the fruit garden, feeding chiefly on caterpillars, and he will speedily clear a plantation of Gooseberry bushes of these troublesome pests, and the wagtails make excellent foster-parents for their young. All the small soft-billed birds will, however, feed the young cuckoo, as there appears to be a sort of fascination in its peculiar cry and open mouth which they cannot resist. It may not be generally known that some kinds of young birds will, under certain circumstances, feed each other, and as an instance of this I may mention that some years ago I observed a young thrush in a large cage. It had been an early hatched bird, and was at the time I am alluding to fully fledged, apparently very healthy and quite tame, and on looking into the cage I observed that it also contained a very wretched looking unfledged bird of the same species. On remonstrating with the owner on what I thought the cruelty of placing this young creature where it was he assured me that the elder bird had taken charge of the younger one, and was feeding and taking every care of it; and to convince me of the assertion he placed a few small pieces of raw meat inside the cage, one of which the elder bird at once seized upon, and after repeatedly striking each piece upon the bottom of the cage, placed all (with the exception of the last piece, which he swallowed himself) in the open mouth of the younger bird, which the latter to all appear-

ance thankfully swallowed. According to a writer in *Nature* some of our small migratory birds are not strong enough to perform the long flight of at least 350 miles across the Mediterranean Sea, but they nevertheless manage to obtain a free passage across, mounted upon the backs of cranes. Late in the autumn, when the weather has become cold, it appears that many flocks of cranes may be seen coming from the north towards the south coast, flying somewhat low, and at the same time uttering a peculiar cry, as if of alarm; and as they do so small birds of various species may be seen flying up to them and settling themselves comfortably upon the backs of the cranes, twittering at the same time their songs of thankfulness. If this statement is correct it presents a wonderful provision of Nature, failing which many species of small birds would inevitably become extinct. *P. Grieve.*

BLACKBIRDS AND THE SLUGS.—I believe, with Mr. Wolley Dod and Mr. Harrison Weir, that blackbirds as a rule do not touch slugs. For four years I have had a pair of blackbirds so tame as to come to the window-sill for food whenever the ground was frozen. They nested in my orchard-house, and would sit on their eggs, or young, without fear, and let me almost touch them. I protected them from cats with wire, and every year they had three broods of five each. This year they had one brood of six, which is, I believe, unusual. I knew them afar from all the other blackbirds (of whom I had sometimes thirty), for the cock had a red beak, and the hen a white head, which was the result of increasing baldness. I could write a long history of their adventures, narrow escapes, firm constancy, and dauntless courage; for although the cock was the smallest blackbird on the place, he allowed no bird of twice his size (not even the pickaxe-beaked starling) to intrude upon his hearth or hunting-grounds. I think that the hen was even tamer than the cock. They would gladly take a worm, not quite from the finger, but tossed to them at a few yards' distance; but they never touched a slug so offered, and they let the slugs in that very sluggy year, 1879, abound around them. They always took their autumn outing (in Bushey Park, most probably), and returned to us before the frost; but I fear their date is over now, for they have not appeared this winter. Again, I had a nest of other blackbirds in a *Deodora*, just over a plant of *Lilium giganteum*. They were decently tame, though not at all to be compared to the others. They used to play round that Lily, but never touched the slugs with which it was infested—large white slugs, as delicate as a native. A great authority on natural history, seeing this state of things, said to me, "Your blackbirds ought to be ashamed of themselves; their very threshold is covered with slugs." Not a worm could take the air without paying for his whistle, but the slugs promenade *passim*. My fowls would seldom catch a slug, but rush about zealously chasing one another for a snail. *A. D. E.*

Apiary.

DEB BOOKS.—It is sufficient to read the criticisms upon recent books on bee culture which have appeared in these pages to understand that many of the objections offered to books on gardening are true of bee books. The book which shall show the unlearned apiarian how to lead from the straw skeps up to the complicated but doubtless most profitable beehive seems still to be wanting, and until this is provided in a cheap form, and brought within reach of the poorest bee-keeper, I fear little will be done to make apiculture universally popular. Writers upon improved systems of bee-keeping seem, as a rule, to proceed upon the assumption that their readers are already to some extent versed in the higher branches of bee-keeping. This is the very class of readers who want least of all to be taught, because the groundwork they already possess, combined with education, enables them to acquire through experience most valuable knowledge. The poor untutored bee-keeper, who has kept bees in straw skeps all his life, and yet with few variations proceeds in his work almost as his father did before him, is not only incapable of appreciating the teachings found in an advanced book, but he has prejudices to overcome, and the only hope of influencing him in a better direction is to make the steps from crude to perfect hives as simple and as attractive as possible. Profit is an element in bee-keeping that exercises a potent influence. If it can be shown that the newer way is the more profitable, very much is done to en-

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

<i>Aralia Sieboldii</i> , doz 18 0-42 0	<i>Ficus elastica</i> , each 1 0-7 0
Arbor vitae (golden), per dozen .. 6 0-13 0	Foliage Plants, various, each .. 2 0-10 0
— (common), dozen 6 0-12 0	Hyacinths, per doz. 8 0-12 0
Azalea, per dozen .. 3 0-42 0	Lily of the Valley, per doz. .. 2 0-4 0
Begonias, per doz. .. 8 0-12 0	Myrtles, per doz. .. 6 0-12 0
Bouvardia, per doz. 18 0-24 0	Palm in variety, each .. 2 6-21 0
Cyclamen, per doz. 12 0-24 0	Pelargoniums, scotch, per dozen .. 3 0-6 0
Cyperus, per dozen 6 0-12 0	— let, per dozen .. 3 0-6 0
<i>Dianthus terminalis</i> , 30 0-60 0	Poinsettia, per doz. 12 0-18 0
— viridis, per doz. .. 12 0-24 0	Primula (single), per dozen .. 4 0-6 0
Epiphyllum, per doz 18 0-30 0	Poinsettias, per dozen 9 0-15 0
Eranthis, various, per dozen .. 6 0-18 0	Tulips, per dozen .. 8 0-15 0
Evergreens, in var., per dozen .. 6 0-24 0	
Feris, in variety, doz. 4 0-18 0	

C.T. FLOWERS.—AVERAGE WHOLESALE PRICES.

<i>Abutilon</i> , 12 blooms 1 0-2 0	<i>Lily of Val.</i> , 12 spr. 2 0-4 0
Azalea, 12 sprays .. 1 0-2 0	Marguerites, 12 bun. 4 0-6 0
Bouvardia, per bun. 1 0-1 6	Mignonette, 12 bun. 6 0-8 0
Camellias, 12 blooms 3 0-6 0	Pelargoniums, 12 sprays .. 1 0-1 6
Caranths, 12 blms. 1 0-2 0	— zonal, 12 sprays 0 6-1 0
Chrysanth., 12 bun. 12 0-18 0	— Primula, double, per bunch .. 1 0-1 6
— 12 blooms .. 2 0-4 0	— (single), 12 bun 6 0-12 0
Cyclamen, 12 blooms 3 0-6 0	Roses (Rouge), doz. 2 0-4 0
Epiphyllum, 12 blms. 0 7-1 0	— Tea (French), per dozen .. 1 0-2 0
Eschschs, per doz. .. 6 0-9 0	Tropaeolum, 12 bun. 1 0-3 0
Gardenias, 12 blms. 12 0-24 0	Tuberoses, per dozen 3 0-6 0
Heliotropis, 12 sp. .. 0 6-1 0	Tulips, 12 blooms .. 1 0-2 0
Hyacinths (Roman), 12 sprays .. 2 0-3 0	— (French Parma), per bunch .. 6 0-8 0
— (large), 12 spikes 9 0-12 0	
Lupulina, white, 12 blooms .. 4 0-6 0	
— red, 12 blooms, 1 0-3 0	
Lilac (Fr.), p. bunch 7 0-8 0	

CORN.

At Mark Lane on Monday 11, per quarter advance was established on home-grown Wheat, American red winter Wheats and Calcutta were *bid.* dearer. Other foreign supported previous value steadily. Flour was not quotably altered, but good medium grades tended against buyers. Malting Barley sold 1s. dearer, and in some cases a larger rise was obtained. Grinding sorts were dull of sale on the spot, but there was a moderate inquiry for arrival. Beans and Peas were unaltered. Maize was firmly held. Oats met a quiet sale at last Friday's rates, except low new, which were rather easier.—On Wednesday the prices of English Wheat were steady, but foreign steady rates were obtained. Flour was without alteration. Malting Barley was firm, but grinding sorts dull. Maize sold slowly on the stands at 3s. to 3os. 3d. for flat corn, and 3os. to 3s. for round. Oats met a limited demand at previous value.—Average prices of corn for the week ending Dec. 31, 1881.—Wheat, 44s. 3d.; Barley, 31s. 6d.; Oats, 20s. 4d. For the corresponding period in the preceding year:—Wheat, 41s. 11d.; Barley, 31s. 5d.; Oats, 20s. 10d.

CATTLE.

At Copenhagen Fields on Monday the beast supplies offered a fair assortment, and sales progressed with a moderate demand. Sheep cleared off pretty well, but the extreme quotations of Monday last were hardly supported. Calves were unaltered in value. Quotations:—Beasts, 4s. 4d. to 4s. 8d., and 5s. 2d. to 6s. 2d.; sheep, 5s. to 5s. 10d., and 6s. 3d. to 7s. 2d.; calves, 4s. 4d. to 6s.—On Thursday trade was quiet, and prices favoured buyers. Beasts were decidedly easier to sell, and sheep barely maintained Monday's prices. Calves were scarce and dear, and pigs were steady.

HAY.

At Tuesday's Whitechapel Market fair supplies were on sale, and a quiet trade at the following quotations:—Prime Clover, 12os. to 137s.; inferior, 75s. to 95s.; prime meadow hay, 115s. to 126s.; inferior, 55s. to 90s.; and straw, 30s. to 51s. per load.—On Thursday a moderate supply of fodder was on sale. The trade was dull at the following prices:—Prime Clover, 12os. to 137s.; inferior, 60s. to 95s.; prime meadow hay, 100s. to 120s.; inferior, 50s. to 90s.; and straw, 30s. to 51s. per load.—Cumberland Market quotations:—Superior meadow hay, 12os. to 132s.; inferior, 84s. to 108s.; superior Clover, 128s. to 135s.; inferior, 90s. to 110s.; and straw, 50s. to 55s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that full supplies are on offer, and the stocks large; trade slow, at the following prices:—Kent Regents, 60s. to 100s.; ditto Champions, 70s. to 80s.; Essex ditto, 60s.; Scotch Regents, 80s. to 90s.; ditto Victors, 100s. per ton, German reds, 3s. 6d. to 4s. 6d. per bag.

COALS.

The following are the quotations current at market during the week:—Ravensworth West Hartley, 14s. 3d.; Walls End—Hetton, 17s.; Hetton Lyons, 15s. 6d.; Lambton, 16s. 6d.; Original Hartlepool, 17s.; Wear, 13s. 6d.; Chilton Tees, 18s.; Thornaby, 15s. 6d.; Haslewell, 17s.; Hawthorn, 15s. 6d.; South Hetton, 17s.; Tunstall, 15s. 6d.

Government Stock.—Consols closed, on Tuesday, at 99½ to 99¼ for both delivery and account. On Wednesday the closing prices were as on Tuesday for delivery, and 99½ to 100¼ for the account. Thursday's final quotations were, for delivery, 99¼ to 99½, and 100 to 100½ for the account. The above are all *ex div.*

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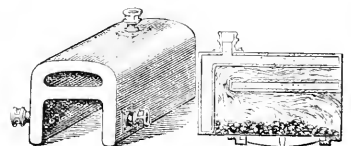
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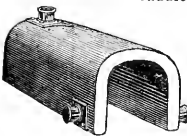
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4	36 in.	16 in.	100 ft.	5 0 0



Plain Saddle Boiler.

Plain Saddle Boilers are generally used for heating from 100 feet to 300 feet of 4-in. piping; above that quantity it is more economical to use our Check-end Boiler, as one of these, 3 feet long, will heat double the quantity of piping a 3-foot Plain Saddle will.

Size of Sockets.	Size of Boiler inside arch.			Heating Power for 4-in. Piping.	Price on application.
	Length.	Width.	Height.		
Fitted with three 2-in. Sockets.	18 in.	12 in.	10 in.	100 ft.	
	21 in.	12 in.	10 in.	125 ft.	
	24 in.	12 in.	12 in.	150 ft.	
	27 in.	14 in.	14 in.	200 ft.	
	30 in.	14 in.	14 in.	250 ft.	
	36 in.	16 in.	16 in.	300 ft.	

The Perfect Throttle Valve.



2-in.	12s. 6d.
3-in.	12s. 6d.
4-in.	15s. 0d.

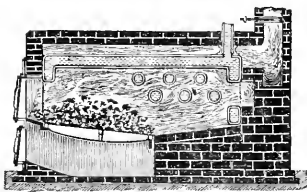
Screw Valves Tight under any Pressure.



2-in.	15s. 0d.
3-in.	20s. 0d.
4-in.	25s. 0d.

The whole of the working parts of these valves can be removed without disturbing or cutting the pipes.

Patent Check-end Saddle Boiler.



Check-end Saddle Boiler, simple and durable.

No.	Outside Length.	Outside Width.	Outside Height.	Cross Tubes.	Heating Power for 4-in Piping.	Price of Boiler only.
1	30 in.	20 in.	18 in.	1	300 ft.	£3 10 0
2	36 in.	20 in.	18 in.	1	500 ft.	10 10 0
3	42 in.	22 in.	18 in.	1	750 ft.	13 0 0
4	48 in.	24 in.	20 in.	1	1000 ft.	16 0 0
5	48 in.	27 in.	20 in.	1	1250 ft.	20 0 0
6	54 in.	27 in.	22 in.	2	1500 ft.	23 0 0
7	54 in.	30 in.	22 in.	2	1750 ft.	26 0 0
8	60 in.	33 in.	24 in.	6	2000 ft.	30 0 0

The Phenix Slow Combustion Boiler.

We claim for our Phenix Upright Boiler the following good qualities, viz.—It is made of the best materials; has no parts that are liable to failure; is provided with a flue that cannot be choked with fuel; will heat effectually the proper heat twelve hours; requires no brickwork, and takes up the smallest space of any boiler of its power.

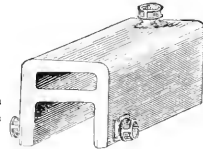
Sockets can be placed in any position.

Cash Prices—Carriage paid.

Size.	Total Height without Feed Hole.	Diameter of Boiler.	Heating Power for 4-in. Piping.	Price.
1	25 in.	16 in.	150 ft.	£5 0 0
2	29 in.	16 in.	200 ft.	7 0 0
3	30 in.	16 in.	300 ft.	8 10 0
4	32 in.	18 in.	400 ft.	10 0 0
5	36 in.	18 in.	500 ft.	12 0 0

The Terminal End Saddle Boiler.

This Boiler is much used, and is one we can confidently recommend.



Total Length.	Size of Boiler.				Heating Power for 4-in. Piping.	Price on application.
	Inside Arch.	Outside Measure.	Width.	Height.		
30 in.	16 in.	16 in.	22 in.	27 in.	500 ft.	
36 in.	16 in.	16 in.	22 in.	27 in.	750 ft.	
42 in.	16 in.	16 in.	24 in.	27 in.	1000 ft.	
48 in.	21 in.	18 in.	27 in.	30 in.	1300 ft.	
54 in.	24 in.	18 in.	30 in.	30 in.	1600 ft.	
60 in.	24 in.	18 in.	30 in.	30 in.	2000 ft.	

Boilers made to suit any position for Baths, Harness Rooms, Lavatories, &c., &c.

All sizes of Boilers given in this Advertisement are kept in stock, and are rated to effectually heat the quantity of Piping named with a minimum amount of fuel.

All Orders amounting to 40s. Carriage Paid to any Railway Station in England and Wales also to Edinburgh, Glasgow, Dublin, and Belfast.

Thomson's Vine and Plant Manure.

Manufactured and sold by THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), LIMITED.

This is the Manure used to produce the splendid Grapes grown at the Tweed Vineyard, Clonfert.

Full particulars on application. The Trade supplied.

All Letters to be addressed to THE MANAGER The Vineyard and Nursery, Garston, near Liverpool.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1850, against Red-spider, Mildew, Fungus, Greenfly, and other insects...

AMERICAN BLIGHT ON APPLE TREES CURED) by rubbing a wet hard Painter's brush on Gishurst Compound, and working the latter into the infected part.

GISHURSTINE keeps feet dry, softens hard heels, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

Under the Patronage of the Queen. J. SMITH'S IMPERISHABLE STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED BLACK-PLATE LETTERS. The Gardeners' Magazine says:—"We must give these the palm before all other plain labels, as the very first in merit."

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Order with your Seeds from all Seedsmen and Florists BOUQUET WIRE—SILVER WHITE.—Finest quality, does not rust, consequently always smooth and nice to work however long kept.



JOHN MATTHEWS, THE ROYAL POTTERY, Worcester-on-More, Manufacturer of TERRAZZO, COTTA VASES, POUNTAINS, ITALIAN BASKETS, BOUTER TILES, GARDEN POTS, of superior quality...

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ASTON CLINTON STRAW MATS.—The warmest covering for Ficus Frames. Sizes—6 feet 6 inches, by 3 feet 9 inches, at 2s.; 6 feet 6 inches, by 1 foot 6 inches, at 2s. 6d. 1/6 feet 6 inches, by 7 feet, at 3s. 2d. Apply to Miss MOLLIQUE, Aston Clinton, Tring, Bucks.

SILVER SAND, Surrey, 8s. and 10s. per ton; Bed, 5s. and 1rs. per ton (truck-loads). FEATS and LOMS at garden prices. W. SHORT, Horticultural Depot, Red Hill, Surrey.

A. S. SMITH WOODCRAFTER & Co. 125, GROSVENOR ROAD, HIGHBURY, N.

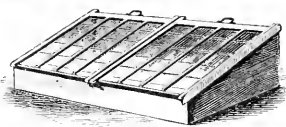
GLOW-WORM SLOW COMBUSTION STOVE. 32x14, 30x20, 25x19, 22x10. Ash-pan Included. SUITABLE FOR DAIRIES, SEWERS, OFFICES, HALLS, and BILLIARD ROOMS. T. MCKENZIE & SONS (Limited), 16, HOLBORN VILLAGE, LONDON; Dawson Street, Dublin; Victoria Street Belfast.



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'ART WITH ECONOMY.' Applied to Conservatories and Greenhouses. Part I. Now ready. Post-free, twelve stamps. HORTICULTURAL BUILDINGS Of every description Made, Erected, Fitted and Heated. ESTIMATES and PLANS GRATIS. CHEAP ART SUMMER-HOUSES. Illustrations and Prices Gratis. Mr. Fawkes' New Illustrated Work of Reference on Horticultural Buildings, post-free, 10s. 6d. Prospectus sent gratis.

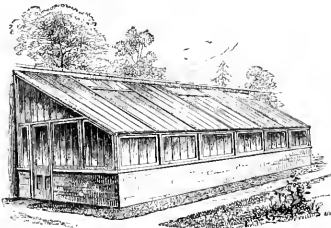
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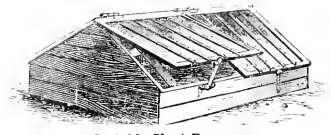
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W. H. LASCELLES, HORTICULTURAL BUILDER, 121, BUNHILL ROW, LONDON, E.C.



W. H. LASCELLES will prepare Special DRAWINGS and ESTIMATES for GREENHOUSES, if desired, without charge, and send his Illustrated Sheets, post-free, and also Sketches of wooden Buildings for Hothouses, Store-houses, &c.



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No Greenhouse Perfect without TEEB'S UNIVERSAL FUMIGATOR.—Will last for years, and is fast superseding all other apparatus or contrivance for the purpose. Price 3s. 4d. 6d.; large size, 7s. 6d. each; packing cases.

The Best System of Heating is by Hot Water. The Best Hot-Water Joint is Jones' Expansion Joint. JONES & ATWOOD, ENGINEERS & IRONFOUNDERS STOURBRIDGE.

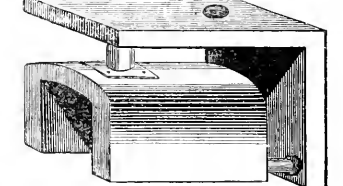
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The largest stock to the Kingdom, 4-inch pipes, 1s. 6d. per yard. SILVESTER & SAUNSBURY, Castle Hill Foundry, Newcastle, Staffordshire.

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These Boilers possess all the advantages of the old Saddle Boiler with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L" SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

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Larger sizes if required. From Mr. CHARLES YOUNG, Nurseries, Baltham Hill, S.W., May 29, 1875. "Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, as without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers in a hour."

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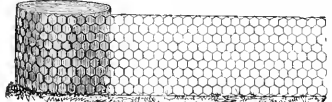
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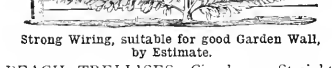


Strong Wiring, suitable for good Garden Wall, by Estimate.

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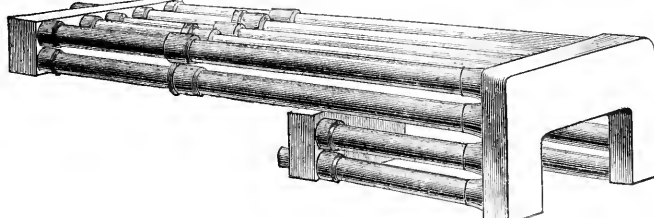
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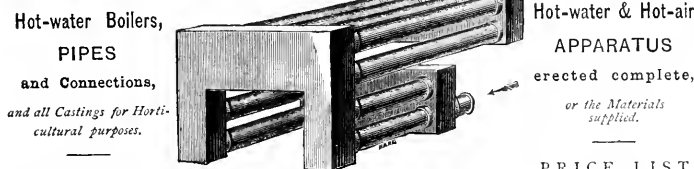


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DISEASES OF PLANTS.
EVERGREENS.
EXHIBITIONS.—FERNS.
FLORISTS' FLOWERS.
FLOWER GARDENS.

FORCING.
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FRUIT CULTURE.
GREENHOUSE PLANTS.
HERBACEOUS PLANTS.
IMPLEMENTS.—INSECTS.
KITCHEN GARDENING.
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LAWNS.—LILIES.
MACHINES.
MANURES—Analyses of.
MARKET GARDENING.
NENPETHES.

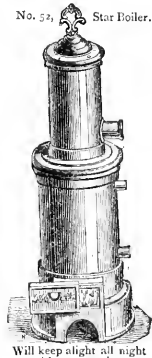
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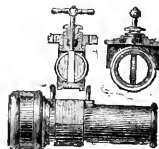
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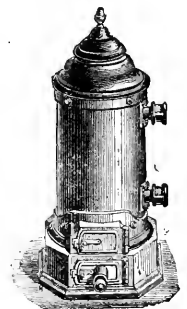
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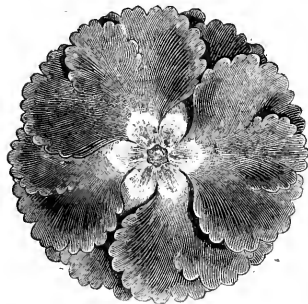
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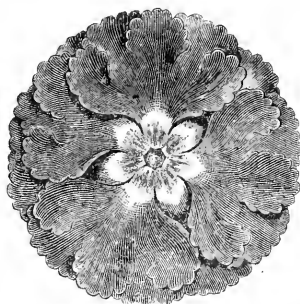


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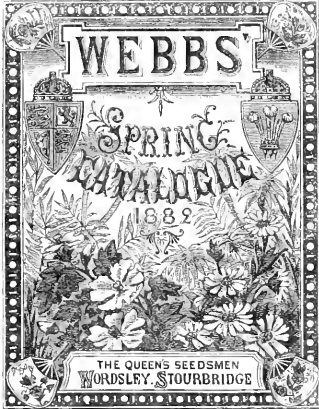
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SATURDAY, JANUARY 14, 1882.

THE BEST NOVELTIES OF 1881.

(Continued from p. 10.)

STOVE PLANTS.

THESE naturally divide into two sub-groups, commonly distinguished by the terms flowering and flowerless plants, using the words in their gardening sense. We shall take the former first, and it will afford, as we shall see, several subjects of interest, though nothing very startling. The most sensational plant is, no doubt, Mr. Bull's Tacarum Warmingianum (*Gard. Chron.* xvi. 654, fig. 134), which, perhaps, unites the two groups we have alluded to by representing now one, now the other of them. In its flowering stage, however, it is obviously a flowering plant, and from this point of view is remarkable for its large spathe, which is 15 inches long, convolute at the base, revolute at the tip, and of a light coppery-brown, the upper part of the spadix covered with pinkish male flowers. When not in bloom it forms a grand foliage plant, the tuberous root producing a solitary leaf, elevated on a petiole which is light green marked with white lines, and which reaches 3-4 feet in height; the blade is 2-2½ feet across, three-parted, each division being bipinnatifid, and its ultimate lobes lanceolate-oblong, falcate, and connected with each other by a broad, well-marked wing. This grand Arad was imported by Mr. Bull from Minas Geraes, in Brazil, where it was first discovered by Dr. Warming, after whom it is named. Another plant of the same character is the *Dracontium Carderi*, which has the solitary three-branched bipinnatifid leaf, 2 feet across, elevated on a mottled green and brown petiole 2-3 feet high, and the spathe after a foot long, green outside, dull purple within. The Bornean *Jasminum gracillimum* (*Gard. Chron.* xv. 9, fig. 2), a white fragrant climber of a very ornamental character, proves to be especially valuable as a winter blooming plant. Another interesting acquisition, and likely also to have a special value on account of its winter blooming habit, is the *Begonia socotrana*, a tuberous species from Socotra, with orbicular petate leaves, and bright rose-pink flowers disposed in lax cymes (*Gard. Chron.* xv. 8). *Euadenia emines*, from West Tropical Africa, is a singular half shrubby Capparid, with trifoliate leaves, and large terminal racemes of curious pale yellow flowers, in which the two upper petals of each flower are longer—nearly 4 inches—and of a spatulate form. *Lysionotus serrata*, an Indian Gesneraceous plant, is a pretty addition to stove plants; it is of erect habit, has fleshy stems 1-2 feet high, rather large elliptic lanceolate leaves, with a glossy upper surface, and axillary corymbs of funnel-shaped oblique-mouthed pale lilac-blue flowers, marked with darker blue veins. *Osbeckia rostrata* is another Indian (Bengal) soft-stemmed shrub, with four-cornered stems, large elliptic ribbed leaves, and terminal cymes of large bright mauve-purple flowers. One or two additions have been made to the Amarylhidaceous genus *Crinum*, namely, *Crinum Forbesianum*, from Delagoa Bay—a noble plant, with a large fleshy bulb, ciliate lorate leaves, which appear before the flowers, and

many-flowered umbels of white blossoms flushed and striped with bright rose-red; and *Crimm Balfourii*, from Socotra, another interesting species, with many-flowered umbels of shortly-stalked fragrant white flowers. *Ixora Westii*, with bright pink flowers, darkest in the tube, and *Ixora Pilgrimii*, with orange-scarlet flowers, shaded with crimson, are good acquisitions. To the foregoing we must add two or three Bromeliaceæ; one, called *Neumannia nigra*, is of caulescent habit, with long-stalked elliptic recurved leaves, and a cylindrical spike of crimson bracts, from which purple-black flowers, $2\frac{1}{2}$ inches long, protrude; the inflorescence rather recalls that of a *Curcuma*. The *Chevalliera Germinyana* is a very fine plant, with broad spreading leaves, and a dense spike of dark crimson bracts from which the white flowers scarcely emerge. Less striking, but not less graceful, is the Brazilian *Bilbergia Lietzelii*, a pretty plant in the way of *B. nutans*, with lorate spinulose leaves, scarlet bracts, and long green flowers tipped with blue; of this there is also a double-flowered variety. The interesting *Tillandsia argentea* of gardens is, according to Professor Morren, a species of *Anoplophytum*, which he calls *A. incanum*.

Of the group designated "foliage" plants—that is to say, those in which the flowers are not the primary consideration—precedence must be given to some of the magnificent Pitcher-plants of Borneo, especially *Nepenthes Rajah* (*Gard. Chron.* xvi. 493, fig. 91), and *Nepenthes Northiana* (*Gard. Chron.* xvi. 717, fig. 144, et supp.). *Nepenthes Rajah* has broad, purplish-crimson pitchers, 6 inches across, and more than a foot long, the large lid spurred at the base, and the broad rim of the purplish orifice closely ribbed. *Nepenthes Northiana* is equally grand, the full-grown native pitchers being cylindrical, greenish-red, purple-spotted, 12 to 16 inches in length, the mouth surrounded by an everted part, the frill 2 inches broad. Other Pitcher-plants have come to the front, and added greatly to the interest attaching to these wonderful plants. Thus we have the true *Nepenthes Veitchii* (*Gard. Chron.* xvi. 751, fig. 152), from Borneo, with cylindrical pitchers, having sharply lacerated wings in front, and a very broad creamy-olive or reddish everted plated border surrounding its mouth. *Nepenthes madagascariensis* (*Gard. Chron.* xvi. 685, fig. 139) is quite a novelty, its small flask-shaped pitchers being crimson, the mouth circular, contracted, the throat cream coloured, and the small lid spurred at the back. *Nepenthes Masteriana* (*Gard. Chron.* xvi. 749, fig. 148), raised at the Royal Exotic Nursery, Chelsea, between sanguinea and khasyana (the distillatoria of gardens), is one of many pretty hybrids now in cultivation; it has claret-red cylindrical pitchers. *Nepenthes Courtii* (*Gard. Chron.* xvi. 845, fig. 160) is also a very beautiful hybrid, with green pitchers, spotted with red, a cross between *Dominii* (itself a cross out of *Rafflesiana*) and an undetermined Bornean species suspected to be *N. lanata*; this is remarkable for its sharply lacinate wings. *Nepenthes Henryana*, a handsome hybrid between *Hookeri* and *Sedeni*, has the pitchers green, heavily blotched with reddish-purple, the mouth crimson, and the lid suffused with rosy-lake. *Nepenthes superba*, also a cross between *Hookeri* and *Sedeni*, is a plant of very similar character. Of another class is the *Dracena Lindenii*, an exceedingly elegant addition to this highly decorative group, and which has an erect stem and elegantly recurved lanceolate green leaves, longitudinally striped with creamy-yellow. Amongst the so-called *Crotons* (more correctly *Codiaeum*) one of the most effective is *Croton Thomsonii*, a variety with obsoletely lobed leaves 1 foot long and 4 inches broad, deep green, the midrib and veins strongly marked with bright yellow. *Croton Laingii* is also a distinct and pretty form, with narrow, drooping, slightly twisted leaves, dark green in their upper half, the remaining portion yellow, and the stem and petioles tinged with red. The genus *Dieffenbachia* has received important accessions in *Dieffenbachia triumphans*, a Columbian plant, with the dark green leaves thickly blotched with yellowish-green; and in *Dieffenbachia Imperator*, from the same country, the

latter having the leaves pale olive-green blotched with pale yellow and white. In *Schinmatoglotis Lavallei* we have a rather elegant *Araç*, with slender erect stems, long-petioled lance-oblong acuminate leaves about 6 inches long, green, freely maculated and blotched with silvery-grey. The *Ardisia metallica* from Sumatra seems likely to be a decorative shrubby plant, being clothed with lanceolate-oblong leaves, having the surface shot with a bluish and bronzy metallic lustre; it bears red berries in the leaf axils. *T. Moorei*.

(To be continued.)

New Garden Plants.

PESCATOREA LEHMANNI.

We are now enabled to give an illustration (fig. 5) of a flower of this beautiful novelty, sent to us by M. Vervae, of Ghent. The plant was originally described in these columns by Professor Reichenbach (vol. xiii., p. 424). The broadly ovate acute segments are, within, of a deep violet hue, velvety in texture, and traversed by numerous parallel white lines, corresponding to the principal veins. The lip is smaller than the segments, and paler in colour, with a flat, narrow, deflexed claw, and a three-lobed limb, of which the two side-lobes are bent upwards, forming a deep channel leading up to the column; this channel is strongly ribbed with violet ridges, the intervening furrows being white; the terminal lobe is oblong-lanceolate, concave on the upper surface, which is clothed with rather coarse setæ, strongly revolute at the apex and at the margins. Mr. Worthington Smith calls our attention to the side view of the column and lip as seen in the sketch to the right, and which closely resembles an elephant's jaw, even to the position of the tooth. Prof. Reichenbach, whose keen appreciation of resemblances, and whose ingenuity in devising specific names for Orchids are matters for admiration among his colleagues, would, no doubt, have devised some descriptive designation, were it not that the claims of M. Lehmann were considered paramount.

Since writing the above we have received from Messrs. Sander & Co., of St. Alban's, a letter in which they state that they introduced the plant through M. Lehmann, and were also the first to flower it. They also enclose a flower of the same form as that figured, but much paler and more red in tint, with the white lines broader, and in which the base of the flower-segments, the tip of the column, and the setæ on the lip are nearly white. It is clear that the colour of the plant is variable, and Messrs. Sander's specimen gives rise to the hope that a pure white variety may not be an impossible thing in the future.

MASDEVALLIA TRIANGULARIS, Lindl.

One of the *Masdevallias* of the most ancient nobility, no *parvenu* of our days, one of Mons. J. Linden's discoveries of 1842 or 1843. Ask Director Linden, he will tell you the very day. It is an extraordinary plant, most probably the most florid of all its congeners. Only a few *Pleurothallis* of my knowledge can equal it. I have before me a dense mass of fifty stems with cuneate oblong leaves, less than a span in height, with a great quantity of flowers with unusually delicate colours and numerous buds, which remind me of the heads of long-beaked ibis-like birds. The older stems are covered with the blackish cover so common in numerous *Masdevallias*. The buds have a singular rounded *gottweii* form of their chins. The sepals expand widely, and their oblong-triangular bodies are of light ochre colour, with innumerable light elegant brownish-purple spots, the base of the lateral ones being yellow, free from spots. The small white petals have three teeth at the top, a callus inside in the middle, and a spinoid tooth on their base in front of the purple-brown nail. The white rhombic lip is spotted all over with purple spots, and its opposite part shows two triangular side lacinae and a cuneate oblong fringed small blackish-purple middle lacinae. These latter-mentioned parts are reflexed in a very elegant manner. The column is white with purple anterior angles. This fine plant comes from Venezuela. I never saw it alive before, but now as a

lovely Christmas-box it flowers in profusion before me; having been sent by Mr. Sander. *H. G. Rehb. f.*

PHALANOPSIS STUARTIANA PUNCTATISSIMA.

I propose this name for a fine variety which has numerous small mauve spots on the upper sepal, petals, and upper and inner side of the lateral sepals. Of course it comes from Messrs. Hugh Low & Co. *H. G. Rehb. f.*

COLUMNÆA KALBREYERANA.

This very remarkable stove *Generad* was exhibited by Messrs. Veitch at the Scientific Committee on Tuesday last, and deservedly received the award of a Botanical Certificate. It is indeed something more than a botanical curiosity, having a very striking and ornamental appearance. We have not yet been enabled to look into the botanical history and structure of the plant, but we may here say that it is of shrubby, perhaps half-climbing habit, with rather thick fleshy stems. The leaves are closely set, apparently in two ranks, one on each side of the stem, each 12 or 18 inches in length, by 2 or 3 inches in breadth, oblong acute, oblique at the base, arching downwards, glabrous, dull green on the upper surface, mottled with translucent creamy-orange on the lower surface, and with green veins. The flowers are borne on short racemes proceeding from the stem, and each has a long yellow calyx $1\frac{1}{2}$ –2 inches long, prismatic, angled and pointed at the tip. We hope shortly to give a figure of this extraordinary plant, and to give fuller and more accurate details as to its structure than we are now able to do.

TECOPHILEA CYANOCROCUS.

This charming little *Idraceous* (?) plant was shown by Mr. G. F. Wilson at the meeting of the Royal Horticultural Society on the 10th inst. It is a bulbous plant, with leaves resembling those of *Scilla sibirica*, but more pointed. The flower is borne on a slender leafless stalk 2 or 3 inches in height, the flower itself being about 1 inch in length, funnel shaped, with oblong obovate obtuse segments of a deep cobalt-blue, like that of *Gentiana acialis*, with a few fine white stripes at the base. The plant was introduced from the island of Juan Fernandez by Messrs. Haage & Schmidt, and was figured in the *Gartenflora*, 1872, tab. 718. See also *Gard. Chron.* 1873, p. 1637. It is probably not quite hardy. Mr. Wilson deservedly obtained a First-class Certificate for this little gem, and he would be doing a service by telling our readers the details of its culture. We are informed that it flowered at Kew some years since, but the plant is not mentioned in Mr. Baker's Synopsis of *Idrises*.

LYGODICTYON FORSTERI.*

This is a handsome climbing Fern, which received a First-class Certificate at the hands of the Floral Committee on Tuesday last. It was exhibited by Mr. Kettle, gardener to H. E. Green, Esq., Kingsford Stanway, Colchester, under the name of *Lygodium Futcheri*. For the correct name we are indebted to Mr. Moore. It is a very fine bold looking climbing Fern, native of the South Sea Islands, and which would do admirably as a pillar plant in a warm greenhouse. The pinnate fronds are of firm texture, bright green, varying in form according to age, the segments being lance-shaped from a square base, each on a very short stalk, wavy, and finely-toothed at the margin. The fertile segments are shorter and broader, and bear the small oblong fruit spikes in rows on the margin like so many blunt teeth. It is the *Lygodium reticulatum* of Schkbr., and of *Hooker* and Baker's *Synopsis* (1868), p. 438.

"THE OLD MASTERS."

This exhibition, now open at Burlington House, is quite equal, in our estimation, to any of the similar gatherings of pictures brought together in former years in the rooms of the Royal Academy. Sir Joshua Reynolds, Romney, Morland, Gainsborough, Hogarth, and Wilkie, amongst deceased Masters of the British School, are well represented. The small picture by James Ward, 1, and named "Wind," is a masterly representation of an old albino nag on a very windy day. Passing many portraits and several landscapes of great interest and beauty, we come to a small picture of "A Bull," 20, by Sir Edwin H. Landseer, R.A., an admirable piece of draughtsmanship and colour. In 26 and 27 are notable pictures by George Morland, of "Gipsies in a Woody Landscape," and a

* *Lygodictyon Forsteri*, J. Smith in *Hook. Gen. Fil.* t. iii. 8; and in *Historia Filicum* (1873), p. 352; *Ferns British and Foreign* (1877), p. 259.

portrait group by Hogarth. The famous picture by Wilkie, named "The Card Players," 34, is lent by Mr. J. Walter, M.P. The same gentleman, amongst other pictures, lends 55, "The Marriage Feast at Cana," by Jan Steen, an elaborate picture full of detail, indicative of the close proximity, in the artist's mind, at least, of Cana with Holland. A remarkably good Dutch picture of figures and a wintry landscape is 73, "Skating Scene in Holland," Aart van der Neer. The Earl of Normanton lends 77, "A Young Lion," life size, rolling over on rocky ground, by Rubens, a remarkable and most life-like representation of a lion at play. Amongst several pictures by David Teniers, all in his well-known style, we may direct attention to the curious "Temptation of St. Antony," and amongst the four paintings by Adrian Van Ostade to that of the curious picture of "The Nativity," 91.

In gallery No. 3 are the famous pictures of "Charity" and "Fortitude," by Sir Joshua Reynolds, 129 and 132, both lent by the Earl of Normanton; and the "Immaculate Conception," attributed to Murillo, 135. In this well known composition one of the angelic children is represented with flowers of *Lilium candidum*, each bloom being furnished with five petals only instead of six; it seems strange, that in painting such an important picture, the artist should have been careless on such a point as the proper representation of the White Lily, a plant peculiarly associated with the subject represented: the same oversight was commented on in the case of another picture some time since. It may be a trifling defect, but to a botanist

fifth and last room are the famous pictures 242-3-4, of "Charles I. and his Children," by Stothard, "The Trial of Queen Catherine," by Harlow, and "George, second Earl of Macclesfield," by Hogarth. In 247 there is yet another "Portrait of Lady Hamilton," by Romney, and at 253 "John (but painted on the canvas "Jack"), Viscount Kilmorey," by Gainsborough. In the same room there are two large and magnificent pictures by Morland, a large portrait group by Hogarth, and Wilkie's famous unfinished picture, 255, named "School."

ICE STORING IN SAWDUST.

It is not so well known as it ought to be that sawdust is almost unequalled as a material for preserving ice. It is greatly used for this purpose in ocean-going steamers, and I believe largely also by those who store ice in cellars in towns for the purpose of retailing it to the public. I am not aware that sawdust has been used for preserving ice out-of-doors to any extent, if at all—at least, I have never heard of its being so used. Some experiments we made with it here some years ago were so successful that we now depend entirely upon the sawdust pit for supplies, and have not filled or used the old ice-house since 1876.

The old ice-house is a substantial brick and stone building, of the usual egg-shaped pattern, with double doors, and a passage communicating with the outside, and, like most of its type, it is awkward to fill, besides being rather precarious in the way of furnishing ice late

poles, placed all round the sides, at about 2½ feet apart. The bottom of the pit was laid with a double thickness of wooden slabs for the ice to rest upon, and with a slight slope to one corner, to a small catch-pit, for the purpose of collecting the drainage.

From the catch-pit a drain of 4-inch glazed pipes was conducted to an outlet in a hollow some 20 yards distant. Here I may remark, that in selecting a site for a pit an outlet for the drain not more than 20 yards distant should be secured if possible, in order to avoid the expense of cutting a deep drain to a distant outlet. From my notes, I find the pit was ready by the beginning of January, 1877, and on the 4th and 5th of that month we stored in it about 250 loads in all. There would probably be about 170 loads in the pit to the ground level, and eighty loads above the ground level, sloped up to a point like the top of a hayrick to throw off wet. The whole was covered over with from 20 inches to 2 feet in depth of sawdust.

In spring and early summer, when the ice began to settle and give way a little round the sides, the sawdust was examined once or twice a week, to keep cracks filled up, the space round the sides being made good when necessary from a spare heap of sawdust kept in reserve for the purpose. After furnishing daily supplies from July to November, there remained at the end of December about fifty loads of ice in the pit. For the season of 1878 the pit was filled as before, and after the usual supplies daily, for a large establishment, from July to November, there remained at the close of the year about seventy loads in a solid block. For 1879 the pit was prepared in the same way, with the result that after the season's supply there remained about eighty loads in the pit, in a block, at the close of the season. In 1880 the usual supply was stored, with the result that, after ample supplies during the season, there remained at the end of December, when preparing the pit for the following season's storage, a mass of ice 17 feet by 14 in diameter, and 8 feet in depth. The results for last year (1881) were something similar, for when clearing out the sawdust the other day to make room for storing ice for 1882, there was so little waste round the sides of the ice that the workmen could not get at the sawdust between the ice and the wood lining, except by using narrow hoes to draw it to the corners and the end where the ice had been cut from during the season, and where there was room to work a shovel or spade.

Shortly stated, since the pit was first filled five years ago we have never been without ample supplies of ice for every purpose, and it has never been empty—there never being less than fifty to eighty loads left at the end of the year. These results may be fairly regarded as being highly satisfactory, more especially when the cheapness and convenience of the system is taken into consideration. A pit to hold 200 loads of ice may be made in the way described above for from £20 to £25, according to local circumstances. An ice-house of stone or brick to hold the same amount would probably cost not far short of £200. The situation here is not at all favourable for the preservation of ice; being so close to the sea, there is usually a good deal of moisture in the air, while the climate is, on the whole, equable and mild.

One great advantage of this method of storing in sawdust is that ice can be got at any time, several times a-day if necessary, without fear of waste, it being only necessary each time ice is wanted to uncover as much of the sawdust as will admit of the quantity required being got, then covering up as before.

The principal defect in the common form of ice-house is that every time ice is taken out a volume of warmer air is admitted into the ice-house to act on the whole surface of ice for some time after, wasting a great deal more than is usually taken out. It is no unusual thing for a gentleman to have his ice-house filled, and yet have to deny himself the luxury of ice during the heat of summer, lest by opening the doors too frequently supplies may fall during the shooting season in September and October.

Another cause of waste in ice-houses of brick or stone lies in these materials being but indifferent non-conductors, consequently they conduct a certain amount of the heat of the surrounding soil into the house. Wood is infinitely preferable to brick or stone as an insulator from the heat of the soil, besides being cheaper, and preserving the ice more effectually.

There is no doubt the larger the body of ice stored the greater the certainty of successful keeping; thus, 100 loads stored in two different places will not keep

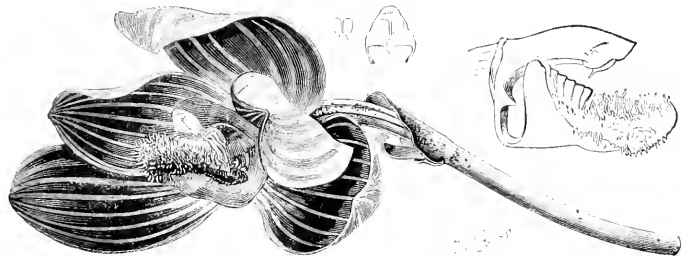


FIG. 5.—PESCATOREA LEHMANNI: FLOWERS RICH VIOLET: TO THE RIGHT LIT, COLUMN AND POLLEN MASSES. (SEE P. 44.)

the sight is as hideous as would be the chief figure to a zoologist if it had three eyes. A most important picture of Nicholas Poussin's is lent by Mrs. Mollison in the "Triumph of Pan," 141. A very curious picture is the "Israelites' Departure out of Egypt," by Bassano. Raphael is represented by two assumed portrait groups in 160 and 199. In gallery No. 4 are numerous Italian and curious archaic pictures, of which 186, "The Adoration of the Shepherds," is, perhaps, the most remarkable; the perspective, if such it may be called, is extraordinary, and the numerous "cherubs" are painted, some bronze colour, others vermilion. The "Adoration of the Magi," by Quentin Matsys, 193, is a noticeable picture with the different heads strangely out of proportion with each other; and in 194, "St. George and the Dragon," by Carlo Crivelli, the dragon is no bigger than an ordinary stag-hound. "St. George, on a rearing steed, is in the act of smiting with his sword the dragon," says the catalogue. A picture remarkable for its ingenuity, good drawing, and brilliant colour is 213, "Samson Destroying the Palace of the Philistines," by Johann Victor Plazer. The only flower subject in the exhibition is a picture by Jan van Os, "Signed Van Os fec," says the catalogue, which note seems to indicate that Os did not know how to spell his own name: however this may be, the picture is a remarkably good one of Poppies, Crown Imperials, Grape Hyacinths, Roses, and Tulips in a vase. Proofs are not wanting to show that some artists are quite incapable of reverently and properly treating religious subjects, and this remark applies to religious edifices as well as personages; note the big dog in the foreground of "Interior of Church," No. 232, by Emmanuel de Witte. In the

season. About 120 loads were usually stored in this house, and about fifty more in a pit near by, covered with straw and leaves, &c., for use in the early part of the season. From this house and pit the supply of ice was frequently exhausted early in October. In the autumn of 1874 we commenced some experiments with sawdust as a material for storing ice, which continued during 1875 and 1876 with the view of finding out whether we could secure a plentiful supply of ice all the year round without incurring the expense of having to build an ice-house in stone or brick.

I need not take up space by giving the details of these experiments; it may be sufficient to say that the results were so promising that I arranged to abandon the old ice-house altogether, and made a sawdust pit large enough to hold from 200 to 250 loads, and to depend entirely upon it for our ice supply. I may here mention that a supply of ice at any time when called for all the year round, but a daily supply—and plenty of it—from the end of July to the beginning of November, is, at Dunrobin, a *sine qua non*.

The site selected for the pit was near the kitchen and larders, in the wood near the Castle, partially shaded, and with a northern exposure, while a rise of the ground to one side admitted of carts being brought above the level of the pit, so as to tip the ice down a shoot directly into it, while a hollow near by secured an outlet for a drain at any depth necessary.

We made the pit square, 20 feet by 20 feet, and 10 feet in depth, the diameter at the bottom was about 17 feet 6 inches by 17 feet 6 inches.

In order to thoroughly isolate the ice from the heat of the surrounding soil, the sides of the pit were lined with wood-dials, 1½ inch thick, nailed to stout upright

so long as 100 loads stored in one place. It may be said that our success with sawdust is altogether owing to the quantity of ice stored. That is perhaps partly correct, but the system has been successfully tried with smaller quantities. We made a pit two years ago for a shooting lodge in the neighbourhood to hold about 140 to 150 loads, and after all requirements in the way of ice had been supplied during the season there remained about fifty loads of ice to the good in December. Where the quantity of ice stored is less than 150 loads a light roof should be made to thoroughly shade the pit, and to throw off rain, so as to keep the sawdust as dry as possible. The sides should be left open to admit of a free passage of air at all times. A light roof of some non-conducting material, such as wood and felt, would be of advantage, whether the quantity stored is great or small, only in the latter case it is a necessity.

This method of storing in sawdust will be found very suitable for tenants of shooting lodges, as they can by this means store a supply of ice at a trifling first cost, where the expense of a stone or brick ice-house would, under the circumstances, be out of the question.

It will be found equally applicable to salmon-fishing stations, and those interested in salmon fisheries would do well to take note of the system for future use. Where existing arrangements and appliances are found in every way satisfactory for preserving ice it might be advisable to "let well alone," but where they are unsatisfactory I would advise a trial to be made of a sawdust pit before throwing a lot of money into the mortar tub. *D. Melville, Dunrobin Castle Gardens, Sutherland.*

GARDENING AT BOURNE-MOUTH.

RECENTLY, whilst staying for a few days at what a few years ago was nothing but a forest of Scotch Firs, Bracken, and Heather, but which has now become a famous seaside resort, called Bournemouth, I was forcibly struck with the dearth of good gardens, or what I ought perhaps to term taste in gardening.

The nature of the soil and the woods of Scotch Firs in some instances preclude much being done in the way of real gardening, but there are hundreds of villas where the trees are so thin, and the soil so good, that in such a climate model gardens might be made at but a trifling expense, and yet all the attempt at gardening made is the usual strip of lawn for croquet or lawn tennis, a few bits of ivy clinging to the boles of the Scotch Firs, and here and there a Rhododendron, an Arbutus, or a Juniper. If one may so put it, the people seem to be ignorant of what further beauty and enjoyment they might have at the same cost they already pay for, with variety of shrubs alone, they might have gardens of the first order at virtually no cost after the first outlay.

The meagre variety in the generality of gardens must be apparent to the most casual observer; for the most part they consist of the common and variegated *Euonymus*, *Rhododendrons*, common and Portugal Laurel, *Arbutus Undco*, *Juniperus macrocarpa*, and Ivy—and this in face of the fact that, in rare instances certainly, all the following shrubs and Conifers were growing away more luxuriantly than I have ever before seen them:—*Araucaria imbricata*, and even the greenhouse variety, *A. Bidwilli*; *Abies Douglasii*, *A. Morinda*, *A. nobilis*, *A. Pinsapo*, and *A. canadensis*, *Cupressus Lawsoniana*, *Juniperus macrocarpa* (this is the plant of all others for Bournemouth), *Pinus insignis*, *P. austriaca*, *P. Laricio*, and *P. ponderosa*. The *Retino-sporas* of all kinds do splendidly, and so do *Thuopsis borealis* and *T. delabarata*, and all the *Arbor-vitæ*, specially *Thuia Lobbiæ*, *T. gigantea*, and *T. occidentalis*. Other evergreens that were doing well were *Andromedas*, *Pernettyas*, *Berberis*, *Cotoneasters*, *Hollies* (especially the variegated kinds), *Osmantus*, *Phillyreas*, and *Skimmias*.

It is questionable whether there is another neighbourhood in the kingdom where such a variety of rare trees would grow and flourish, and it is certainly to be hoped there is not another where, taking into account all the circumstances of situation, climate, and, from appearances, wealth, where good gardening is so much neglected. *W. Widdsmith, Heckfield.*

ADLANTUM WILLIAMSII is a Fern that may be recommended for cutting during the winter months, as, unlike some of its class, it retains its bright green colour through the winter.



The Rosery.

ROSES ON THEIR OWN ROOTS.—"Wild Rose" has given us the *pros* and *cons* with regard to Roses on their own roots. I think, however, that I gather from his letter that he does not quite believe in them; nor do I, after a certain point. But I am certainly in favour of striking cuttings from strong-growing Roses. Weak growers are a failure on their own roots. I do not for a moment think that Roses on their own roots are better than budded ones in any one respect, but I am of opinion that the strong-growing sorts are quite as good. "Wild Rose" tells us that amateurs are favourable to the plan, but nurserymen take the opposing side. I think a solution of this problem is easily found. If all Roses were grown on their own roots the trade of the nurseryman would be virtually destroyed. It is such easy and quick work taking cuttings, whereas budding on dwarfs is, to me, a most laborious business—especially when, touched up in the lumbar regions, like "Wild Rose," or when one has to stoop down 6 feet or crawl on one's knees, to insert a bud in a seedling Briar; and it is on this account, I surmise, and also because of failures in budding, that the amateur buys so largely of the nurseryman. "Wild Rose" does not give us his own experience about Roses on their own roots; perhaps he has not tried them sufficiently to give us his opinion.

I myself for the last five years have tried Rose cuttings, and I think I may say, on the whole, with a fair amount of success. My first year was a failure. I placed the cuttings in pots in an old Melon-pit, and the result was they nearly all damped off. The following year I tried again, but this time placed the cuttings in the open ground. In November I gave the ground a good coating of burnt earth; forked it in, and when dry on the top made it quite firm, like an Onion-bed. I then put in the cuttings by thrusting them into the ground as deep as I could get them. I find this is a much better plan than using a dibble, which is liable to leave a vacuum round the base of the cutting, and if this happens the cutting, of course, dies. It is necessary to use a good thick pair of leather gloves to plant the cuttings in this way. Last winter, in spite of the cold, about 60 per cent. of the cuttings rooted (they were protected by a little short litter), and most of them bloomed last autumn. I am trying the Baroness this year for the first time; at present every cutting looks as healthy and fresh as possible. Teas I am trying in pots, in a cold frame on cinder ashes, and at present I am satisfied with them.

There is no doubt that the great secret of getting Rose cuttings to do well is to select ripe wood. I am quite aware that one does not get a splendid maiden bloom from a cutting; on the other hand I find that Roses on their own roots come in rather later than budded ones, and are very useful for a late show. On my soil (stiff clay) I never could get Charles Lefebvre to grow, either budded on a standard or on the seedling Briar. I tried cuttings, and it grows "like a weed," and gives me splendid blooms. The following Roses I find do well on their own roots:—*C. Lefebvre*, *Marie Baumann*, *Miss Hassard*, *La France*, *Thomas Mills*, *Madame Nachary*, *Countess Serenyi*, *Marie Kady*, *Alfred Colomb*, *Captain Christy*, *Jules Margottin*, *Edward Morren*, *Mad. S. Fropot*, *Sir Garnet Wolseley*, *Madame V. Verdier*, *Auguste Rigotard*, *Dupuy Jamin*, *Abel Grand*, &c. To sum up, I consider Roses on their own roots a great help to the amateur; but he must bud too, if he wants fine maiden blooms for exhibition. *Edward L. Fellowes, Wimpole Rectory, Royston.*

ROSES IN POTS FOR LATE FLOWERING.—At no season of the year are Roses more welcome than just before they come in from out-of-doors, say

between the supply of forced hybrid perpetuals and the out-of-door display in June and July, according to climate and locality. There are few people—few gardeners at least—who do not plant a greater or less quantity of Roses every autumn and winter, and it seldom happens that people are stunted to a dozen or so of plants. Finding myself with a few surplus plants upon one occasion about this time of year, I had them potted up, plunged in a bed of coal-ashes behind a north hedge for the winter, and there left until the spring. In due course the plants were pruned, but not removed until they were "in bud," after which they were brought forward under glass to come in before the Roses out-of-doors. The flowers came in so useful that I have usually made a point of potting up a few plants every winter since. The plan is also a cheap way of getting up a stock of pot Roses where there is any difficulty in getting established plants in pots at once. Indeed for cutting purposes alone it would pay any gardener, and his employer too, to put up fifty or a hundred such plants, the best that could be obtained, every winter, for supplying cut Roses during the month of May when cut Roses per dozen are at a pretty handsome price. The great point in favour of this suggestion is that the plants are thoroughly under the control of the cultivator, and can be brought into flower at any time. Most people have their own choice as to varieties, but those who have an eye to bulk should include half-a-dozen plants of Paul Nerou in the list. It is a free bloomer, and produces flowers of immense size from young plants. *W. Widd.*

ROSES.—What becomes of the immense quantities propagated annually both in private and public establishments of the Queen of Flowers. In looking through the houses at the Castle Street Nurseries the other day in Salisbury, and seeing nearly 4000 winter grafted Roses in various stages of growth in one of the ranges there, the above question arose in my mind, and leads me to ask whether the annual death-rate is in proportion to the number of plants propagated, or whether there are sufficient recruits enlisted in the ranks of the "Rosarian" annually as to account for the continued demand for Roses, making due allowance for the havoc which the frosts of the last couple of winters wrought amongst the trees. *W. W. W.*

ROSE ALLEN K. RICHARDSON.—You have mentioned in your paper this week a good buttonhole Rose: may I recommend another, in the above charming variety? It is somewhat in the style of *Ma Capucine* and *Nankin*; but is very peculiar in colour. I saw some blooms of it under glass at Mr. T. B. Hall's, at Rock Ferry, near Birkenhead, and then the base of the petals was quite dark, and the upper half light, and as the general colour is dark copper it was very striking. There are many Tea Roses which are not what is called exhibition Roses, but which are very lovely and well adapted for bouquets, and of this class that above-named is one of the best. *Wild Rose.*

SOME FACTS ABOUT CONIFERS.

(Continued from p. 12.)

ECONOMIC VALUE.—The economic value of the Conifer surpasses that of all other forest-trees together, supplying a larger proportion of timber used. The woods of the Fir, Pine, and Cedar are valuable for all purposes, and some of them are of immense durability. The money value of the Fir timber imported into Great Britain in 1879 from Scandinavia and Russia alone was about £5,000,000 sterling, the total value of the imported coniferous wood in this country being about £9,000,000 sterling. Most countries of Europe depend largely for fuel and timber upon their plantations of Fir and Pine. Even in our own country *Pinus sylvestris*, which formerly spread over a great part of Scotland, has been a source of wealth to its owners. The forest of Rothiemurchus, between Cairnrog and the Spey, 16 miles in extent, produced, according to Sir T. D. Lauder, sometimes as much as £20,000 per annum in Pine timber. From the adjoining forest of Glenmore, sold by the Duke of Gordon for £10,000, were produced forty-one sail of ships of upwards of 19,000 tons burthen. The indigenous Scotch Fir is now, however, to a great extent superseded by the Larch.

GARDENERS' SOCIETIES.

THE success which has attended the establishment of gardeners' societies for mutual instruction and social intercourse in some large private gardens is perhaps not to be wondered at, seeing that the persons who work and live together in places that are generally remote from towns, if not from villages, have little else to engage their attention besides their ordinary duties, and it is natural they should turn to the meetings and their organisation affords, and the duties in connection with them, for the recreation and social communion afforded. It is in towns, in thickly populated suburbs, &c., where there are many and varied attractions appealing to the senses, that the difficulty of establishing efficient societies is felt: not that it is to be supposed the gardener of every grade is a man who lives a life separate from his fellow men, but where gardeners exist in numbers it is natural that they should turn to those who are fellows in their profession for the companionship they aspire to. In the suburbs of London, for instance, there are a large number of persons engaged in gardening who may be truly designated as "gardeners—and gardeners." A few among them are pretty well informed as to their duties, and can bring to their tasks a fair amount of intelligence and experience; but the large majority are young men, who have had but little training, and whose knowledge is of a very imperfect character.

It is often a cause of reproach that jobbing gardeners are given to drinking, and as a result, careless in their work. The ranks are frequently reinforced by ne'er-do-weels, and the younger members of the class go to the garden from school or the streets, and pick up such practical knowledge as best they can. Is it possible to bring remedial and improving influences to bear on this class? It may be done; but what is attempted needs to be performed carefully and with much tact. What is needed is that a few leading gardeners of known position and character, who can be looked up to as leaders and trusted, to form and manage the organisation. A comfortably warmed and lighted room is essentially necessary, which should be opened on each working night, if possible, or, failing that, at least three nights a week. There should be comfortable seats, a supply of gardening papers, and such attractive works on gardening as are likely to secure the attention of those sought to be benefited. The leading idea should be that the gardeners are called together for mutual instruction; so that every one should, as far as it is possible to give effect to the idea, assist to contribute to the general stock of information imparted.

Pleasant conversational meetings are of great importance, in which the least informed should be encouraged to participate, if only by asking questions. One night a week some member of the society should prepare and read, or have read for him, a paper on some points of practice of a seasonable nature, so that as far as possible the instruction sought to be conveyed should have the greatest interest for the largest number of the members. Present matters of interest are always of a more engaging character than those relating to the past or the future. The papers should be couched in the simplest terms—brief, brisk, and interesting. The great difficulty is to find among the members a sufficient number to undertake the preparation of papers; and if enough cannot be had from within the society, then efforts must be made to get some from without. But it is a principle of the highest importance that such societies be made mutually instructive; and a paper from a member will be found to have much greater interest than one from a non-member, however high may be his position in the gardening world. The reading of a paper should be followed by a conversational discussion, and if two or three of the best informed of the members will look up information on the question in debate, so as to insure a discussion, the proceedings will go much better in consequence.

And some recreation is absolutely necessary, such as can be had over games of chess, draughts, dominoes, and such-like. Cards are objectionable in certain cases, and only to be introduced under carefully considered and well-defined regulations. Such attractive papers as the illustrated weeklies, *Punch*, &c., will be found of much value. Two energetic members of the society, at least, should be told off at intervals to act as stewards, who should be responsible for order and the comfort of the

members. They should be men amenable to discipline, and qualified to exact it from others. The driving-power of the society should be the secretary, and he ought to be a gardener—intelligent, active, full of interest in his work, and willing to devote himself to it. The value of such a secretary is hardly to be estimated. No new regulations should be introduced without the consent of the members, and after having been fully discussed by them.

The expenses of such a society need not be large if properly managed. The income will depend on the number of members, and the outlay should never exceed the income of the society if it is possible to keep it within bounds. The individual subscription should not be beyond the means of the members, and in every district and suburb there will be found sympathising individuals willing to become honorary members at a higher rate of subscription, or donors of periodical sums. Some, too, could be induced to make presents of the illustrated and the weekly gardening papers; such welcome gifts materially assist the funds.

During the late spring and summer months, when gardeners, as a rule, work far into the evening, the attendance of members will be thin as a body and unequal as individuals, but this is inevitable. It is well that every effort be put forth to have the room open in the evening for the sake of the few who may be willing to put in appearance. Everything that can be done should be done to attract the younger members of the gardening class. *R. D.*

DRACÆNA GOLDIEANA.

EVERY one now is familiar with the mottled and barred foliage of this handsome stove plant, introduced from West Tropical Africa to the Glasgow Botanic Garden some years since, and put into commerce by Mr. W. Bull. At the time of its introduction some doubt was felt as to whether this was rightly named a *Dracæna*. Quite lately, however, the plant has flowered—first, we believe, at Marseilles, in the garden of Dr. Renouard, who has published a descriptive pamphlet on the subject,* then in the nurseries of Mr. W. Bull, and in those establishment our illustration (fig. 6) was taken by Mr. W. G. Smith, and also in Mr. Bause's hands at the Melbourne Nursery of the General Horticultural Company (John Wills). The flowering of the plant has set at rest any doubt that had been felt as to its identification; indeed Mr. Baker, in his monograph in the *Journal of the Linnean Society*, vol. xiv., p. 535, did not hesitate from the first in assigning it this position.

The numerous flowers are borne in a close semiglobose cyme or head at the end of the stem, the flowers being intermingled with broad sessile bracts, becoming gradually smaller towards the apex of the inflorescence, and described as of an intense rose colour by Dr. Renouard, but on the specimens exhibited the colour was a dull and pale violet-brown. The individual flowers are about 1 inch in length, cylindrical and tubular for about half their length, and then separating into six linear obtuse concave segments of a pale violet-brown colour. The six stamens arise from the throat or upper edge of the tube of the flower, and are more or less concealed in the hollow segments of the perianth, the filaments and the style are pure white in colour, the small oblong pale yellow anthers are attached by the middle of the back to the filaments.

Our note on the colour of the flower was taken from the plant shown by Mr. Wills, and differs from the description of Dr. Renouard, who found the flowers to be pure white, and fragrant. According to Dr. Renouard, also, the flowers expand in the afternoon, the segments becoming recurved, and the stigma ripens before the anthers (protogynous), as also observed by Mr. Smith, so that cross-fertilisation by insect agency is a necessity in the wild state.

It is probable now that the plant will flower generally, for it is one of the as yet unexplained phenomena that some plants, like this *Dracæna*, after having been cultivated for years without producing flowers, suddenly, and without obvious cause, produce their flowers about the same time in widely sundered localities. In nurseries the plant has probably not flowered before, owing to the stock being cut up so freely for purposes of propagation, but this can hardly apply to private establishments, where the plant has been allowed to grow on.

* Note sur la floraison du *Dracæna Goldieana* observée dans les serres de M. G. Renouard, Marseilles, 1881.

Orchid Notes and gleanings.

WORK IN THE HOUSES.—In Orchid growing it is always necessary to be looking forward to future requirements, and as the work in the houses at the present time is lighter than at any other season, it offers a favourable opportunity for cleaning and preparing crocks and composts in readiness for a busier time. We are most particular in the preparation of peat for Orchids; this should be thoroughly dried and well aerated before it is used for potting purposes, and all earthy matter should be threshed or sifted out of it. Peat prepared in this way retains its porosity and sweetness for several years, no matter how heavily it may be watered. It is a common occurrence even at the present day to see great masses of sour peat piled up over the roots of epiphytal Orchids, in which it is impossible for the roots to remain in health more than a season or two; and a continuance of this treatment soon renders the plants but little better than imported pieces. The greater part of the plants in our East Indian-house were top-dressed and repotted last month, and any that required it were then lowered. We prefer doing this work among *Vandas*, *Acridies*, and *Saccolabiums* during the dull part of the year, as we then rarely lose a single leaf through the operation; while if it is left undone till the hot weather sets in it is difficult to keep an equable degree of moisture about the plants, and they suffer in consequence. Plants of *Oncidium lanceanum purpureum* are now in the right state for a shift. We prefer growing this plant in a basket or cylinder, not using too much material about the roots, and that of a light nature, principally sphagnum. This plant should have a damp position in the East Indian-house. The *Phalenopsis* are now commencing to open their flowers, and will soon make a fine display. These must be kept regularly moist at the root, and should be examined daily to see that no water lodges in the centre of the plants, and it will do them good to give the foliage an occasional sponge over. Among the *Cattleyas* we are not doing much at present, but shall shortly commence and re-surface the greater part of them, and as we use a good proportion of sphagnum moss, this can be sorted and cleaned during spare time in readiness for the operation. With the *Cattleyas* we have a few plants that give us a little anxiety during the winter months: these are *Odontoglossum Phalenopsis*, *O. vexillarium*, and *O. nevium majus*. They should each be kept well up to the light during the winter months, and *O. vexillarium* will require watering with greater care than either of the others, which should always be kept moderately moist at the root. The weather up to the present time has been most favourable for keeping the cool Orchids under healthy conditions. With the constant appearance of fresh flower-spikes in this house, every care must be taken to prevent them being devoured by slugs. A few pots of *Adiantum cuneatum* that are throwing up young fronds may be placed under the *Odontoglossums*, and if these are moistened over every evening the slugs soon find them out, and in this way many will be trapped before they reach the flower-spikes. The following are the temperatures we like at present:—East Indian-house, 63° by night and 67° by day; *Cattleya*-house, 58° by night and 62° by day; cool-house, 50° by night and 55° by day. *J. Roberts, Gunnersbury.*

A MONOGRAPH OF THE GENUS *CYPRIPEDIUM*.—From the *Illustration Horticole* we learn that a Mr. Passetouet has presented a monograph of this interesting genus to the Royal Horticultural Society of Angers. It is illustrated by fifty coloured plates and treats of the history and cultivation of the species. We hope it will be published without delay.

VARIABILITY OF ORCHIDS.—Passing through one of our nurseries lately we were struck with a peculiar variety of *Odontoglossum crispum* (Alexandre), in which the flower segments were so narrow as to be almost linear, and of a pale greenish-yellow hue. From a decorative point of view the plant in its present state would not recommend itself to most people, yet we are assured that this very plant last year produced flowers of quite another character, so fine, indeed, that the plant was marked as being of a superior variety, and testimony to this effect was still

to be seen on the tally. The moral would seem to be, that persons should not hurriedly discard what seems a poor variety, for the next season it may assume quite a different guise. No difference in treatment, so far as known, can be adduced to account for the extraordinary change alluded to.

CALANTHE TURNERI.—Now that the two varieties of *C. vestita* and *C. Veitchii* are on the wane, this variety is coming into flower and very useful it is in prolonging the succession. This and the pure white variety, *C. Turnerii nivalis*, seem to require rather more heat than the others to open their blossoms well; a night temperature averaging about 65° suits them better than one 5° lower. As the plants of the earliest flowering varieties go out of bloom they should be placed where the temperature is not lower than 55° at night; and they must not receive any water until it is time to start them into growth again about

main a little longer in a cooler house, but while we were potting other occupants of the East Indian-house, it was convenient to do these at the same time. I use a larger proportion of fibrous peat in the compost than for some things, as in turning the plants out of the pots it is found that there are more healthy roots in the peat than in the sphagnum. Indeed all these plants make a considerable proportion of roots, and should not be pinched for pot-room. It will be necessary to put a stick to each stem to keep them in their places, as they will not remain in an upright position by themselves. Press the compost firmly around the roots, water very sparingly at first, until new roots are formed, when water must be given freely. We grow three distinct species, the best of which is, I think, *T. Marshallii*. It has beautiful pure white flowers, with just a touch of yellow at the base of the lip. It also grows and flowers very freely. *T. Stonei* makes the most vigorous growths, and

as *Odontoglossum biconense*, many of the *Oncidiums*, such as *ornithorhyncum*, and several others.

ORCHIDS FROM SEEDS.—In reading Mr. Douglas's note on raising Orchids from seed, I was somewhat pleased to see he had made a note of Mr. John Day's rare variety of *Cyripedium Stonei*. I think it may interest Mr. Douglas to hear it had occupied Mr. Day's special attention, but acting upon the sound advice of his skilful gardener, Mr. Gedney, he wisely left it alone—I say wisely, because it is well known to bring distress and sometimes even death to very healthy plants. But being in the neighbourhood of Dorking some two months since I paid a visit to Sir Trevor Lawrence's noted Burfordian collection, and there I saw the rarest of *Cyripediums* (*Stonei platyanium*) bearing a fine seed-pod, and, as Mr. Douglas suggests, crossed with its own pollen. Mr. Spyer tells me he thinks it is nothing but a mon-

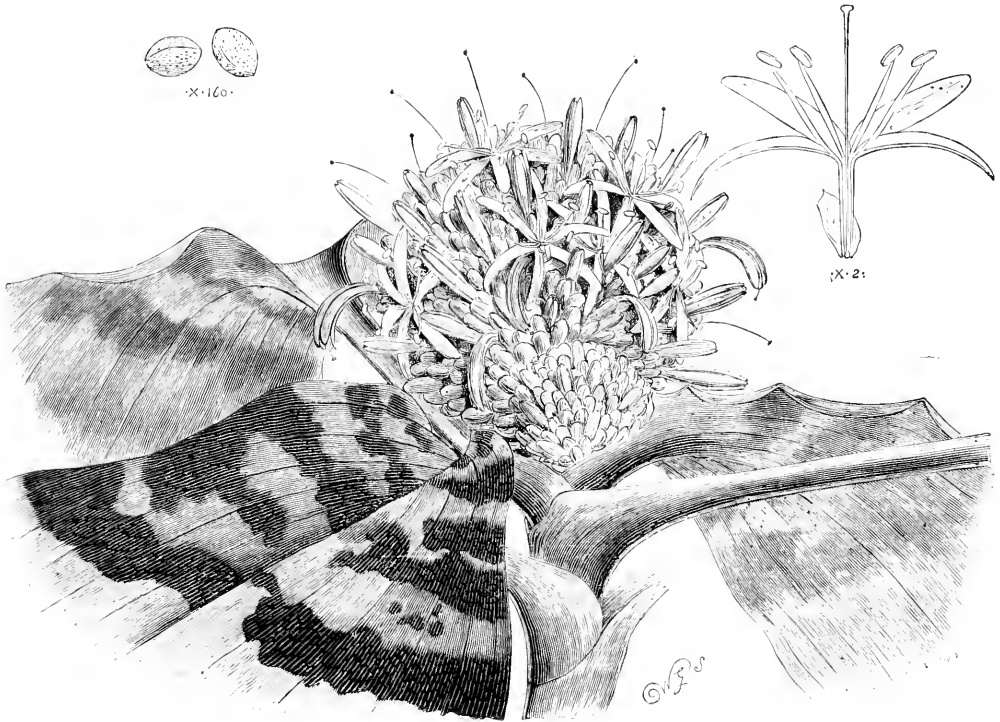


FIG. 6.—*DRACENA GOLDIEANA* INFLORESCENCE, NAT. SIZE—FLOWER AND POLLEN GRAINS MAGNIFIED. (SEE P. 48.)

the end of February, when they should be potted. *J. D.*

ANCRECUM.—The two best known probably are *A. sesquipedale*, of which some fine flowers may now be seen in Mr. B. S. Williams' nursery; and *A. eburneum*, a robust-growing, winter-flowering variety, of which, with the variety *viens*, there are numerous examples in bloom just now in the Royal Gardens, Kew.

DENDROBIUM DOXALLII is a very pretty species, now in bloom at the Victoria Nurseries. The flower is of medium size, with narrow violet tinted segments, and with a rounded concave lip, like a salt-spoon, rich orange-yellow in the centre, with a narrow margin of pale violet.

THUNIAS.—These easily grown Orchids have now passed through their season of rest, and may be started into growth. We should have allowed them to re-

produce a good succession of large, richly-coloured flowers, of a rosy-purple colour. *T. alia* is the least desirable of the three, but it increases freely, and grows vigorously, producing abundantly its racemes of pure white flowers, the lip lightly marked with purplish lines. *J. D.*

MAXILLARIA LEPTODOTA is a very curious Orchid, remarkable for the very long narrow yellowish segments, purplish-brown, deflexed at the base, resembling those of some of the *Masdevallias*, as the plant itself does in habit. It has the advantage of remaining in flower for two or three months; at least, it has been so at the Victoria Nurseries, Holloway.

ODONTOGLOSSUM ROSSII MAJUS.—The attractiveness of this pretty Orchid with its whitish segments marked by brown bars, is heightened by the long period during which it remains in bloom. Many Orchids are most remarkable in this particular, such

as *strosity* produced by seed from the ordinary *Stonei*; that being so, it will be a very anxious time from now to the flowering of the seedlings, and that being Mr. Spyer's belief, it will be very interesting to know if any degenerate, and so produce the ordinary form of *Stonei*. *H. C., Forest Farm, Windsor Forest.*

THE VANDAS at the Holloway nurseries are just now in fine order. Not many of them are in bloom, but the plants are furnished to the base with leaves bearing that rich deep green colour indicative of a healthy appetite and a judicious food supply. The practice in this establishment is to sprinkle guano-water upon the stages between the plants and elsewhere about the house, not on the plants themselves. The ammonia vapour so engendered must contribute to the vigorous and healthy growth, though we imagine this mode of feeding requires to be done with great care and judgment, as an overdose would throw the plant out of health; or, at least, tend to prevent it flowering by unduly stimulating growth.

The Flower Garden.

THE very mild weather we have lately experienced, so unusual at this season, when we expect the earth to be bound up with frost, or covered with snow, may have many disadvantages through being so unseasonable, and is a bad preparation generally for vegetation to withstand the rigours of very severe weather. On the other hand, for planting and ground work it will be welcomed by many who have such work on hand, as enabling them to get well forward with it so that it may not interfere with the imperative necessities of the busy time which is fast approaching. In the case of new plantations, it may be useful to remind the planter that it is necessary to look forward and calculate the future effect of his work; at present, and of necessity for present effect, the plants must stand much thicker on the ground than will be required eventually. It should therefore be the rule to select such as are intended for permanent occupants and plant them at suitable distances at first—such spaces being enough to allow of a perfect development of size and character, and then to fill up all the intervening spaces with such shrubs and plants as are calculated to form a good shelter for a time, but which will cause no regret at their removal when the permanent occupants require more space. And this reminds one that the present weather is suitable for the prosecution of such work in plantations already made; these should be gone through annually after the first year or two, and by cutting some out and removing others back a perfectly furnished appearance may be maintained in the borders at the least expenditure of time and trouble when it is made an annual practice, for if left too long we can hardly expect to find the best trees and shrubs unjured.

Another operation which may suitably be carried on in open weather is the renovation and trenching of all vacant flower-beds and open spaces not filled with spring flowering plants, exposing as rough a surface to the influence of the weather as possible; but whilst we are so uncertain as to what weather we may yet experience any remarks we may have to make under the head of "Flower Garden" must be confined to recommending the adoption of measures of precaution. There is no question that many plants are on the move, and no doubt a very severe frost would try the vitality of many of them; for example, many of the bulbous and herbaceous plants are pushing through the soil, and should be covered over with cocoa-fibre, which may be removed and dug in by-and-by. Standard Roses, which are much liable to be injured by severe weather, after a long continued mild time, may be protected by dry Bracken, inter-laced with the branches, and a string of matting passed round to keep it in place.

The stores of budding plants in pots or boxes should be frequently looked over, to remove all which are suffering from the effects of too much moisture. In particular we find that in consequence of the last autumn being so dull, cloudy, and rainy, the cuttings of Pelargoniums were so succulent, or full of sap, that they have been more than usually liable to damp off, owing to the unripened state of the wood; this will necessitate a considerable amount of propagation in the spring, preparations for which must be carried forward without delay. Old plants potted up from the autumn may with advantage be treated to an intermediate temperature for a time, which will bring them on to furnish a good supply of cuttings with a little ripened wood at the bottom. These may be put singly into small 60's, placed on a shelf or stage, which can be kept moist by pouring water on it, but do not water the plants themselves until rooting commences; these often make much better plants than autumn succulent cuttings. An abundance of air should be admitted on every possible occasion, and a little heat applied at the same time will greatly assist to counterbalance the effects of damp.

ROCKERY.—For reasons stated above there is not much to advise in this department at present; the sharp cutting winds we may expect by-and-by are often very injurious after a moist, mild time, and it would be well to have some temporary kind of shelter to break their force. This may be done by a few branches of evergreens stuck in the beds about the

plants, and if any show signs of unusual activity of growth, a little cocoa-fibre may be used with advantage. The formation of new work in this interesting department may now be carried out with advantage. The preliminaries will be to get together a large supply of various-sized blocks of stone, the larger the better, and some loads of good holding soil. I hope to enlarge on this subject later on. *John Cox, Kettle.*

SPRING-STUCK CALCEOLARIAS.—The popularity of Calceolarias as flower garden plants, and the display they produce during the summer months, seldom fail to attract the notice of those who are about to embark upon the pleasure of keeping a garden. They are about the first flowers that are inquired after by the beginner in gardening, who is often disappointed when he is told that he is too late to propagate them this season—"They must be struck in the autumn, you know." It may be useful to owners of small gardens, and especially to owners of new gardens in a moderate way, to know that plants propagated any time during this month will make excellent material for planting out during the coming season at a cost that is hardly worth mentioning. Any one who knows how to make what gardeners call a moderate hotbed, need have no fear of propagating them by the thousand, and cuttings will be abundant enough during the present month,—in fact, thousands of them are thrown away every spring, the tops of autumn-struck plants. It is important at the outset that the fermenting materials should not be too "green" (*i.e.*, too fresh) when the bed is made up. For this purpose it is always safe to use a rather large proportion of leaves with a minimum quantity of stable manure, and if this precaution be taken much delay need not take place in preparing the materials to make up a gentle hotbed. All that is really necessary is to create as much warmth as will accelerate the rooting process, and give the plants a good start into growth. If the bed is made about 3 feet high at the back and 2 feet at the front, sufficient heat will be generated to answer the intended purpose. Enough material should be put inside the frame to bring it to within a foot of the glass, and if to this is added 6 inches in depth of leaf-mould in two layers, the cutting when inserted will be within about 4 inches of the glass when the operation is finished. The object of the two layers of leaf-mould is, that the bottom one should be composed of half-rotted material, in order that the roots may lay hold of the rough portion of the compost, and lift with good balls at planting time. The topmost layer should consist of fine and well-rotted mould with 2 inches in depth of sharp sand laid upon the surface, into which the cuttings should be inserted. The thin layer of sand is beneficial in absorbing moisture, and therefore a safeguard against damping until the cuttings take root; it also promotes the rooting process. The cuttings should be inserted at about 6 inches apart, which will leave sufficient space for the plants to grow until planting time. As a safeguard against accident it is best to wait until the heat of the bed is on the decline before the cuttings are put in, and by the time they are rooted and are fairly started into growth the heat of the bed will have almost entirely disappeared, leaving a stock of healthy plants gradually hardened off, and in the finest possible condition. The plants should have their "points" pinched-out after they are established at the root. The practice above related is not often resorted to, notwithstanding that it affords excellent facilities to amateurs and others of increasing a stock of popular plants after the severity of winter is past, to say nothing of its advantage to those who are about to stock new gardens. *Cultivator.*

Grapes and Vineries.

THE earliest Vines will now be coming into flower, and when they are in that stage let the evaporating pans go dry until they are set, but on bright days damp down the paths and borders with tepid water in the early part of the day. Tap the rods several times daily to disperse the pollen; it is a good plan to go over the shoots and stop them just before they come in flower, and then let them go until they are set. Stop them at three or four joints beyond the bunch, according to the space at disposal on the trellis. Give a good watering if wanted before they come into flower, and they will not then require any more at the roots until they are set and thinned. Keep the temperature at 65° at night, with a rise of 10° by day,

or a few degrees warmer if the weather is very mild. Raise the temperature to day heat early, and force when there is sun and light. Admit air on the back ventilators whenever the temperature reaches 75°; it is a good plan to give a little air early, and increase it as the temperature rises. Always be careful to avoid cold draughts, and close early while the sun has full power. If succession Hamburgs were started as advised in my last Calendar, and fermenting material is used, only very little fire-heat will be required while this mild weather lasts, but sufficient should be given to keep them at 55° at night, with a rise of 10° by day, but if the weather changes to severe from a few degrees lower will be better. Muscats started on Jan. 1 must have the temperature raised to 56° at night, with a rise of 10° by day, gradually increasing it as the buds commence to swell. Syringe the rods with tepid water whenever they become dry, but do not syringe after 2 P.M. Keep the paths and borders well damped down several times daily, and do not give air till the temperature reaches 70°.

Top-dress the borders of later houses where there is a sign of weakness in growth or the Vines do not finish well, taking off all the old soil to a depth of 6 inches; do it carefully with a fork so that the roots be not damaged, and top-dress with good turfy loam, charcoal, and a little snot or wood-ashes. Use the soil in a sufficient state of dryness that it may be well trod without binding; after it is done a good soaking of water will be beneficial to settle the soil about the roots. If the Vines are old and exhausted, and the roots are in both outside and inside borders, it will be a great benefit to lift the Vines and remake the borders, during the outside one year and the inside another. Give ample drainage and turn a turf grass-side downwards upon the drainage. In lifting the Vines great care must be taken not to damage the roots, but lift them all out carefully with a fork and cover with mats until the border is made ready for them, then lay them carefully in the new soil about 6 inches below the surface; if any of the roots are damaged cut them clean off with a sharp knife. The border should not be made the full width the first year, but about 8 feet wide; it can then be added to as the Vines require fresh soil. Use for compost good loam, bones, charcoal or lime rubbish, with a little snot—about a bushel of bones to a cart-load of soil, and get everything ready before commencing to lift the Vines.

All late Grapes will now be better cut from the Vines, and the Vines pruned as soon as possible. Keep the temperature of the Grape-vine as near 45° as possible. Keep the earliest pot-Vines at a temperature of 65° at night, with a rise of 10° by day; they will now require plenty of clear tepid water at the roots, with a little drier atmosphere as they come into flower; give air early on bright days, and close early in the afternoon. *Joshua Albins, Lockinge Garden, Wantage.*

LATE WHITE GRAPES.—The correspondence which has taken place respecting Pearson's Golden Queen deserves a special remark, inasmuch as we are advised through the Calendar of Operations for the week ending December 31 (for Vines) to cut Muscats and bottle them. They are beginning to shrivel, and their season getting over. Now, whoever has cultivated Golden Queen with success, will not be disturbing himself to cut and bottle just yet. It was sent out as one of the best late white Grapes, and it is worthy of its reputation; its constitution is hard, a free grower, and a most prolific bearer. I am convinced it improves by keeping, and it is a question if it is fit to cut till the new year for its favour. Some seasons it changes in colour (in the bunch) from pure golden to pink-coloured (such it is here this season). It is planted in the late house with the Muscat of Alexandria, and now the Muscats are shrivelled, and about all gone. Golden Queen is plump and as sweet as barley-sugar. The Vines in the late house are confined to the inside border, and receive no water from the middle of September till the Grapes are cut at the end of February, and the house started the second week in March. Growers for market have turned their attention to cultivate late kinds; they would find Golden Queen answer the purpose, coming in with Black Lady Downe's, when the London season begins and white Grapes are scarce. I would suggest inter-arching it on Muscat of Alexandria and Kaiser de Calaire to bring it to perfection in colour, and confine it to inside borders. *T. Edington, Woking, 26 Grange, Nottingham, January 4.*

The Pine Stove.

WITH the advent of another year and a continuation of the mild weather, the keeping of general temperatures is an easy matter, and the forcing of early fruiting plants is more easily accomplished. January is the most trying month in the year for Pines, and where good judgment has not been exercised in the work of firing, watering and ventilating, during the winter months, the plants will soon show unmistakable symptoms of having been subjected to treatment they dislike, and a practised eye will not be slow to discern it. The early batch of Queens should be freely showing their fruit: give them every attention by keeping the atmosphere in a humid state. Keep them at 70° by night in mild weather, with a rise from 80° to 85° by day, and make the most of every ray of sunshine. The same treatment should be given to those plants that have shown fruit since the middle of October. These will swell their fruit more rapidly after the close of this month, as they make but little progress during December and January. Their fruits will be duly appreciated in April and May—two of the scarcest months in the year for fruit. Keep succession plants and rooted suckers moving very gently during this month, for the days will soon begin to lengthen, when they will stand more heat and be less liable to become dormant. Store up a good lot of Oak leaves in a dry place for the spring and summer, and a portion of them may be used at the end of the month with one-third of good litter for building up good large hotbeds which give out heat for a long time. These beds are very useful not only for Pines but also for other purposes. The beds should be made up at the end of this month or the beginning of next, which gives them time to cool down before they are required. Take off suckers where the fruit has been recently cut, pot them in good fibry loam, and plunge them in a bottom-heat of 85°. Give them little water, only just sufficient to keep the soil moist. Where the stems or stools are not showing suckers, strip off all the old leaves and place them in boxes 3 to 4 inches deep, in light soil mixed with a little sand and leaf-mould. The stools should be placed in a horizontal position and not too deep, only covering them over to a depth of half an inch. The soil should be kept moist and the boxes plunged in a temperature of 85°. *D. Wilson, Castle Hill, Devon.*

The Orchard House.

THERE has been, and still continues to be, exceptionally fine weather for pushing on Peach and Nectarine trees in pots in a little extra heat. The temperature can be kept up to 55° at night with less artificial heat than was required last year at this time to keep it a little above the freezing point. We have also had a good deal of sunshine for mid-winter, and that is a great help in enabling us to conserve the heat by shutting up early in the afternoon. The very little artificial heat required does not dry the atmosphere much, and we can do with less water sprinkled about. It may be sufficient to dew the trees over with a fine syringe on the mornings of fine days. Where the buds are swelling rapidly, and approaching the opening stage, it is of the utmost importance, with trees in pots, to see that they have plenty of water at the roots. If they become too dry the buds are not unlikely to drop. The greatest danger is when the trees have been surface-dressed: the rich top-dressing becomes wet, while the part below, packed full of roots, gets very dry; it is better, therefore, to err on the wet side, as I do not remember ever to have seen the buds drop from the trees being kept too wet, although doubtless this might happen, especially if the drainage is not good. It may be as well to mention that I do not advise any other kind of fruit trees to be grown in the forcing orchard-house except Peaches and Nectarines, at least, not with them in the same compartment, as the Peaches will stand a higher degree of temperature, and a moister atmosphere while in bloom, than most other hardy fruits. I have always insisted on keeping the temperature down until the fruit is set; indeed, I do not care to have it higher than 55° at this season, even in mild weather.

If the trees that are to be fruited in the late house have not yet been placed there, no time should be lost in doing so. Our own trees are still out, and it

is surprising to see how rapidly the buds are swelling as the roots rapidly grow into the rich surface-dressing. We have not the least fear of the fruit not setting, and yet the roots are saturated with rain-water. They will not require any water after they are placed in the house for a week or ten days. The pots are not plunged, but are placed on two bricks laid flat on the ground, our object being to allow the air to get underneath the pot and amongst the roots. The trees should be well fumigated before the blossom-buds open, to destroy aphids, which is seldom absent from the trees if there is a large collection of them.

The pots of Strawberry plants on the shelves must be watered once a week, or at least looked over once a week, for they will not all require water so often as that; but it is a mistake to allow them to become over-dry. *J. Douglas, Loxford Hall.*

The Orangery.

PERHAPS of all fruit trees Oranges are the most easily managed, if only they can be kept clear of insects. They require pretty much the same treatment from week to week, and when the fruit is ripening a high temperature, whether it is winter or summer, and as far as my experience goes the fruit is of as good quality in midwinter as it is at midsummer. The main features of success are to obtain good varieties and good healthy trees to begin with; and not only so, but they must be grafted on the right stock. The Lemon stock is the best, and gives the most vigorous trees, which are quite fruitful enough. They never lack a sufficient quantity of blossom. The fruit will not be good if it is ripened in a low temperature; 65° as a minimum is the best, and when it is ripening do not allow too much moisture in the atmosphere, else the fruits will not be firm and good; and at that time the trees require more care in watering. Good truly maiden loam is the best potting material. *J. Douglas.*

The Hardy Fruit Garden.

CONTINUED mild and very wet weather has seriously hindered many operations in this department that require to be performed when the ground is in a comparatively dry state under the feet. Sufficient frost has scarcely existed, even during the earlier part of the day, to allow of manure being wheeled upon fruit quarters, and the wet ground has been much against good progress being made with the pruning of trees and bush fruits on all but the driest of soils. The saturated condition of the earth will be useful in indicating portions of ground that require attention to existing drains that have become choked, or the outlets suffered to be grown up with rank vegetation, and to the formation of fresh ones where necessary.

DRAINS should be put in sufficiently deep to effectually tap the underlying portion of finer earth beneath the cultivated depth; for where drains are placed too near to the surface they are unable adequately to perform their part in drying the ground during periods of heavy rainfall, while, on the other hand, their position near the surface tends to carry off too quickly the partial soakings that the earth receives from heavy showers during the summer. The thorough drainage of land devoted to fruit cultivation cannot be too frequently insisted upon, being the greatest assistance we can afford the trees in maturing fruitful growths, and also tending to increase the chances of the resulting blossom escaping the effects of severe spring frosts produced by rapid evaporation. Weather that prevents ordinary operations may admit of work being done amongst orchard trees on grass. Damp branches can have their accumulated moss and lichen more easily removed by scraping than dry ones, and are in a favourable condition for being dashed with hot lime, which will then adhere to them, assisting in checking the spread of moss on the smaller branches which cannot be otherwise cleaned, besides warding off the attack of birds from Plums, Damsons, &c. Manure can be wheeled on and spread, and in severe cases of exhaustion from the impoverishment of the soil it may be necessary to pare off the turf carefully, and give a rich surface-dressing of any good compost that may

be at hand, adding, if possible, a dressing of soot and wood ashes. If this dressing of fresh soil and manure can be lightly forked in without injury to the surface-roots it will be more speedily effective in inducing renewed activity and health.

OLD ORCHARDS on grass frequently become worn out for want of some such assistance, for which time and manure cannot often be spared. All crowding of branches should be prevented by regular attention, for the sudden removal of quantities of wood is not unfrequently attended with loss of crop and impaired energy for years after; therefore, where necessary, remove annually a few of the worst of the crossing branches, and prevent other young ones from proceeding in wrong directions by cutting back or removal. Where it is necessary to replant any trees, see that the old roots are carefully grubbed out, and that the fresh stations are trenched and enriched with manure over as large an area as may be consistent with due care for the preservation of the roots of adjacent fruit trees.

SELECTION OF VARIETIES.—It is well to plant rather largely a few free-fruited sorts that appear to suit the district, rather than to indulge in a collection which is more suitable for the dwarfs and pyramids of the garden where their usefulness is more speedily tested, and where any unsuitable kinds can be replaced without entailing the loss of time consequent upon the cutting over and re-grafting of orchard trees. A good supply of Plums and Damsons in the orchard greatly relieves the drain upon the garden for tart fruits, and leaves more space available for the more select dessert varieties; and due provision for such a supply should be considered in planting new orchards; or where many old Apple trees require removal, a portion of the ground may usefully be devoted to fruits that will yield variety for culinary purposes. Of Plums for standard trees, Victoria, Pershore, Cox's Emperor, Magnum Bonum, and Jefferson, are very certain and heavy bearers, while for an early supply the Early Prolific may be planted. *R. Crofting.*

CORDON PEARS.—It can hardly, I think, be denied that the general opinion with regard to this system of growing fruit is that the trees are short-lived—that, in fact, they will not continue in a satisfactory bearing state for a longer period than a dozen or fifteen years, and that at the end of that time they may as well be consigned to the fire for what good they are; and this, it is urged, is the one great drawback to growing fruit on the cordon principle, and as a consequence it will never become either popular or profitable in this country. I can only say that such ideas and opinions as these (in a great measure) most certainly betoken on the part of those who hold them either a strong prejudice, or a want of practical acquaintance with the subject. That the cordon method of growing fruit in England will ever supersede the horizontal and espalier-trained I am not going to assert, but with regard to this short-lived theory—in so far as it applies to Pears—I do most deliberately assert that it will not stand an impartial practical test, and that it is a fallacy which any one with old trees under their care may easily explode. To bring old trees—be they pyramid, espalier, or horizontal-trained—which only produce fruit of an inferior quality, and make growth of a stunted nature, into a healthy bearing state, we have, as is well known, only to re-graft. What will bring about a healthy state of things in the one case will do so in the other; and the best thing to do with old cordons that appear to be almost worn out is simply to cut them down to within 1 foot of the ground and re-graft at the proper time, and if the stocks are anything like sound there can be no question as to what the ultimate result will be. We have here a fair number of cordons, young and old; some of the latter, owing to their being in an unsatisfactory state and producing fruit of a worthless description, were cut down and re-grafted two years ago, and with the young wood they have since made I feel bound to say that we are more than satisfied, and that one more season will suffice for them to cover their allotted space; when this is accomplished it will not be at all unreasonable to expect crops of fruit equal in quality and quantity to those produced on trees four or five years old. Perhaps it ought to be mentioned that, with a view to further improving their condition, they were lifted last autumn, and treated to a few barrow-loads of turfy soil and well decomposed manure. *J. Horsfield, Heytesbury.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 15	Sale of Ladies, Canaries, &c., at the Auction Mart, Ice Houses & Morris.
WEDNESDAY,	Jan. 17	Sale of <i>Lilium auratum</i> Bulbs, at Stevens' Rooms.
THURSDAY,	Jan. 19	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
FRIDAY,	Jan. 21	Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY,	Jan. 21	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

IN an address read before the State Board of Agriculture of Massachusetts, Mr. JOHN ROBINSON, of the Arnold Arboretum, deals with the question as to the best TREES to plant for ORNAMENTAL PURPOSES. His address is, of course, principally devoted to trees suitable for growth in the State of Massachusetts, but it contains much information which will interest and instruct tree planters in all temperate climates. "In order," says the author, "to make a proper selection of trees for ornamental or economic planting, something more is necessary than a mere fancy for the trees selected. A knowledge is required of the species which will, under peculiar conditions, endure the longest and prove at the end of a generation or two that the choice was wisely made." The conditions as to temperature, moisture, and soil are alluded to, and the reasons why some countries are destitute of trees while others are thickly clothed with them.

"For countless generations species have been slowly adapting themselves to their fitting places. Natural selection, and the survival of the fittest forms for the position they are to occupy, have placed on the earth's surface the exact species in the exact positions best suited for their development. In different climates and in different situations the particular variety, too, of the species that can best sustain the local conditions to which it must be subjected, is found. This is illustrated very clearly by some of our own forest trees. The most widely distributed of North American Conifers, and one little changed in appearance, is the Red Cedar (*Juniperus virginiana*). This tree is found as far north as Latitude 50°, and south to the Gulf of Mexico, extending from the Atlantic to the Pacific. At its extreme northern limit it is only a shrub; on our own sterile hills it becomes a rugged tree, and is of no little economic value for many purposes; while in the warmer climates of Florida the same species is banished to the swamps, and furnishes that clear, soft wood used the world over in the manufacture of the best lead pencils. The Douglas Spruce, which is one of the most valuable of American forest trees, has a less extended range. It is common from British Columbia to Mexico, extending east into the Rocky Mountains of Colorado. The most interesting point in this: children inherit the characteristics of their parents; and even the seeds of trees carry with them and perpetuate the constitution, delicate or strong, that the region in which they were produced developed in the parent plants. The seeds of the Douglas Spruce from the Rocky Mountains produce trees which are as hardy here in New England as the Cedars on our hill-sides; while plants raised from the seeds of the same tree growing in the milder, moister climate of the Pacific States, led entirely to adapt themselves to our New England climate, as, indeed, do all the trees, with hardly an exception, from the region west of the Rocky Mountains. Therefore, having an insufficient knowledge of the distribution of a species, we cannot say that any particular tree is hardy, and will serve our purposes as material for forest or ornamental planting; but we must know, in the case of widely distributed species, the exact physical conditions of the particular locality from which the individual was obtained."

Comparing American with European trees of like character it is found that in Massachusetts, as was to be expected, the native trees succeed better than the European ones, and thus prove the correctness of the principle often advocated by us in the case of our colonies—of developing their own resources rather than neglecting them for the sake of introducing, except in special cases, plants from elsewhere, not to the country born. To the general rule above laid down there are exceptions: thus the European Larch is said to be a better timber tree in New England than the American variety, the English Elm (*Ulmus campestris*) in dry situations than

U. americana, and *Salix alba* than the American kinds. The choice before the Massachusetts planter is indeed large, for the tree flora of the North-eastern States is singularly large and varied, and of it we in this country have largely availed ourselves—so far as ornamental trees are concerned, for as a rule North-east American timber trees are not in much esteem here for timber, but among decorative subjects there are the Nyssa, the Cucumber-tree, *Magnolia acuminata*, which thrives even in the smoky air of Kensington; various Maples, the *Gleditsias*, the *Chionanthus*, the *Virgilia*, the *Cercis*, and a host of others.

The trees of North-eastern Asia, Northern China, and Japan are as well suited, it seems, to the North Atlantic States of the Union as to our own climate. Of Rocky Mountain trees, the Blue Spruce—*Picea pungens*—better known as *P. Menziesii*, is a tree of rapid growth, great hardiness, and of a peculiarly charming blue-green colour. We cannot say as much of it here either as to colour or hardiness, for in some places it has been severely injured by recent winters. The Douglas Fir also succeeds in Massachusetts, but most of the trees from the Pacific coast refuse to live under the more trying climatal conditions of the Eastern States.

Mr. ROBINSON is very severe—too severe, we think—on variegated trees. "The perpetuation of these monstrosities and vagaries is no credit to those who pander to the false taste which encourages such productions, nor is it any credit to those who waste their time and money in planting these sickly, evanescent forms, where the healthy plant in its natural condition is in every way preferable. . . . We have a long line of golden Oaks, golden Ashes, golden Lindens, striped-leaved, silver-leaved, or golden-banded varieties, hideous to any lover of Nature. Looking upon these sickly plants, each seems by turns more ugly than its neighbour. All should be sent to the rubbish-heap together. . . . These plants are all the result of some constitutional weakness, an impeded or irregular distribution of juices of the plant, and, like all other abnormal forms, cannot be long-lived. . . . Nor can much be said of that class of horticultural productions known as weeping trees." This, to our thinking, is the language of exaggeration. Such plants as the Purple Sycamore, Beech, Birch, or Nut, the Golden Catalpa, the Golden Oak (*Q. concordia*), the Golden Elder, the variegated Maple, and many others, are distinctly beautiful, and if used with discretion and judgment have as much right in ornamental plantations as white Willows and Poplars, Colchic Maples, red-barked Cornels, or any other tree whose foliage being normally coloured would, it is to be presumed, be allowed, by the critic we have cited, to remain. If we are to exclude from our plantations shrubs with variegated or coloured leaves, because such variegation is sometimes a symptom of disease or debility, we in England should have to banish the common Aucuba, the Golden Hollies, the whole tribe of variegated Ivies. We should have to cast out *Parrotia persica*, whose autumnal foliage is in some autumns so superbly coloured; *Virgilia* would have to go; the American Oaks must one and all be banished, for their glowing tints are but the hues of approaching death. The American Maples must be eschewed for a similar reason, and the dull monotony of green which creeps over our landscape as summer comes on would be even more unrelieved than it is now.

Neither can we consent to banish the elegant weeping trees which contribute so much grace to our plantations, nor the spiry forms of the pyramidal Oak or Poplar. Such outlines are most valuable as contrasts, and when planted in appropriate situations most beautiful. The

keeper of an arboretum, in particular, has to keep in view not merely practical utility and beauty but instruction and interest. A peculiar variety may have little or no claim to retention on the score of beauty, but its importance as an exponent of the laws of growth, of the past history and possible future development of the tree, may be very great. Let us have, somewhere at any rate, illustrations of every possible variation. It is well to satisfy our sense of beauty and fitness, it is better to increase our knowledge. Abuse is one thing, but careful use is another; and it seems mere affectation to decry the one because some people are not wise enough to avoid the other.

— EARTH WORMS.—The interest excited in these creatures since the publication of Mr. DARWIN'S book on this subject, reviewed in our columns (vol. xvi. p. 500) will be increased by the interesting communication made by Dr. GILBERT to the Scientific Committee on Tuesday last, and reported in another column. The quantity of nitrogen in the worm-casts in proportion to that of meadow or arable land is not absolutely greater, but what there is rendered more available by being brought more to the surface and more within the reach of the roots by the agency of the worms. We may refer to our report for further particulars of this interesting experiment, which will probably be repeated and extended.

— A VERY PRETTY AND NOVEL BOUQUET was shown by Mr. CANNELL at the meeting of the Royal Horticultural Society on Tuesday last. It was composed of sprays of *Cineraria cruenta*, *Agathaea colchica*, *Marguerites*, and *Pyrethrum fruticosum*, lightly put together, so that each flower could be seen by itself; and the elegance of the flowers and their varied colour formed a charming bouquet, specially pleasing to those to whom the more formal flower of the "florist" type are not altogether satisfactory.

— HELLEBORES.—M. J. VAN DER SWAELMEN, The Lily Nursery, Ghent, has sent us a box of flowers of his collection of Hellebores, which he remarks have never been so fine as they are this year, the weather having so far been exceptionally favourable. We may add that they are very early. They are a very interesting series, but as they are sent without names or numbers we are unable to particularise; in fact, from the gradations of forms and colours it is not improbable that they may be the produce of a bed of seedlings. We do not find anything novel amongst them. One of the more interesting resembles *lanogens* in its large greenish-yellow flowers; a greenish-white with very even bell-shaped flowers comes near to *antiquorum*; *orientalis* is represented by various shades of pinkish-white and purplish-green, and there are some darkish purple bell shaped forms which for decorative purposes are the best of the series, and appear as if intermediate between *colchicus* and *atrobunus*. Besides these there are other types with greenish flowers, of little merit as ornamental plants, and there is a set approaching the free-blooming *lividescens*. As early-blooming hardy plants a good selection of Hellebores should find a place in every garden, for though they lack brilliancy they are full of interest.

— LINNEAN SOCIETY.—At the meeting to be held on Thursday, 19th January, at 8 P.M., the following papers will be read:—1. "Life History of a *Crocus*, and Classification and Geographical Distribution of the Genus;" by GEO. MAW. 2. "Asteroida of *Challenger Expedition*;" by W. PERCY SLADEN. 3. "Stamiferous Corolla in *Digitalis* and *Solanum*;" by the Rev. GEORGE HENSLAW.

— ANEMOMETERS.—The Council of the Meteorological Society have determined upon holding an exhibition of anemometers at the Institution of Civil Engineers, 25, Great George Street, on the evening of March 15 next, and the committee are anxious to obtain as large a collection as possible of various patterns of anemometers, either full size, models, photographs, or drawings. Special interest will attach to all apparatus bearing upon the history of anemometers and to their modification and improvement. The committee will also be glad to show any

new meteorological apparatus invented and first constructed since the last exhibition.

— **BOUVARDIA ALFRED NEUNER.**—Messrs. J. CARTER & Co. state in the *Field* of Saturday last, with regard to the propagation of this beautiful novelty, that they have been informed by Messrs. NANTZ & NEUNER, the raisers, that cuttings must only be taken from the *leading shoots*. If any other course is followed, when the plant flowers they will prove to be single. Messrs. CARTER & Co. have themselves made the experiment with this result.

— **MARKET GARDENS.**—What a marvellous contrast is that now presented in market gardens as compared with their aspect at this time last year. Then

and there is revived by the occasional gleams of sunshine that glint across the expanse and infuse light and cheerfulness in an unwonted wintry manner. But even brighter than this picture is the abundant employment which the open mild season furnishes to myriads of workers who might otherwise be starving on the bread of idleness. Pruning, manuring, digging, and hoeing are going on in every direction, for the frost has not yet killed the weeds, and where, as amongst winter Onions and Lettuces, they cannot otherwise be disposed of, they must be cut out with hand-hoes, in the use of which women are so expert. The plethora of rain, which before Christmas boded a ground flood, has passed away, and the soil, except on very stiff lands, is fairly workable, and therefore early Pea sowing is going on

they are quite exceptional. From a series of experimental trials, now ranging over several years, Messrs. HURST & SON are convinced that home-grown seed is most economical to the farmers even taking into consideration the usual difference of price of home-grown over foreign-grown seed; and the present scarcity at a time of severely felt agricultural depression, is a matter for great regret. In respect of foreign red Clover, the best samples come from Canada, very clean, fairly bold, and of deep colour; some parcels from the North of France, and as the produce most nearly approaches home-grown seed in quality of growth and hardiness, a considerable demand is expected for it. The American seed is pale and small, and though some red Clover will be forthcoming from Germany



FIG. 7.—HARRINGTON HALL, ESSEX. (SEE P. 55.)

intense frosts prevailed, the earth was deeply locked in the frost's cold embrace, the vegetable crops were being withered, blasted and killed on every hand; and the fiercest winds that humanity here has perhaps ever had to endure were sweeping over the earth, carrying death and destruction everywhere. It was an arctic season; and for the time England was the region of desolation and gloom. Now, as though by the touch of some enchanter's magic wand, the scene is changed. The winter is here, but its bitterness is absent. Over gardens and fields the crops are rejoicing in life, growth, and the most refreshing hues of colour. Literally the "greens" are beautiful. The varying shades presented by the deep-hued sprouting Broccoli, the heavily-tinted Savoys, the paler-hued white Broccoli and white Cabbages, and the still lighter greens of Turnips and Cabbage Lettuces, all serve to make up quite a charming picture that here

apace, and vacant spaces are being got ready for early Potatoes, later sowings of Peas, and Broad Beans. It is true vegetables are not fetching high prices in the market, but at least there is plenty to take in, and the labour of gathering is trifling. We have seen much worse times for the market grower than the present are.

— **CLOVER AND GRASS SEEDS.**—In a special circular just issued by Messrs. HURST & SON, of 152, Hoandsditch, E.C., we get some idea of the extent and quality of the past harvest of Clover and grass seeds set forth from the English standpoint, after the fullest information respecting foreign crops has come to hand. Of English red Clover, a deficient yield is reported, and a lower grade of quality than has been experienced for several years. The Eastern Counties have supplied the boldest and best coloured seeds, but

it is not much in favour in England on account of its being of a weedy character, and should never be used unless first cleaned in a machine. Of white and Alsike Clovers, a larger quantity than usual was secured in this country during the fine weather of the early summer, but the main supply will have to be drawn from the Continent, and as both these articles are produced over a wide range of country the extent of the crop can scarcely be accurately stated until the cold weather sets in, so as to allow of the threshing and marketing of lots, but it is expected there will be quite an average crop. The English crop of Trefoil is again much below the average, but fortunately France will be able to send some fairly good lots. French seed grown upon the chalk is hardly inferior to home-grown, and for years past large quantities of French seed in the cask or hulk has been sent over to this country, milled here, and sold as English.

Lucerne is reputed to be a short crop, but prices are not reaching very high. Of Sainfoin the English crop of Giant is quite a failure; but some common will be forthcoming from the Southern Counties. The French crop of Giant is a very small one, and prices will be high throughout the season. The French crop of Italian Rye-grass is not up to the average; the quality of the seed, however, is better than for several seasons. Owing to the fact that nearly all yearly stocks have been cleared out, a considerable advance upon last year's prices has taken place, and prices may range still higher. The best French-Italian comes from the cleanest farmed land in that country. The English crop is the smallest for some years, and is now entirely out of the farmers' hands. Perennial Rye-grass is at about the highest price it has touched for many years; following the entire clear-out of stocks last season, a great demand set in as soon as the crop was harvested, both from this country and from the Continent; and as so much has yet to be bought, there is every probability the high rates will be fully maintained; the lower weights are pretty certain to increase in value, as almost prohibitive prices are asked for the heavier ones, and the demand will naturally be for a cheaper quality. Natural grasses are scarce, and generally above average prices, but are very good in quality; indeed, this applies to all kinds of grasses this season.

— THE METEOROLOGICAL SOCIETY. — The annual general meeting of the Society will be held at 25, Great George Street, Westminster, on Wednesday, the 15th inst., at 7 P.M., when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President will deliver his address.

— THE FALLEN TIMBER AT DUNSE CASTLE.

— Sixty of the fine old trees blown down here during the gale of October 14 last having been replanted by Mr. SHEARER, of Edinburgh, by means which were described in our number for November 10 last, the proprietor of the estate, Mr. HAY, entertained the workmen, thirty-eight in number, with a dinner, on the 8th inst., at the Swan Hotel, Dunse. The chair was taken by the factor, Mr. FERGUSON, who was supported by Mr. SHEARER and Mr. JOHN DOWNIE, and it need scarcely be added that the kindness of the Laird was much appreciated. The remainder of the fallen timber on the estate, estimated at over 50,000 trees, has been sold to Messrs. BROWNLEE, Earlsdon, who engage to remove it within four years, the purchasers being allowed to erect saw-mills on the estate to cut up the timber.

— HORTICULTURAL CLUB. — The annual dinner took place on Tuesday at the new rooms of the Club, 13, Henrietta Street, Covent Garden, Mr. JOHN LEE in the chair. There was a large attendance of members, and the new arrangements, necessitated by the dissolution of the Temple Club, were much approved, and it was hoped that now that country members can claim bed-room accommodation in the house at reasonable charges the number of members would be increased. Mr. LEE, in proposing the toast of "Prosperity to the Club," remarked on these points, and it was stated by the Secretary that although the number of members was not as large as might reasonably be expected, yet the committee had been enabled to increase the funded property, and to leave a good balance in hand at the close of the year. Several new members were admitted.

— WATSON'S "TOPOGRAPHICAL BOTANY." — The last work of the late Mr. H. C. WATSON on the distribution of British plants was his *Topographical Botany*, issued in 1873-74, in which he traced the dispersion of each species through the 112 viccounties which he adopted. Of this book only 100 copies were printed for private circulation, and these were all given away by the author immediately. Since its issue a large amount of new material has been accumulated, principally through the exertions of the members of the Botanical Record Club, and at the time of his death last autumn Mr. WATSON was engaged in the preparation of a new edition. This he did not live to complete as regards its prefatory and explanatory portions, but he had kept an interleaved copy, in which he regularly entered up every record of the occurrence of any plant in a new district that was brought to his notice. At his own special

request, this was deposited along with his herbarium at Kew, and from this it is now proposed to prepare a second edition of the book, which Mr. QUARITCH has undertaken to publish, and Mr. J. G. BAKER and the Rev. W. W. NEWBOLD to make ready for the press.

— BIGNONIA VENUSTA. — At Foyles Park, near Alton, Hants, there is at present a gorgeous show of this grand climber trained on the roof of a stove. On January 6 there were hundreds of trusses of its beautiful bright orange flowers. Mr. HARRY COSTER, the gardener in charge, states that he has cut many dozens of trusses from it and it had been in flower some considerable time, proving it to be a most valuable plant for such a position, and flowering through the winter months, as seen here, makes it very valuable. In Sir GEO. MACLEAY'S garden it is also very fine. We gave a figure of it at p. 273, vol. XI.

— BIFACIAL ORANGES. — In the *Provence Agricole* M. HECKEL tells us how the fruits which on one side present the characteristics of Oranges, and on the other those of Lemons, are produced. A nurseryman at Cannes, M. TORDO, takes scions (*bourgeons*) of various species of Citrus, Orange, Lemon, &c., and grafts them circularly around the trunk of a Citrus, arranging the scions closely together in pairs so as to bring about complete fusion of the scions. When the grafts have adhered the tree is headed down to within a short distance of the grafts, and in spring branches are seen which give rise to monstrous fruits, having the characteristics of the different grafts blended together. The branches which originate from the ingrafted shoots produce leaves which are greatly changed in form and differ from those of either species, thus affording a striking proof of graft-hybridisation. The flowers of the two species are also fused.

— JACARANDA MIMOSIFOLIA. — The elegantly cut leaves of this stove shrub are so much like those of a Fern that nine out of ten passers-by would at the first glance declare it to be a Fern, although in truth it is very far removed from Ferns. It is generally considered difficult to propagate, but Mr. B. S. WILLIAMS has, it seems, discovered the knack of accomplishing the task without material difficulty.

— GERMINATION. — M. PAUCHON has been experimenting on the relative time required for germination by variously coloured seeds of the same kind under the same conditions. As the light can only influence the embryo of the seed by traversing its coverings, and those coverings vary in colour and thickness, so it is not unreasonable to expect differences in the rate of germination accordingly, and M. PAUCHON shows that this is so. Black Haricot Beans, placed under the same conditions as white ones, germinate less rapidly than the white ones, and absorb more oxygen.

— IMPORTED LILIES OF THE VALLEY. — Some very fine beds of these charming Lilies are now in full beauty in the Grove Nursery, Teddington, where large quantities are annually forced by Messrs. H. PAGE & SONS. The roots are put thickly in rows in beds with plenty of bottom-heat, and covered with e-ozia-fibre. Sashes are then placed over the bed until the flowers appear, when they are removed and the flowers are gradually exposed to light. From the time the roots are put in until the flowers are cut generally takes about six weeks. Whatever objection may be taken to imported roots as being more difficult to force than home grown plants, it is certain that in point of quality the imported roots produce by far the largest flowers. Those who think differently should compare results. With Messrs. PAGE a crown has not mislaid (of course the crowns have been selected), and the result is a very profitable display of unusually large flowers. As with everything else, so with Lilies of the Valley—the largest and finest spikes bring the most money.

— JASMINUM GRACILIMUM. — Of this there are three or four large specimens in Messrs. VEITCH'S nursery, which will continue in bloom for a long period yet; as a succession of bunches of delicate white flowers are freely produced from the axils of the leaves. The numerous examples of small plants are also flowering. One may safely predict of this that it will soon be grown in every garden. The

bushy habit of the plant, and the penulous character of the branches, which seem to droop with the weight of its sweetly-scented flowers, form altogether a very handsome specimen.

— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION. — At the annual meeting of this Institution, held on the 12th inst., Mr. Deputy RUDKIN in the Chair, the report of the committee for the past year was read, and a financial statement, duly audited, laid before the meeting. The total receipts during the year amounted to £2734 6s. 10d. The pensions to the amount of £1200 13s. 3d. were paid, £650 had been invested, leaving a balance in hand of £1441 14s. 10d. The percentage of expenses to receipts (19.5) was considerably less than in some former years. During the year there had been 1113 subscribers and 766 donors. The number of pensioners last year was forty-two females and forty-three males, the following eight additional pensioners being added to the foregoing at this meeting without the trouble and expense of canvassing, all having complied with the rule that they or their husbands shall have been subscribers for at least five years:—John Bowen, of Southampton; John Baxton, of Eltham, Kent; Margaret Eagles, of Highgate, Middlesex, relict of the late Abraham Eagles; John Hinde, of St. Mary Cray, Kent, totally disabled; Alice Meldrum, of Kendal, Westmorland, relict of the late James Meldrum; Abraham Randall, of Colebrook, Comptonstone, North Devon; Ann Helen Tilley, of Welbeck, Notts, relict of the late William Tilley; Benjamin Wortley, of Camberwell, Surrey. The scheme for augmenting the amount of the annual pensions, admittedly very low, had produced a net sum of £500, obtained chiefly in small sums from working gardeners by means of applications made by gardeners and others. The sum is to be invested separately, and any interest that may accrue is to be added to the principal, so as eventually to secure the desired result. The scheme has been the means also of securing a considerable addition to the subscribers, and is to be carried out again during the ensuing summer. The negotiations with the committee of the Henry Veitch Memorial Fund are still in progress. It was announced that the Lord Mayor would preside at the next anniversary festival. A discussion arose on certain points of detail, and the proceedings, which were of a satisfactory character throughout, were closed by the usual vote of thanks to the Chairman.

— THE WEATHER. — General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending January 9, issued by the Meteorological Office, London. — The weather has been dull and unsettled, with frequent falls of rain. In some places hail or sleet showers were experienced, and at some of our extreme north-western stations thunder and lightning. The temperature has again been above the mean in all districts, the excess varying from 1° in "Scotland, E." to 5° in the Midland Counties. The maxima were generally registered on the 5th or 6th, and varied in most districts from 53° to 55°, but at Nottingham on the latter day the thermometer reached 60°. The rainfall has been a little more than the mean in all districts except "England, N.E." and "England, S." Bright sunshine shows an increase over the greater part of England and the east of Scotland, but a decrease elsewhere. The percentages varied from 15 in "Scotland, W." to 35 in the Midland Counties, and 49 in "Scotland, W." Depressions observed:—During the whole of this period the barometer has been highest over France, and lowest in the western and north-western parts of our area. Several depressions have passed over us in a north-easterly direction, some of them, notably that of the 6th, being deep. The wind was generally moderate or fresh from south-west or west, but increased at times to a gale on our western and northern coasts. The gale experienced over Scotland on the 6th was exceptionally severe, and at Ardrossan is reported to have reached the force of a hurricane.

— GARDENING APPOINTMENTS.—Mr. M. K. DIXON, for upwards of three years Gardener to Capt. TAYLOR, Glenleigh, Hastings, has been appointed Gardener to Sir S. M. WILSON SEARLES, Uckfield, Sussex; and Mr. J. GORE, for the last four years with Mr. WARD, Gardener to T. H. OAKES, Esq., Ridings House, Dalrymple, has been appointed as his successor at Glenleigh.—We hear that Lord BROWLOW is giving up the kitchen garden at Ashridge, and that Mr. SAGE, in a few weeks will take charge of his lordship's garden establishment at Belton, near Grantham; the present gardener at Belton becoming flower gardener at Ashridge.

BARRINGTON HALL,

THE residence of G. Allan Lowndes, Esq., is situated in one of the most charming districts in Essex, some 5 miles from Harlow, and 3 miles from Tackley station, on the Great Eastern Railway. The neighbourhood is rich in places of antiquity, and the village of Hatfield Broad Oak [not to be confounded with Hatfield, the seat of the Marquis of Salisbury] is about as quaint a relic of the habits and customs of our forefathers as one could well desire to see. The church at Hatfield was of very early foundation. Earl Harold had an extensive manor in Hatfield, which came to William the Conqueror, who granted the church and part of the tithes to Aubrey de Vere. The Barrington family appear to be of very early origin. From the history of the Barrington family, edited by G. Allan Lowndes, M.A., it appears the family, though now extinct, was a very ancient and prominent one in the county. The family were originally settled at Barrington, in Cambridgeshire, to which place they either gave their name or from which they took it. In a M.S. account of the Barringtons, written about the year 1677, it is stated:—"It is the greatest honour and happiness of this family that it embraced the Christian faith upon the first preaching thereof here by the English apostle." Touching the antiquity of this family we find one of the Barentons servant to Queen Emma, wife of King Ethelred, and mother of Edward the Confessor. Randalphus de Barenton, probably son of the above, was one of those sworn by William the Conqueror to assist in taking the general account of the kingdom. He was employed in Cambridgeshire, and made the return for the hundred of Trepe-law (now Triplop) in that county. Morant states from the feodary of the De Veres, Earls of Oxford, how a long list of persons of the name of Barenton held the Manor of Chigwell under them, and proceeds to give the genealogy from 1263 to 1479.

Camden, in his account of Essex, in the *Britannia*, after naming Hallingbury says, "And more to the east is Barrington Hall, the seat of the noble family of the Barringtons, who in the time of King Stephen were greatly enriched with the estate of the Lords Montfichet that then fell to them, and in the memory of our fathers a match with the daughter and heir of Henry Pole, Lord Montague, son and heir of Margaret Countess of Salisbury rendered them more illustrious by an alliance with the royal blood." Sir Thomas Barrington succeeded to the estates in 1628, and was a great favourite with Charles I. Sir Fitzwilliam Barrington died in 1836, and on his death, leaving no male issue, the baronetcy and family of Barrington in the male line became extinct.

Since the present owner came into possession extensive additions and improvements have been made on the estate, not the least of which has been the formation of new gardens and grounds, which have been designed and executed with great skill and much good judgment. No incongruities appear to offend the eye, and the wings of the grounds (if I may so write) are so happily balanced, and in such strict proportion to the centre that one might almost conjecture it to be a lady's arrangement. And so it was, for Mrs. Lowndes is a real gardener at heart, and is ever ready to impart advice and encouragement to those who have to bear the burden of the work. The principal entrance is off the Dunmore road leading to the north front, and is but a short distance from the village of Hatfield Broad Oak. The avenue is lined with Elms, bearing marked traces of a ripe old age, and in striking contrast are healthy Wellingtonias, Pinus insignis, and other Conifers, planted in vacant spaces some distance from the Elms. The first curve in the avenue brings the visitor within view of a huge amphitheatre of trees, almost forming a circle, which narrows gradually into a long plantation, stretching northwards as far as the naked eye can travel. And in an opposite direction in the park are some pretty groups of Sycamores and Ash, and some fine old Elms standing singly by themselves.

Nearer to the Hall, and within view of the windows, are some grand Chestnuts towering above healthy plantations of young trees, and by the side of the drive stands the old plant Oak, the girth of which is 30 feet in circumference at 2½ feet from the ground—the largest Oak that has come under my notice except the one at Witley Court, which measures 8 feet more. This patriarchal tree has fourteen main limbs, and

like the one at Witley, is more interesting from its age and size than from its appearance, which is the reverse of handsome. The knots and excrescences upon the bark, the thinness of the leaves, and the annual diminution of growth forecast but too plainly the lack of vital force in the noble old tree that has weathered the storm of many generations. The view to Tackley and Hollenbury Forest are the chief landscape attractions from the north front, which are closely rivalled by the scenery of the home park. The Hall is a handsome square block of modern style, commanding wide and pleasant views of the surrounding country in clear weather. In the direction of Hatfield Broad Oak the view extends to a distance of 20 miles straight upon a clear day. This view is from the south front, and several other beautiful peeps take the direction of Down Hall; nor must we forget the spire of the village church, distant about a mile and peeping conspicuously above the trees in the subdued evening sunlight—nor the splendid green drive, a mile in length, of which more anon, bordered by rows of Beech, and Limes, and Sycamores—nor the distant lakes surrounded by noble groups of trees.

What a grand appearance these fine trees have when the leaves take on their various autumn tints!—when every rainbow tint is represented, and the golden sunlight is reflected upon them through a dense background of green. Such picturesque effects—such beautiful contrasts of light and shade, all derived from a happy arrangement of trees and an acquaintance of their different forms and colours when planted. The west and north-west views are also extensive, Beech, Elms, and Chestnuts being again conspicuous in single specimens and in groups. Upon the east side of the flower garden in the park are several specimen Oaks, 21 feet in circumference at 6 feet from the ground. Groups of Oaks are also noticeable, but the single specimens are ornaments of which any country gentleman will head well pleased, with clear stems of from 5 to 6 feet and heads symmetrical as if they had been mechanically trained. The green drive alluded to runs in a direct southerly direction from the Hall, and has a massive effect from a distance. It is a practical illustration of the wisdom of planting trees at a considerable distance from the margins of avenues. How many avenues are there in England where the trees smother themselves in twenty or thirty years, and so defeat the original idea of the planter?

At Barrington there are green borders between the avenues and the trees from 3 to 4 yards wide, so that the visitor passing up and down has every opportunity of admiring their individual size and proportions. When half the distance is traversed a large circle is described, which makes a nice break in the drive, and round which carriages in waiting may promenade in the order of succession. On the south-west side of the park are rows of Limes of fine shape and other groups of trees in greater or less variety, but all in the best of health. On the east side of the park, or rather east from the Hall, are some splendid Oaks, 25 feet in circumference at 6 feet from the ground, with over twenty main limbs drooping over the greensward, with as much regularity as a distended umbrella. There is a clear walking space of over 9 feet between the branches and the surface of the ground. But the great curiosity of the park, or rather the most interesting object in it, is the "Fox's Elm." The peculiarity of this notable tree is that one of its branches touches the ground near its extremity, the point of the branch taking an upright turn immediately after the curve in the branch which rests upon the ground. When Reynard is hard pressed he, fox like, takes to scheming when he finds that a straightforward run for his life becomes dangerous. His plan is to climb up this branch and secrete himself in a large cavity in the centre of the tree and the bounds once having lost the scent leave Reynard undisturbed until hunger tempts him voluntarily to leave his ambush. The girth of this tree is 25 feet in circumference at 6 feet from the ground.

The flower garden and pleasure grounds are upon the south front, the latter taking a gentle sweep to a fine lake which extends as a boundary from south to east, in other words the lake divides the private grounds from the park proper. Descending the steps from the Hall there is a broad terrace walk. The flower garden consists of a large plot in the shape of a half circle traced in grass in front of the Hall steps. In the centre of the plot is a large figure in statuary surrounded by a neat oval design in Box; then a walk

of proportionate size between the group of figures and the grass and a row of flower beds cut out in the grass terrace of suitable size and shape. Upon the right and left of the central group two scroll designs in Box to match are laid out the full length of the terrace; thus it will be seen that a summer and winter effect is aimed at, the garden being laid out in about equal proportions of grass and Box, the latter so happily balanced and so neat and effective in design as to give a very lively winter effect from the principal windows of the Hall. The long walk leading from the flower garden to the lake is adorned with a massive figure of Hercules. The groundwork round the figure is diamond-shaped, and of course the walks, as a consequence, are of the same shape. Four appropriate figures are cut out in the grass opposite the four sides of the diamond figure for flowers, and large shrubby beds are cut out in the grass a little further off; these beds are beautified with flowers as well as shrubs. From this point the lake has a rectangular appearance, and the rather quick slope down to its margin would make a fitting place for Iris, Epilobiums, and many other tall-growing herbaceous plants requiring a moist situation. Banks of trimmed Laurels face the lake, which are not good enough for the situation. On the east side of the enclosed grounds stands a Weeping Willow, the first tree planted on the place by Mrs. Lowndes. It is near to the bridge which spans the watercourse, and not far from it is another of those fine Oaks which are the especial feature of Barrington; this tree is 26 feet in circumference.

Of isolated objects a figure upon the west lawn, in which carpet-bedding is successfully done, struck me as supplying a good way of making distinction in the different systems of summer bedding. Of Conifers and other trees worthy of mention in the pleasure grounds are Wellingtonia gigantea, Abies Pinsopra, Pinus excelsa, Taxodium sempervirens, Cryptomeria japonica, Andromeda floridula, Thuipius borealis, Abies lasiocarpa, and a grand Cedar of Lebanon by the east corner of the house, which is a conspicuous object to visitors, and an ornament to the grounds. I should also mention a group of fine Elms on the east of the Hall which appear to be of great age, and wonderfully furnished, though somewhat lacking in health from what they have been in years past. In the glass structures the plants are exceedingly well done; every house has as much as it can hold, and more, all well cultivated, clean, and healthy. Plants for house furnishing are grown in numbers, flowers and Ferns for cutting, and lots of odds and ends as a reserve stock for general purposes. In the plant-stove, Stephanotis and Alimandaras had flowered freely; Abutilons, trained as climbers, gave the idea of midsummer rather than of October, and pots of Eucharis were showing flower, as well as hosts of flowering Begonias and other plants. The occupants of this house are miscellaneous, such as Aralias of sorts, Palms, Ferns, a fine specimen of Asplenium Belangeri, Dracaena rubra and congesta, and of those requiring more warmth, D. Shepherdii, Cooperi, terminalis; Orchids of the useful type, Tydasia, Anthurium magnificum and Schzerianum, Cissus discolor, Amaryllis coming into flower, Eranthemums, Ixoras of sorts, Clematisdrum Thomsoni, Euphorbia, club mosses, Selaginellas, &c. Thunbergia elegans is grown as a pillar plant, and a handsome one it is for winter or summer use.

In a large span-roofed greenhouse, shelved under the apex and at the sides, hundreds of Primulas and Cyclamens were coming into flower, and others for succession. Chrysanthemums, green bush fashion, a nice sample of the Bird's-nest Fern, Nootopterisindis, Richardias, Solanums, Felargoniums for winter flowering, hard-wooded Heaths, Aspidistra laudata variegata, Imantophyllum miniatum, Camellias in pots, Cobaea scandens, Abutilons, Cytisus, Carnations, Azaleas, Nerium Oleander, Grevillea robusta, and many others. In pits and frames I noticed healthy stocks of Cinerarias, Primulas, and other plants for spring flowering, the Cinerarias with leaves like young Cabbages, and quite as green. The Grapes had already been cut and bottled—as fine samples as could be desired for table use, or by taking a lighter crop perhaps they would come in handy for another purpose. The kitchen and fruit garden is over 3 acres, and is clean and well managed. The fruit trees are in a fertile state, Pears, Plums, Apples, and small fruits are annually gathered in large quantities. Strawberries bear enormous crops. The soil of the garden is naturally adapted to the cultivation of vegetables, which never fail to be of the highest quality either in

summer or winter. The forced vegetables in winter must be very fine if one can form a safe opinion from an autumn appearance of (Kuhlarb) and Skakle crowns, and other roots for forcing. The garden is under the management of Mr. W. MacGregor, who is evidently at home in every department of his business. *W. Hinds.*

NOTES ON THE NEW NEPENTHES.

Your figure of *Nepenthes Northiana* was very good. Miss North's drawing, however, has, if I recollect right, a ground-tint of bright reddish-crimson on which darker blotches are laid. It is a fine thing, and, as I firmly believe, a natural hybrid between *N. sanguinea* × *N. Veitchii*. The oblique mouth of the urns would suggest *N. Rajah* as one of the parents, but then his highness only holds court, so far as we know at present, on Kina Balu, 250 miles farther north, and never at a less altitude than 4500 feet, rising to near 10,000 feet.

In earlier times he may have been an inhabitant of the plains—at any rate no one can place the pitchers of *N. Northiana*, *N. Veitchii*, and *N. sanguinea* side by side without being struck by their affinity. Again, a glance at your engraving of *N. Northiana* reminds one of a long-urned form of *N. Rajah* in obliquity of mouth and its wavy-margined frill. The *cauline* pitchers of *N. Rajah* have never yet been figured. I was with Mr. Harry Veitch when Miss North first showed him the picture of *N. Northiana*, and it was a revelation to us both. I had the latitude and longitude of its habitat in my portfolio when I left Chelsea for Borneo, but unfortunately never had the chance of seeing Sarawak; my lot was the wild north-west coast, among the pirate chiefs, and very good genial fellows I found them!

Now as to *N. Veitchii*. This is a true epiphyte. I never met with it on the ground anywhere, but in great quantity 20–100 feet high on tree trunks. Its distichous habit is unique, I fancy, and then some of the leaves actually clasp around the tree just as a man would fold his arms around it in similar circumstances. No other species of *Nepenthes*, so far as I know, has this habit.

N. sanguinea is a native of Borneo, although first found by Lobb on Mount Ophir, in Malacca. Of this there are green and crimson pitcher-forms, analogous to *N. zeylanica* and its red-pitchered form, sometimes called *N. rubra*.

No doubt exists in my mind as to *N. Hookeri* being a form of *N. Rafflesiana*. In Johore I saw typical *N. Rafflesiana* climbing to the tops of trees 50 feet in height. In Labuan Island *N. Rafflesiana* var. *nivea* is the form most commonly met with which has stems of satiny lutea, being covered with a felt of silvery hairs. Specimens in wet jungle in sandy peat climb up bushes like Sweet Peas at home. I never saw this form above 10 feet in height. The lower urns on plants, 15 inches high are often thirty to fifty in number and were covered by leaves, moss, and other wet *debris*, are of a fine crimson colour; the *cauline* pitchers exposed to the sun are soft creamy-yellow with pink spots. This development of the highest and brightest colour in the shade is a peculiar trait displayed by Pitcher-plants. Every Pitcher-plant I saw abroad produced its largest and richest-coloured pitchers when resting on the surface of the ground, and when completely covered up with moss, wet leaves, and other forest *debris*. I never thought of leaf colouring being developed in this way. Flowers and fruit I knew coloured fairly well in the dark, and so the deep rose-crimson tubers of *Ullucus tuberosus*, formerly, as we are told, the food of the Peruvian Incas.

To return to *N. Hookeri*, I have a letter from Mr. Thomas Lobb, written in July, 1877, in which he says the true *N. Hookeri* was not then introduced from Sarawak! *N. bicolorata* exists in Sarawak (*vide* Beccari's specimen in Herb. Kew), and I have thought since my Bornean journey that Lobb saw this species, and took it to be the true *N. Hookeri*, as he says it has globose self-coloured pitchers of a red-crimson colour!

Nepenthes Burdidgei, Hook. f. *JSSN*, is a lovely thing, as yet un-introduced: pitchers pure white, semi-transparent like egg-shell, porcelain-white, with crimson or blood-tinted blotches. Lid blotched and dotted with crimson-purple. It is a very distinct plant, with triangular stems, 50 feet long, and the margins of the

leaves decurrent. *N. Boschiana* var. *Lowii* grows along with it, and has pitchers 12–18 inches long, cylindrical, of a green colour, with purple blotches. These two, with the flagon-shaped *N. Lowii*, the red-pitchered *N. Edwardsiana*, and *N. villosa* (true), a lovely thing allied to *N. Edwardsiana*, but with a *N. Hookeri*-shaped pitcher, having an elegantly filled mouth. These five fine species, and the vivid crimson-purple pitcher-terrestrial *N. tentaculata* still inhabit Kina Balu, and beckon on the collectors of the future, having so far defied the efforts of the collectors of the past.

Then Beccari's singular *N. echinostoma* (*vide* Herb. Kew) is a wonderful thing, as yet un-introduced—indeed, I suppose unscanned by any save Beccari! The mouths of the urns remind one of the deflexed teeth of some gigantic moss of the Hypnoid section. Mr. Peter Veitch and I found *N. Rajah*, *N. Lowii*, *N. villosa*, *N. Edwardsiana*, all together on the sunny south spur, but in this order:—4000–6000 feet, *N. Lowii*; 6000–8000 feet, *N. Rajah*; 9000 feet, *N. Edwardsiana*; 9000–10,000 feet, *N. villosa*—a rounder and shorter edition of *N. Edwardsiana* in pitcher, but different in terrestrial habit, *N. Edwardsiana* being purely epiphytal on *Casuarinas*, *Dacrydiums*, *Rhododendrons*, &c.

Apart from these I found an intermediate between *N. villosa* and *N. Edwardsiana*, also epiphytic on *Casuarina*. This is, I believe, unnamed; if so, I should like it to be called *Nepenthes Harryana*. Now, if a dried pitcher of *N. Edwardsiana* be examined, the upper four-fifths of it will be seen to be membranous, the lower part leathery and hard; in *N. villosa* nearly all is hard and leathery except about half-an-inch below the hardened rim of the urns; in *N. Harryana* about one-third is hard, and two-thirds soft or membranous below the rim. The edge of the pitcher mouths in these three kinds is quite distinct from those of all others, as shown in my sketches.

N. Hookeri I once saw at Kew, and it reminded me of Mr. Taplin's American seedlings which Mr. Williams bought. Sir Joseph Hooker, in *Linna. Trans.*, vol. xxii, suggested that *N. villosa* and *N. Edwardsiana* might be forms of the same species. This is not so, however, they are quite distinct in zone on the mountain, and in habit of growth also, and in colour. Then *N. Harryana* is a hybrid no doubt, which shows they have distinct sexual characters. Among my specimens of *N. gracilis*—all, or nearly all, from Labuan—are many forms more or less distinct [differing also in the relative depth of the thick and thin portions respectively].

N. Rafflesiana is most variable, from the little silky-stemmed *N. R. nivea*, only a few inches, to at most 8–10 feet high, to *N. R. glaberrima*, 40 feet high, and with enormous urns. I found one variety quite near the sea on the Bornean coast of Lumbedam, opposite Labuan Island, distant to miles, and it had a winged prolongation of the midrib, *Ec.*, the parts between base of pitcher and point of leaf were winged.

Mr. Le Marchant Moore's *N. dyak* is of course only the *cauline* pitcher form of *N. bicolorata*.

N. zeylanica, of gardens, seems nearest to *N. phyllanthiflora*, analogous to that species as *N. Hookeri* is to *N. Rafflesiana*. It is certainly not in any way related to the Bornean *N. hirsuta*, if I did not mistake that species, which I compared closely with the description in *Prodrum*, when I found it on the top of all the dry Lernas hills. *F. W. Burbidge.*

PLANT PORTRAITS.

ANTHURUM SCHERZERIANUM VAR. HENDERSONI, *Floral Mag.*, t. 468.—A very fine variety of this handsome species.

LYSIOLOTUS SERRATA, Don, *Bot. Mag.*, t. 6538.—An erect, glabrous Gesneriad, with stalked, oblong acute, coarsely-toothed leaves, green above, and veins brownish beneath. The flowers are irregularly funnel-shaped, about 2 inches long, pale lavender coloured, with veins of a deeper colour. Subtropical Himalaya. Kew.

PELARGONIUM PRINCES STÉPHANE, *Revue de l'Hort. Belge*, October.—A zonal, with large very double rose-pink flowers; habit dwarf, free-flowering.

THYRSACANTHUS LILACINUS, Lindl., *Gartenflora*, t. 1054.—A stove shrub with oblong acuminate glabrous leaves and terminal spiked verticils of two-lipped flowers.

HOME CORRESPONDENCE.

Chorispora Greigi, etc.—Can any of your correspondents tell me how to get the seeds of *Chorispora Greigi* to vegetate? I have had seed sent me from various sources, and have sown it at all times of the year, but have never succeeded in getting a grain to germinate. I have had similar want of success with the two species of *Hesperochiron*. I have any of your readers succeeded in getting good plants of *Viola heckwithii* or *V. pedunculata* from seed? The seed which I sowed last spring came up freely, but the young plants all died off before they had attained any size. *H. Harpur Cross*, *The Rectory, Drayton-Bassham, Flint, 700.4.*

Plant Labels.—The Rev. C. Wolley Dod's contribution on this question is interesting and valuable. I should, however, like to have the experience of any of your correspondents with Box-wood labels for pot plants, or in any case where the labels had to be inserted in the ground. Last spring I used a number of Box-wood labels for seeds, sown in pots and pans, but to my mortification found that a fine fungus spread from the wood of the surface of the soil in a way that invariably destroying the delicate seedlings. I was obliged to remove the Box labels and substitute for them the common ones made of deal, which appeared quite free from the fault of their predecessors. The fungus also quickly caused the Box-wood to become spongy and rotten, greatly to my disappointment, as I had expected the Box-wood labels to be much more durable than the softer and cheaper deal ones. During the past season I have used the chrome-yellow paint for labels instead of white lead, being recommended to do so by a gentleman with whom Mr. Dod is probably acquainted. I have not yet had sufficient experience of it to know whether it is, as alleged, more permanent than white; but it is certainly much more convenient to keep in stock, being in the form of a dry powder, of which as small a quantity as is liked may be mixed for use at any time. White lead, I need scarcely say, must be kept covered with water or it becomes hard and useless. *F. W. Stanfield, Sale, Cheshire.*

Pastila.—In reply to your inquiry as to the way in which this sweetmeat is prepared, I may say that although the pastila is made in different ways, its manufacture is based on the admixture of the pulp of Apples with sugary matters (sugar, honey, fruit syrup) and Potato flour. Apples are selected which have not attained full maturity, preference being given to those which are a little acid. Generally it is the Anthony Apple which is the most used. Having cooked the Apples, the pulp is extracted, pounded in the mortar until it becomes white and homogeneous; honey, or sugar, or the extracted juice of Cranberry (*Oxycoccus*), or of the Service (*Sorbus aucuparia*), of *Cherries*, *Plums*, &c., with a little starch (Potato flour), are then added. The mass formed is placed in an oven at a gentle heat until it has coagulated and become compact. According to the way adopted in different localities the pastila is divided into many kinds, of which the most renowned are those of Nowogrod, Kjew, and Moscow. *P. Walkenstein.*

Mrs. Duffield's Portrait of *Odontoglossum Alexandræ*.—In your note in Saturday's paper on horticultural pictures at the Grosvenor Gallery, your critic says of the *Odontoglossum Alexandræ*, painted by Mrs. Duffield, "through an admirable watercolour drawing it fails to impress us as a first-class variety of the Orchid in question." It is only fair to say that for the selection of the subject I am responsible. Mrs. Duffield was staying with us, and I pointed out to her two varieties of *Odontoglossum Alexandræ* which visitors here considered beautiful while they were comparatively rare forms. We had a number of varieties out but these were selected. I agree with your critic that the most beautiful variety is the very large flowered mauve-tinted variety, but of this Mrs. Duffield had a beautiful picture last year in the Institute of a specimen with, if I remember rightly, sixteen flowers. *Gov. & F. Wilson, Heatherbank, Weybridge Heath.*

Canker in Apple Trees.—I must differ from Mr. Harrison Weir when he states that in his opinion Apple-tree canker is not the product of frost. I have seen evidence enough of the action of frost on Apple trees in this district to satisfy me that frost is the most potent agent in its production. There may be isolated cases where, as he mentions, canker appears on the young wood of the present season's growth, but it must yet be a most rare case, whether the canker is found in the wood or on the surface of the tree, for the canker is the cause of their presence. Sharp frosts seem to be peculiarly destructive to some kinds of Apples, and as their effects are found only in certain sorts, whilst others growing close by are entirely unharmed, it is evident that soils have little to do

with the matter. The obvious inference, therefore, is that the wood of some kinds is softer than is that of others, and therefore more subject to disruption by frost. That canker is simply the after-result of the disruption of the cellular tissue there can be no doubt. The cells are burst by the action of the frost, and decay results. The same thing is seen in a Potato, for if but a few of the cells be destroyed by the point of a fork the originated decay will spread over a large portion of the tuber. Insects might perforate and injure the bark, but all canker is deep seated in the wood. After the fierce hoar-frosts of three winters since canker was suddenly found in hundreds of trees that up to that time had been perfectly healthy—even in large branches and in main stems. King of the Pippins and Wellingtons suffered terribly, and yet both had been esteemed before perfectly healthy and hardy. The kinds most injured with me were Gloria Mundi, Lord Suffield, Harvey Codlin, and Northern Spy. All others were uninjured. It is worthy of remark that all through the market orchards where the trees were not absolutely killed they are growing out of their injuries fast. Eight years since I had here a fine healthy Ribston tree that bore heavy crops of fruit. With the advent of colder summers it cankered and went to the bad, and I cut its head clean off. It has now made splendid growth for two years, and not a trace of canker is visible. A. D.

Aralia Sieboldii.—The hardness of this noble plant appears to be doubted in some quarters, and more's the pity, for it is an ornament at any season of the year, but especially in winter, when trees are leafless, and there are few plants with such noble green leaves that will live in our climate out-of-doors. The grounds of its supposed tenderness have not been stated, but I have read something about its being hardened off. Hardened off! Why, it is harder than a common Laurel. If people have been growing it as a tender exotic it is, of course, necessary to harden it off, but otherwise no apprehensions need be entertained by any one desiring to use it as a pleasure-ground plant. A group of *Aralias* have been standing near the "Grotto," in Sefton Park, Liverpool, for some years, and if the plant will stand a Lancashire climate with an occasional "whiff" from the alkali works at Widnes and Farnworth as a "refresher," I do not think it ought to live in most places without protection. I planted one in the open garden at Canford in the summer of 1880, and it was as fresh as paint after the winters of 1880-81, which are not yet forgotten, while common Laurels and other shrubs suffered severely. W. H.

The Weather: a Warning.—Soon after the troops of the Emperor Nicholas of Russia had been defeated at Inkerman, on Nov. 5, 1854, he was reported to have said, "I should soon have February in the field." General Canby and General Kearney, who would do more service for him than any had done yet," and he was not deceived. The winter in England was mild and stormy until Jan. 17, 1855, when a snowstorm set in which began one of the hardest and longest frosts in living memory. Within a week of that date I walked across the Thames between the Great Western Railway Bridge and Windsor Bridge, where it has never been frozen since. Soon after that skating began on the still reaches of the Thames, and lasted till February 21, which in that year was Ash Wednesday. Then the frost broke up, but we had many rude reminders of what the winter had been—especially on the night of June 10, on which there were 7° frost in my garden at Eton, and the Potatoes in the fields about London were killed to the ground. I do not believe in any prognostics of hard or mild winters, but what has happened before may happen again. C. Wolley Dod, Edge Hall, Malpas, Jan. 11.

Protection for Wall Trees.—Your correspondents, "G. R." and "R. C.," having opened the question of wall copings perhaps the notes I have collected at various times may be of service to some of your readers. To go at once to the root of the matter let us analyse some of the conditions required in protecting wall trees. Now a wall, especially if it be built at right angles to the line of greatest atmospheric severity, affords a certain protection to trees growing against it. We know, and it has been proved, that a purely vertical screen or screens decidedly afford a given amount of protection to trees growing in proximity to them; and an attempt has before now been made to utilise this idea by constructing a glass orchard composed of vertical screens only. But something more is wanted. Wall trees often require protection, not only from autumn rains, but also from late spring and autumn frosts. Again, the fruit when ripening may require protection from birds, wasps, &c. On the other hand, it may sometimes be advantageous, for the reception of summer dews, &c., to clear away every obstruction except the actual vertical wall which supports the trees. The obvious conditions, therefore, to fulfil in a wall tree protector are:—Cheapness (*i.e.*, comparative, not necessarily

actual low prime cost), extreme portability, durability, power of partial or entire ventilation, the least obstruction to solar rays, no skilled labour or excessive time occupied in erection, manipulation, or taking down, minimum risk of damage in removal or

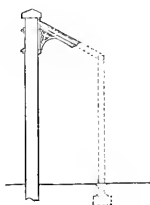


FIG. 8.—RIVERS' WALL-TREE PROTECTOR.

storage. Permanent stone copings with additional temporary wood copings obviously do not fulfil all these conditions. Every wall built for the



FIG. 9.—RIVERS' WALL-TREE PROTECTOR.

reception of fruit trees should, first of all, be moderately coped; that is, it should possess a properly weathered and throated capping of stone or

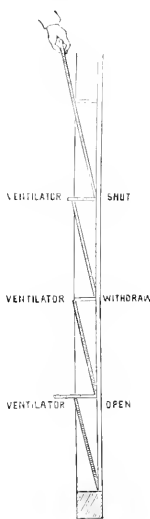


FIG. 10.—WALL-TREE PROTECTOR.

other similar permanent and durable material; but this coping or capping should certainly not project more than a few inches at most. Underneath this may come a temporary coping, a favourite form of which, with many gardeners, is shown by the above

figure (fig. 8), representing a small portable glass roof, supported on brackets bolted to or through the wall. The roof may either be glazed in convenient lengths (in which case the danger of breakage of glass by removal and storage is reduced to a minimum), or the frames may be made to slide in grooves. In the former case the glazed frames may rest on the brackets at intervals, and be kept in their position by pins and slots. In the latter case the brackets and framework for receiving the glass may be jointed together. The front of such a glass coping may have hooks to receive tilting netting, or any other required protecting material. The dotted lines in the figure show a rather wider roof supported by posts; these posts may be so spaced that glazed vertical frames may be fitted or hung between them. In this manner the tree protection may be made to assume more or less the character of a lean-to glass building, and yet any part of it may be removed and stored away at a moment's notice without any trouble or skilled labour, and with no greater risk of breakage of glass than attends the storage of Cucumber lights. With such an arrangement as this, ample ventilation and protection from wasps may still be simultaneously effected. The figures 9 and 10 represent an interior perspective and front vertical section of an ingenious form of wall-tree cover, invented and registered by Mr. Rivers. The roof consists of grooved bars in which glass is slipped. For the vertical portion upright pieces of wood are placed at distances of about 24 inches apart. Horizontal and diagonal grooves having been cut, glass is slid in them between the uprights. If a small amount of ventilation be required the horizontal strips of glass are taken out; pieces of perforated zinc slipper in their places will prevent wasps, &c. entering. If the whole or part of the front requires to be open, as much of the glass as is necessary can be quickly removed, and as quickly replaced when required. My experience has taught me, however, that portable copings are but a makeshift after all, and that in the case of many of the more elaborate portable wall-tree protectors, however ingenious, with a trifling addition to the first cost, a more efficient, serviceable, properly ventilated, durable, permanent lean-to structure may be erected. F. A. Packes, Mansion House Buildings, Queen Victoria Street, E.C.

A Cornish Garden.—My garden is unusually backward this year, I believe in consequence of a sharp frost in October (15). There was another frost or two in November, and the week before Christmas 7° and 11° of frost; consequently the Snowdrops are only now just beginning to open in a very sheltered place, some not even yet. Primroses are out rather earlier than usual. I believe in consequence of a wet summer and very dry autumn. Fruit trees are not a bit forward, nor can I say that anything is so. The vernal Crocus are with us earlier than up the country; indeed, in flower many of them before Christmas—I mean the species: common garden Crocus is not up yet. *Anemone fulgens* is just beginning to open, but only one plant of it. I have no *Camellias* out yet, but *Lapageria rosea* still lovely in a very sheltered corner of my house. I wish I could convince my friends that this lovely plant is hardy. J. Troushand, Bonavan.

Rare Plants.—The *Monsonias* which Mr. Harpur-Crew inquires about were grown in the Hull Botanic Gardens a few years ago, but I doubt if any yet remain there: *M. ovata* and *M. speciosa* were the two kinds grown. *Erodium incarnatum* also was grown there. There are several plants I once knew well, which have almost disappeared from view; no doubt they may yet exist in some corner where their possessors are not aware of their rarity. I could mention a fine variety of *Dianthus hybridus* named *spendens*; a sad-looking *Larkspur*, *Delphinium triste*; Dabney's *Speedwell*, *Veronica Dabneyi*; the *Gladiolus segetum*; *Arenaria hispida*, *Dryas integrifolia*, *Saxifraga umbrosa* var. *Ogleviana*, and *Wulfenia Wallichii*. T. D. H., *The Gardens, Southwick, Buckley*.

Poinsettia pulcherrima.—Some very lovely examples of this fine winter flowering plant are now to be seen at Wroxall Abbey, near Warwick, arranged on the side stages in the conservatory, and being freely interspersed with *Richardias*, *Salvias*, *Carnations*, in the fine flower; *Cypripedium insigne*, *Mignonette*, *Maguerites*, *Libonias*, &c. are a most imposing and gorgeous sight for Christmas-tide. The plants are in large numbers, varying in height from 2 feet down to 6 inches, many of the bracts measuring 2 feet in diameter, of the most brilliant crimson, and with a healthy dark foliage, and are indicative of the highest culture, reflecting great credit upon the able head gardener, Mr. Henry Osman. Visitors to the Warwickshire county town will find these fine gardens well worth looking through. West York.

Euphorbia jacquiniiflora.—To get short useful plants for decorative purposes I find it the best plan

to strike strong cuttings rather late in 3-inch pots, 3 in a pot. I shift them into 6-inch pots when they have filled the cutting pots with roots, and pinch their points once. They then form nice bushy plants 15 inches high, and look bright and effective mixed with fine-foliated plants. *G. Wylex*, *Thirstiana* *Hall*, *Gardens*, *Cheltenham*.

The Soy Bean.—I am glad to see your notice of the *Soja hispida* or Soy Bean. My attention was first drawn to it by Dr. F. Watson as a most valuable article of commerce, owing to the large percentage of nitrogen it contains. It is grown largely in China, where an oil is expressed from it, which is used as salad oil, and the cake is then used as food by the inhabitants as well as given to cattle, and if in excess the cake is also used as a manure. The climate here, I believe, is too cold for it, but it might be grown in most of our colonies and become a large article of commerce. I tried to introduce it at the Cape, and also in Australia, but at that time without success: perhaps now people are wiser. The beans may be seen in the India Museum, and also a copy of the analysis of them. *R. Palmer, Brompton*.

Imantophyllum minimum.—Your correspondent, Mr. F. Corbett, of Fawley Court, writes approvingly of this plant in your last number (see p. 24), and recommends that it should be fully exposed to light in order to secure that deep orange colour which renders the flower-spikes so attractive. I have used the plant large for forcing purposes, and have never failed to obtain high colour in a forcing temperature, say, from 70° to 75°; but if it is allowed to flower in a cool house the flowers are, as your correspondent describes, pale and unattractive. *W. H.*

Berberis Aquifolium as a Hedge Plant.—To see this charming shrub planted *en masse* and in good health as it is now in the garden of Sir Robert Carden, and to see an isolated sickly plant of it in an ungenial soil one would almost fail to recognise the species, so great is the disparity between their appearances under different conditions. It is planted as a hedge in Sir Robert's garden at the back of a low wall where its bold leafage and clusters of yellow bell-shaped flowers are very conspicuous in the last days of December. *W. H.*

Notices of Books.

Wanderings of an Archaeologist amongst Old Churches in the Neighbourhood of Rhyll. By the Rev. W. A. Leighton, F.L.S., &c. (Woodall & Venables, Oswestry.)

Archæology is hardly one of the specialities of the *Gardener's Chronicle*, yet this little work deserves a word of notice from us as coming from the hand of so famous a botanist and lichenologist, not to say borticurist, as the Rev. W. A. Leighton, of Shrewsbury. A duality of studies is by no means uncommon amongst professional men, men of science, and even amongst artisans. One study is a relief from the other: what is more refreshing than to turn from the contemplation of a frail and fugitive fungus to a hard and imperishable stone? Mr. Leighton's work is illustrated with a couple of plates of doorways and stone-coffins, executed as carefully as if they were the anatomical parts of lichens. The first church described is that of Llanrhaidar-in-Ciunerch, bounded by Moel Ynamau, and perhaps this simple name will be enough for many of our readers, if we in conclusion say that the work contains detailed descriptions of the churches, brasses, stained glass windows, boxes, monuments, &c., near Rhyll. At p. 36, Mr. Leighton writes:—"A rough scramble over the high limestone mountain Coed yr Esgob, on which there is a small round tumulus, brought me to Gwynnosc." It is well known, that when Mr. Leighton, hale and hearty, scrambles over these high limestone mountains, he not only seeks out antiquities, historic and pre-historic, but he carries valve and hammer in hand for striking off lichen-covered fragments of rock. Mr. Leighton has for half a century occupied the same foremost place, as a lichenologist, as Mr. Berkeley has, as a fungologist.

Familiar Garden Flowers (Cassell) for this month contains figures of the Japan Quince (*Pyrus japonica*), a plant which, like a large number of garden plants, is encumbered with a large number of synonyms according to the various opinions held by botanists as to its position and qualification. In reference to this matter the editor tells a story of a creditor brought before the judge for non-payment of his debt—defendant repudiated the debt on the ground that his

name was incorrectly given in the documents. "That is of no consequence," said the judge; "you will do, you owe the money, and you will have to pay it;" and on similar grounds *Pyrus japonica hort.* will still answer quite well for garden purposes.

— **Familiar Wild Flowers** contains figures of the red Clover and of the common Coltsfoot.

— **Atlas of Botany.**—Messrs. W. & A. K. Johnston send us specimens of their edition of Dr. Arnold and Madame Carolina Dodel-Fort's admirable *Anatomical and Physiological Atlas of Botany*. These drawings are intended for use in the classroom, and are accompanied by a handbook translated and edited by Mr. D. McAlpine. We have before called attention to this excellent series, which no teacher will willingly be without. The bibliographical references given in some cases might with advantage be extended so as to include original monographs, and not merely accepted text-books, which of necessity deal with most matters at second-hand.

— **Caleb's Mechanical Almanac** (London: Heywood) is a cheap and useful manual for artisans, containing various tables likely to be useful in daily practice, together with articles on "Patent Laws," "The Apprenticeship System," &c.

— **Illustrations of British Fungi**, brought out by Dr. M. C. Cooke, now numbers its hundredth plate. Of the utility of this publication we have frequently had occasion to speak.

Reports of Societies.

Royal Horticultural, Jan. 10.—A finely grown specimen of *Lapageria*, another of Bignonia, and a Fern, *Lygodium Forsteri*, furnished the Rev. G. Heuslow with materials for remarks on climbing plants; how the method of climbing by twiners was a modification of the property of "circummutation" or "bowing around," a property of growth, and which occurs in all parts of plants, but which is variously utilised according to the nature of the organ—whether it be the radicles of seedlings, to enable them to find lines of least resistance for penetrating the soil; or runners, to aid them in surmounting obstacles; or stem-twiners, as in the above plants, for climbing. The lecturer called attention to other methods of climbing, as by tendrils in Bignonia, Vine, Pea, &c., pointing out that here, as is universally the case, Nature can utilise various organs for one and the same purpose whenever requisite.

Bad variation furnished matter for remarks in reference to a specimen of *Primula sinensis*, a double pink form called Lord Beaconsfield, in which had appeared a tuss of double white flowers, which had been called *White Lady*. The lecturer alluded to the *Chrysanthemum* as a plant particularly liable to sport, many new varieties having been thus raised before seed was procured (about the year 1855) from that plant. He alluded to the fact that Peaches may bear Nectarines, and *vise versa*, and that even a single fruit may be half Peach and half Nectarine. Variegated foliage, as in Laurel exhibited, may occur on another green plant; and it was the business of the floriculturist to fix these sports and establish them. The lecturer then alluded to variation from seed, as another method of raising new forms; illustrated by examples of *Azalea* shown. It often happened that seedling sports were not constant when again sown; but a variety of Chinese *Primrose*, of crimson colour, called Dr. Denmy, had proved to come true by seed with Mr. Cannell, who exhibited a specimen together with some nice examples of a new pinkish-white kind called Princess of Wales, which received a First-class Certificate. Another new variety, shown by Messrs. Carter, with an approximation to a blue tint, was also certificated.

As a remarkable illustration of a plant's power to resist what might be deemed injurious conditions, the lecturer remarked that *Lapsatia rosea* grows near arsenic and copper mines in Chili where other plants cannot thrive. He alluded to the fact that several plants imbibit salts of zinc (*Viola calaminaria*), copper, &c., but whether these metals were of any physiological value to the plants, or merely accidental, has never been determined.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair.—At this, the first meeting of the year, an unusually large number of members were present, including several of those newly elected.

Lytocæus.—In reference to this insect, shown at a former meeting, male and female insects of 11. der-

mestoids were now exhibited by Mr. Pascoe, who stated that it was not itself destructive to wood, but preyed on wood-boring beetles.

Discoid Leaves of *Sobratia macrantha*.—Dr. Masters showed leaves of this plant from Mr. Douglas which had quite suddenly become entirely brown and rotten, the plant being in health one day—a ruin the next, without obvious cause, unless perhaps from an overdose of tobacco-water. Mr. Worthington Smith had been unable to detect the presence of fungus.

The leaves were reserved for further examination. ***Claytonia Thorn.***—Mr. Boscewan sent sprays of the *Glastonbury Thorn* from a graft taken from the original plant in the Abbey garden. The flower-luds were not yet expanded, this being the first year for several years in which the tree had not been in bloom on Christmas day. Fruiting sprays were also sent, to show that the opinion that this variety does not produce fruit is unfounded. Mr. Boscewan also sent a sport of the common Cherry Laurel, in which the leaves were variegated, in some instances completely white.

Potato Disease.—A letter was read advocating the notion that the disease was due to constitutional debility, consequent on mismanagement. The treatment recommended was to mix substances, such as sulphites, with the soil in which the Potato is grown, so as to destroy the fungus germ, and to treat the growing plant with flowers of sulphur for the same purpose.

Willow in Worm Casts.—Dr. Gilbert announced that since the publication of Mr. Darwin's work on earth worms he had collected a quantity of earth casts from his lawn, dried them to remove the water, and then determined the percentage of nitrogen they contained, comparing the proportion with that obtained from a sample of soil taken from the first 9 inches of the soil of adjacent pasture, and, percentage of .35 of nitrogen, which is higher than that of the ordinary pasture soil in the adjacent park, where the percentage proportion of nitrogen is .25 to .30. Thus the proportionate amount of nitrogen in the worm casts is higher than in the pasture land, and two or three times higher than in ordinary arable surface soil; but not so rich as in the highly manured soil of the kitchen garden. Ten tons per acre of worm casts would, it was estimated, supply about 80 lb. of nitrogen per annum—more than double that of ordinary meadow land without manure. It would appear then that there would be no absolute gain in nitrogen from the action of the worms, but that they would bring up from below a larger available supply, just as would be afforded by trenching.

Plants Exhibited.—Mr. G. F. Wilson showed a flowering bulb of *Tecophilæa cyanocrocea* and a plant of Iris Kolkopkowskyna. Mr. Harpur-Crew showed an unknown species, which was named by Messrs. Veitch and Cunnell as *Merenderia* or some longer slender tube, the incurved oblong segments being of a pale lilac colour, deeper at the base, and with leaves resembling those of *Scilla bifolia*. The plant had been obtained from the neighbourhood of Smyrna, along with bulbs of *Chionodoxa*. The plant was referred to Kew to be named. Dr. Fraser sent two dried specimens of *Willows* from Staffordshire, to the English flora, and which were supposed to be *Salix*'s or introduced species. One was *S. bicolorica* of Willdenow. Both were represented by male flowers only. Mr. Anderson-Henry sent a fruit of a *Carica* from Quito, supposed to be that of *C. cundinamarcaensis*. It was about the size of a goose egg, but angular, ribbed, and pointed at the extremity. *Columnea Kaluereyana*, elsewhere alluded to, was shown by Messrs. Veitch, and received, as was very appropriate, a Botanical Certificate. A like award was made to the General Horticultural Company for a pair of *Dioscorea Golden Wonder*, exhibited in flower for the first time. The handsome climbing Fern, shown as *Lygodium Hutcheri*, was referred by Mr. Moore to *Lygodium Forsteri*. Mr. Sander sent *Trichocentrum Pavi*.

FLORAL COMMITTEE.—The Rev. H. Harpur-Crew in the chair.—But few subjects came under the notice of the committee to-day, but being the inaugural meeting there was a good attendance of members. Messrs. Veitch & Sons again exhibited the new *Begonia Socotrana* and the equally new *Jasminum gracillimum*, both of which are very useful plants and much improve with acquaintance. The same firm had also *Amayllis Autumn Beauty*, a dwarf growing and pretty variety with an umbel of four flowers, which are of medium size, good form and substance, white ground heavily mottled with rose-pink; and *Lælia anceps* Veitchii and *Columnea Kaluereyana*, both of which were alluded to elsewhere. Messrs. Cannell & Sons contributed a dozen plants of a new Chinese *Primula*, named Princess of Wales, a very distinct and very pretty blush-white, which comes true from seed and is an unmistakably robust-growing and free-flowering sort. Also from Swanley came the now familiar stands of cut blooms of double and single zonal *Pelargoniums*, which, owing to the long-continued mild weather, were really superb; and

the original description of this plant, or even the name, in any work of reference.

PLAU or PLAVI. S. In converting the German Plau in the Latin form Plavus or Plavi in the genitive the *x* would naturally be replaced by *v*.

RED SPIDER: A writer in the *Pharmaceutical Journal* recommends the following method of getting rid of this insect, as well as other parasitical pests:—First prune the Vines, and then thoroughly wash them with a solution of pentasulphide of calcium.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

CATALOGUES RECEIVED.

- KERR & FOTHERINGHAM, Dumfries—Vegetable and Flower Seeds.
Wm. CUTBUSH & SON, Hightgate, N.—Flour, Vegetable, and Farm Seeds.
OSBORNE & SONS, The Fulham Nurseries, S.W.—Kitchen Garden and Flower Seeds.
JAMES FARRER & CO., 35, Finsbury Street, Bishopsgate, E.C.—Garden and Agricultural Seeds, Wholesale.
THOMAS KENNEDY & CO., Dumfries—Vegetable and Flower Seeds.
COVENTRY & CARSTAIRS, 111, Gray's Inn Road, W.C.—Vegetable and Flower Seeds.
E. WILSON SERPELL, Plymouth—Flower and Vegetable Seeds.
Wm. DRUMMOND & SONS, Stirling—Vegetable and Flower Seeds.
JAMES VEIC, Rochester, New York—Floral Guide for 1882.
CARING & DARLING, 80, Union Street, Aberdeen—Select List of Nursery Stock.
STUART, MEIN & ALLAN, Kelso—Vegetable and Flower Seeds, &c.
F. C. HERMANN, Erfurt—Seeds and Plants.
W. SMITH & SON, Aberdeen—Seeds and Plants, &c.
HAAGE & SCHMIDT, Erfurt—Seeds and Plants.
ALFRED LEGGERTON, 5, Aldgate, London, E.—Trade List of Garden and Agricultural Seeds.

- COMMUNICATIONS RECEIVED.—F. T.—A. D., Marseilles.
C. D.—G. R., Marseilles.
J. D.—H. C., Geneva.
Ch. Joly Paris (with thanks).
W. G. H.—M. W.—A. D. R.—T. W.—J. R. C.—P. C.—K. H.—M. T.—J. C. M.—H. & C.—E. G. (thanks).
W. W. W.—F. D. M.—A. T.—W. W.—Editor, Gardener's attention has already been called to the subject, which has our best wishes.—W. J. M.—R. A. R.—W. C.—A. H.—D. W. Shand.—G. S.—G. M.—A.—D. S.—G. S. C. (Laudley's School Botany, Bradbury, Agnew & Co.).—T. J.—W. R.—D. B.

Markets.

COVENT GARDEN, January 12.

A good demand has sprung up for best late keeping Apples during the week, such as Hibernia, Wellingtons, and King of the Pygmies, consignments from America being few, and reaching us in bad condition. Grapes are selling badly, and showing signs of indiffernt keeping. James Hebler, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Fruit and Price. Includes Apples, Grapes, Kent Cobs, Lemons.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with 2 columns: Vegetable and Price. Includes Artichokes, Asparagus, Beans, Beet, Cabbages, Carrots, Cauliflowers, Egg, Fish, Celery, Cucumber, Endive, Garlic, Herbs, Horse Radish, Lentils, Lettuces, Onions, Parsley, Peas, Potatoes, Radishes, Rhubarb, Salad, Shallots, Spinach, Tomatoes.

Kent Regents, 10s. to 11s.; Roses, 8s. to 9s.; Myatts, 10s. to 11s.; Champions, 5s. to 7s.; Magnan Bonums, 9s. to 11s.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Plant and Price. Includes Aralia, Arabis, Begonia, Bouvardia, Cyclamen, Euphyllium, Eucyrtus, Ficus, Foliage Plants, Hyacinths, Lily of the Valley, Myrtles, Palms, Pelargoniums, Poinsettia, Primula, Salusmins, Tulips.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Flower and Price. Includes Abutilon, Azalea, Boscariads, Camellias, Carnations, Chrysanth., Euphyllium, Euphyllium, Fuchsias, Gardenias, Heliotropes, Hyacinths, Lisias, Lupagaria, Roses, Lilac.

SEEDS.

LONDON: Jan. 11.—More disposition to buy Clover seeds is now showing itself; for American red, especially, there is an improved demand, and rates are steady. The supply of new English Cow-grass continues exceedingly meagre. Trefoil, Alsike and white are firm. The recent advance in Italian Rye-grass is well supported. Higher prices are asked for spring Fares. Owing to the remarkably mild weather there is now less inquiry than usual for both Haricot Beans and Boiling Peas. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.

At Mark Lane on Monday the rates for English Wheat of Monday night were not notably exceeded, and sales progressed slowly; for American red, remained the same as on Monday last. Flour met a limited demand at previous value. Fine maling Barley was rather dearer from scarcity; grinding sorts dull on the spot. Beans and Peas were quiet and unaltered. Maize on the spot was rather dull; and Oats sold slowly at last Friday's rates.—On Wednesday the tone was in the Wheat trade, prices tending in favour of buyers. Flour remained without alteration in value. Maling Barley was firm, but grinding descriptions rather drooped in value. Maize was dull in all positions, and Beans and Peas quiet at late value. Russian Oats were rather easier. Average prices of corn for the week ending January 7.—Wheat, 44s. 9d.; Barley, 31s. 10d.; Oats, 20s. 3d. For the corresponding period last year:—Wheat, 43s. 4d.; Barley, 31s. 6d.; Oats, 19s. 10d.

CATTLE.

At the Metropolitan Market on Monday, without being annulled, the cattle trade was steady, and prices were, on the whole, firm. The trade in beasts was quiet, and prices about the same as last week. For sheep there was a steady trade, and prices were well supported. Calves and pigs were quiet, at late rates. Quotations:—Beasts, 4s. 15s., and 5s. 6d. to 5s. 2d. calves, 5s. 6d. to 6s., and 6s. to 6s. 4d.; sheep, 5s. to 5s. 6d. to 7s. 2d.; pigs, 4s. 6d. to 5s. 2d.—Thursday's trade was dull and inactive. Supplies were not large, but sufficient for the demand; and prices for both beasts and sheep were nominally the same as above stated.

HAY.

At the Whitechapel Market on Thursday there was a fair supply of hay and straw on sale. Trade was dull, especially for Clover, the prices for which were easier. Quotations:—Pruss Clover, 100s. to 115s.; inferior, 60s. to 95s.; prime meadow hay, 100s. to 126s.; inferior, 50s. to 60s.; and straw, 30s. to 54s. per load.—Cumberland Market quotations:—Superior meadow hay, 126s. to 136s.; inferior, 84s. to 108s.; superior Clover, 128s. to 136s.; inferior, 90s. to 108s.; and straw, 48s. to 56s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that moderate supplies of home-grown find a dull trade at the following quotations:—Kent Regents, 60s. to 100s.; ditto Champions, 70s. to 80s.; Essex ditto, 60s.; Scotch ditto, 80s. to 90s.; ditto Regents, 70s. to 110s.; Koscolf Blues, 100s. to 105s. per ton; German reds, 3s. 6d. to 4s. 6d. per bag.—The following are the imports into London during the past week:—1402 packages Hamburg, 400 packages St. Nazaire, 137 tons Dunkirk, 62 packages Alderney, 105 tons Portuguese, 24 packages Boulogne, 90 tons Prést.

COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14s. 3d.; Walls End—Hutton, 17s. and 16s. 6d.; Hutton Lyons, 15s. 6d. and 15s.; Lamiton, 16s.; Original Hartlepool, 17s. and 16s. 6d.; Wear, 15s.; South Hetton, 16s. 6d.; Thornley, 16s.; East, 16s. 6d.; South Hartlepool, 15s. 6d.; Tees, 16s. 9d.

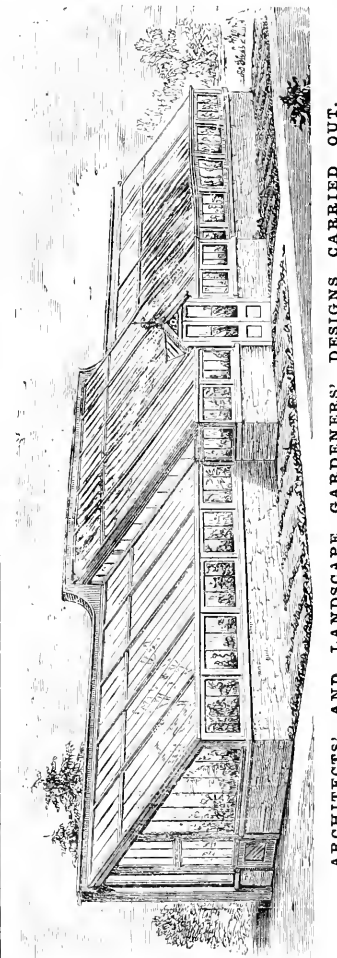
Government Stock.—Consols on Monday closed at 99 1/4 to 100 for delivery, and 100 1/4 to 100 3/4 for the account. On Tuesday the figures were, for delivery, 99 1/4 to 99 3/4, and 100 to 100 1/4 for the account. The closing quotations on Wednesday were, 100 to 100 1/4 for delivery, and 100 1/4 to 100 3/4 for the account. On Thursday the final figures were, for delivery 100 to 100 1/4, and 100 1/4 to 100 3/4 for the account.

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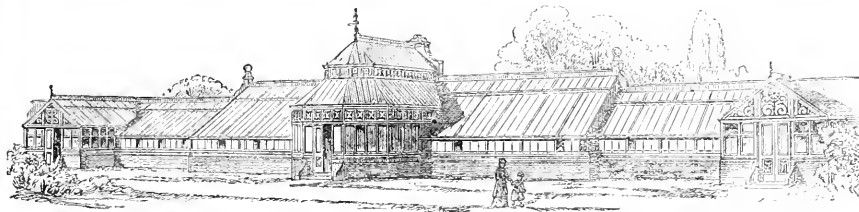
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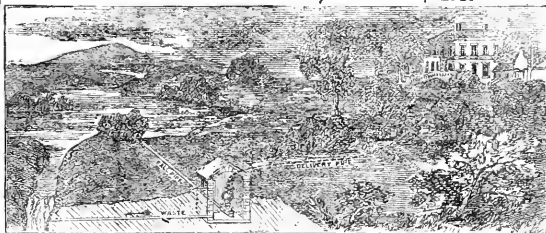


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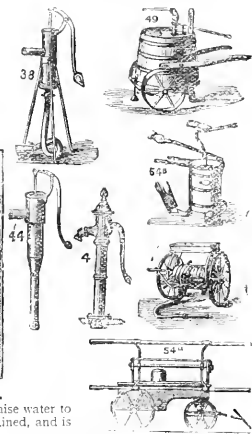
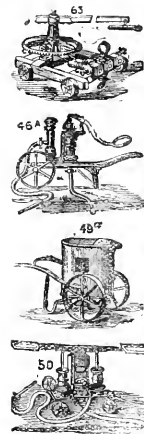
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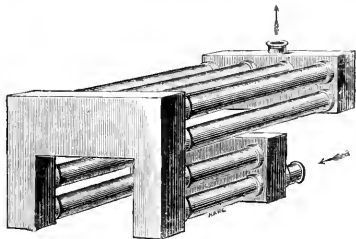
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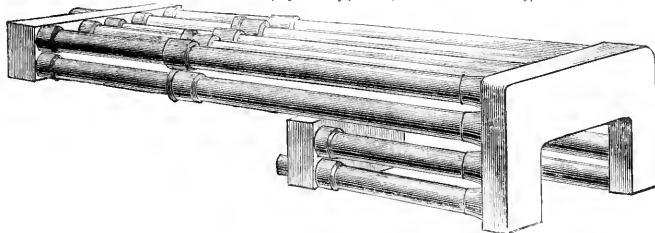
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Elbows (No. 12)	"	"	"	"	"	"	"	"
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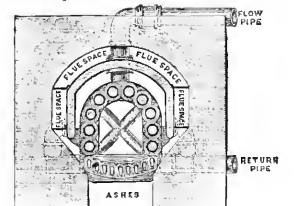
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Elbows (No. 12)	"	"	"	"	"	"	"	"
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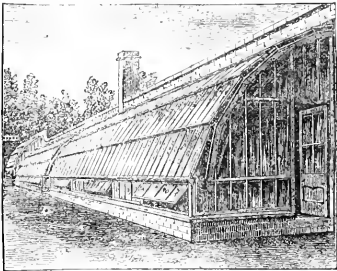
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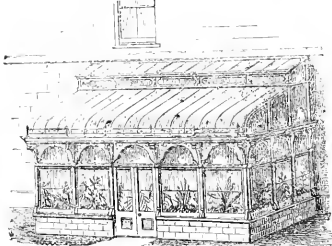
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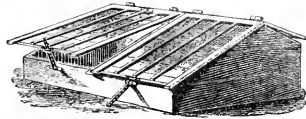
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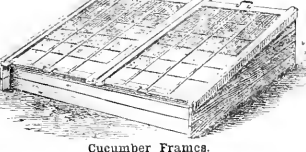
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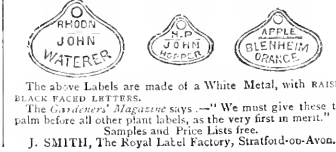
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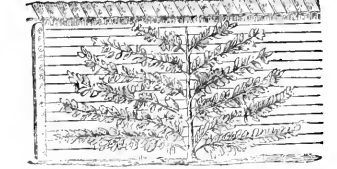
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LIST of EVERGREEN and DECIDUOUS L shrubs, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., with general remarks, free for a penny stamp.

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NEW MARBLE TURNIP.

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Once Packets, 6d. each.

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feared the Catalogue sometimes miscarries: *in all such cases Messrs. CARTER desire to be informed, when a Duplicate Copy will be sent immediately.*

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MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **FRIDAY**, January 27, at half-past 12 o'clock precisely, by order of Messrs. SHUTTLEWORTH, CORDER & Co., 191, Park Road, Clapham, S.W., **IMPORTED ORCHIDS**, including *Odontoglossum Pescatorei*, in splendid condition; *Ada aurantiaca*, *Odontoglossum crispum Alexandræ*, and *Odontoglossum Phalaenopsis*.

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

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DENDROBIUM WARDIANUM.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, February 1, at half-past 12 o'clock precisely, by order of Messrs. HUGH LOW & Co., a large quantity of imported plants of very choice Burmese **ORCHIDS**, received from Mr. BOXALL, comprising:—

DENDROBIUM WARDIANUM and **DENDROBIUM CRASSINODE**,

the fine varieties sent by Mr. BOXALL some years since;

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DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.

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EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.

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Special quotations for 100 and 1000 plants.

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IMPORTATIONS of ORCHIDS
FROM
BURMAH, BRAZILS, AND THE PHILIPPINE ISLANDS.

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BARBERIANUM.**

Mr. Rimann writes that the whole of his large consignment are the true Barberianum variety, many plants having quite one-third of the sepals and petals the deepest violet, the flowers being large, round, and of the greatest substance.

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The fine, large, brilliantly-coloured variety with its short, thick nodes, from Upper Burmah.

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This may be described as a rose-coloured Parishii. It is extremely rare and very beautiful.

A fine lot of ONCIDIUM MARSHALLIANUM, AERIDES QUINQUEVULNERUM, DENDROBIUM PIERARDI and LATIFOLIUM, DENDROBIUM THYRSIFLORUM, DENDROBIUM PRIMULINUM, SACCOLABIUM VIOLACEUM, and many other species.

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We are pleased to offer the grandest lot ever introduced of this superb Cattleya. Its flowers are 4 to 5 inches across, and remain in perfection longer than any other Cattleya, keeping four to five weeks fresh on the plants, and are extremely sweet-scented: sepals and petals of lovely rose colour; lip large, deep rose, and yellow. This is one of the rarest Cattleyas extant, not having been offered for years.

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Probably the rarest Lælia known, and certainly one of the most beautiful. The plants were seen by the Collector in flower, and are in finest condition. It produces from eight to twelve and more flowers on a spike, and the colour of the flower is pure golden-yellow.

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PEA (Early), Webbs' Kinver Gem	.. 3 0 pint
PEA (Early), Webbs' Perfection	.. 1 6 qrt.
PEA (2d Early), Webbs' Kinver Marrow	1 9 "
PEA (Main Crop), Webbs' Electric Light	3 0 pint
RADISH, Webbs' Early Frame	.. 0 4 oz.
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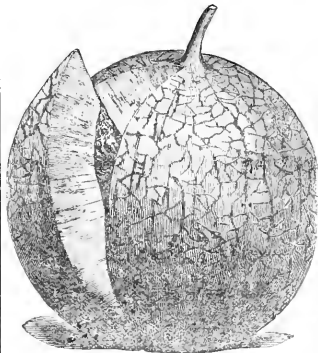
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AWARDED
First Prize at the International Exhibition, Manchester, 1881, in a class of fifty-six entries.
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The First and Second Prizes at the Principal Horticultural Meetings of 1881.
Price, 2s. 6d. and 1s. 6d. per packet, post-free.

From Mr. J. AUGUSTIN, *Gardener to Sir Neville Smythe, Bart., Ashton Court*.—"Your 'Hero of Lockinge' Melon is the most pretty netted Melon I have seen, very thick flesh, of a delicious flavour, and eatable to the rind. Its handsome appearance, combined with its other good qualities, recommend it to all Melon-growers. I consider it a great acquisition."

From Mr. JAMES SMITH, *Gardener to the Right Hon. the Earl of Rosebery, Mentmore*.—"Your 'Hero of Lockinge' is one of the best Melons grown."

From Mr. J. TEGG, *Gardener to John Walter, Esq., M.P.*.—"Hero of Lockinge' Melon is really good in every way; free setter, fine in flavur, and beautiful-looking. I have had the pleasure of judging many Melons this season, and have found none to surpass the 'Hero of Lockinge'."

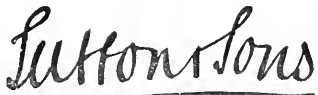
From Mr. J. CLARKE, *late Gardener to the Right Hon. Lord Hastings*.—"Hero of Lockinge" has turned out a capital Melon with me, the fruits being handsomely netted, medium size, and of good flavur. It sets early and well, even in the absence of sunshine; I had no difficulty with it—that trait will recommend it to growers who wish to get their crops off early."

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H.R.H. THE PRINCE OF WALES,
READING, BERKS.



THE Gardeners' Chronicle.

SATURDAY, JANUARY 21, 1882.

THE BEST NOVELTIES OF 1881.

(Concluded from p. 44.)

GREENHOUSE PLANTS.

THE most important of the subjects we have to mention under this head, regarded from the point of view of its value as a decorative object, is the *Bomarea conferta*, a climbing *Alstromeria*, from *Dogota*, and a very handsome one into the bargain, having purplish pubescent stems, lanceolate long-pointed leaves, and umbellate drooping heads, consisting of several long-stalked flowers, which are elongate funnel-shaped, 2 inches or more in length, and of a bright crimson colour. Another creeper of some interest, this from Assam, is the *Crawfordia luteo-iridis*, which has slender red stems, ovate-cordate leaves, and axillary clusters of bell-shaped flowers, which have a green tube and white limb, and are succeeded by attractive ellipsoid-cylindrical fruit of a brilliant red colour. Still another showy creeper is the *Milletia megasperma*, a tall evergreen woody species, from Queensland, with the habit of *Wistaria sinensis*, having pinnate foliage, and lax drooping racemes of purple flowers, in which the standard is of a rosy-pink. A pretty greenhouse annual, possibly half-hardy, is the *Impatiens Mariane* from Assam, which has thick fleshy stems, and large showy flowers of a charming lilac-purple colour, the lip of which has a longish hooked spur. *Nerine filifolia* is a new form of a pretty group of small *Amaryllid*s, mostly Cape plants; the present species is from the Orange Free State, and has a few subulate leaves, and eight to ten-flowered umbels of elegant rose-red flowers, with oblanceolate crisped segments, and which are produced contemporaneously with the leaves.

Amongst succulents *Aloe Perryi*, the true *Socotrina Aloe*, is perhaps the most interesting introduction, and it has been lately imported direct from the island of Socotra; it has a short erect stem bearing a tuft of from twelve to twenty lanceolat: prickly-edged glaucous leaves, and a forked inflorescence made up of oblong cylindrical racemes of tubular red green-tipped flowers. *Aloe macracantha*, from South Africa, has somewhat the same habit, having the strongly-toothed leaves handsomely marked with whitish spots and lines, and the tubular flowers of an orange-scarlet colour, green at the globose base, and arranged in a dense corymb on simple or forked branches of the flowering stem. Another pretty species, probably of Cape origin, but the history of which is not very clearly ascertained, is the *Aloe Greenii*, which on a short simple stem supports a rosette of lanceolate prickly-edged leaves, which are of a "bright green, with obscure vertical whitish lines, and broad, irregular, transverse bands of confluent oblong whitish spots," while the panicle flowers are tubular, with a constriction above the globular base, and they are of a pale pinkish-red colour throughout. The Mexican *Agave Hookeri*, one of the large American Aloes, has lately flowered for the first time at Kew, and proves to be a noble plant, the lanceolate decurved prickly leaves being 4-5 feet long, and the flowering-stem 30 feet high, supporting near the top the dense lateral

corymbs of large yellow flowers, which have protruding yellow filaments and style.

HALF-HARDY PLANTS.

To this intermediate group, the limit of which is somewhat doubtful, may probably be referred the annual *Impatiens amorphosa* from the mountains of India, a tall, fleshy-stemmed plant in the way of *L. Roylei* (glandulifera), with lanceolate serrated leaves, and loose racemes of pretty pale purplish-red flowers, the long spur of which is tipped with red. These giant Balsams are very effective plants in the summer flower garden. We also refer to this group the Turkestan *Incarvillea Koopmanni*, a slender soft undershrub, whose aspect recalls that of *Amphicocis*; it grows from 2—3 feet high, and has pinnatisect leaves and terminal panicles of pretty pale pink trumpet-shaped flowers. *Kniphofia comosa*, from Abyssinia, may, we think, be also referred to this category; it is a dwarfish species with linear strongly-keeled leaves, and close oblong spikes or racemes of funnel-shaped bright yellow flowers having the long dark red stamens and style much prolonged. The Mexican *Zephyranthes macrostiphon* will probably succeed in sheltered places with moderate protection; it is a pleasing dwarf bulbous plant of the order of *Amaryllidæ*, and produces three or four contemporaneous linear leaves, above which rises the comparatively large long-tubed bright rose-red flower. *Aster gymnocephalus*, also from Mexico, is rather a pretty though loose-growing branching annual (perhaps biennial), growing 1—2 feet high, and furnished with amplexicaul toothed leaves, and solitary flower-heads, in which the ray florets are of a bright rosy-purple colour.

HARDY PLANTS.

Commencing with the shrubby species, we may first mention the Japanese *Clerodendron trichotomum*, an ornamental shrub, growing from 6—10 feet high, with ample opposite ovate leaves, the lower of which are three-lobed, and lax trichotomous cymes of white flowers of which the calyces are of a brownish-red colour. From Northern China and Amur-land comes *Clematis ruthenifolia latisecta*, a graceful climber, with compound pinnate leaves, and very abundant creamy-white decurved flowers, which in form are between cylindric and bell-shaped. The Chilean *Escallonia rubra punctata* is a nice addition to its genus, having elliptic leaves broader than those of the type, and rather conspicuous deep red flowers. The *Prunus Pissardi*, introduced from Persia to the French gardens, will probably become useful as an ornamental hardy shrub, since it has the oval glabrous leaves of a deep purplish-red colour. The new Ivy, *Hedera Helix maderensis variegata* (*Gard. Chron.* xv. 657, fig. 118), is a valuable hardy climber on account of its bright clear variegation, the white margin being broad and well defined. In *Acer distylum* (*Gard. Chron.* xv. 499, fig. 93) and *Acer carpinifolium* (*Gard. Chron.* xv. 504, fig. 105), we have two ornamental additions to the list of Maples; both are Japanese, the first with cordate acuminate leaves, the latter with the leaves obovate-oblong acuminate. Finally, in *Vitis striata* we have a very desirable evergreen climber, not quite new but very little known, which has handsome-looking dark olive-green digitate leaves, having the leaflets oblong, and which bears cymose greenish flowers succeeded by red berries.

Of Hardy Perennials *Shortia galacifolia* (*Gard. Chron.* xv. 509, fig. 109) is one of the most distinct and interesting; it comes from North Carolina and Japan, and is of dwarf habit, with cordate remotely-toothed leaves, and conspicuous bell-shaped white flowers; the plant belongs to the small unfamiliar order *Dipsacaceæ*. The Japanese *Lysimachia bra-*

clystachys is much like a white-flowered spicate *Veronica*; the leaves are lanceolate entire, and the flowers are small, white, in dense terminal spikes 5 or 6 inches long, while the whole plant is of a decidedly ornamental character. The Liliaceous genus, *Eremurus*, furnishes two ornamental species, namely, the Turkestan *Eremurus Oligeri*, a stately plant of erect habit, with a tuft of narrow linear-lanceolate leaves, and a long dense raceme of white star-shaped flowers, upwards of an inch in diameter and of a brownish-red colour on the outside; and the Indian *Eremurus himalaicus* (*Gard. Chron.* xvi. 49), an elegant, dwarfier species, with strap-shaped acute leaves, and scapes 1—3 feet long, bearing a dense raceme of pretty white, starry flowers. In the Californian *Aquilegia formosa* we have gained a very handsome Columbine in the way of canadensis, with binate leaves, and large long-spurred yellow flowers of very attractive character, the spurs and the edges of the sepals being bright red. Iris missouriensis, from the Rocky Mountains, is a pretty species of the Flag genus, the habit slender, the leaves narrow, and the flowers pale lilac-blue, with the whitish falls veined with lilac. Japan yields us a new Primrose in *Primula pocaliformis*, a pleasing species of the cortusoides type, with blunt oblong-cordate leaves, and umbels of pale lilac flowers, not so fine as *P. Sieboldii*, but probably capable of improvement. From Istria we get the Campanula Tommasiniana, a very elegant species, with slender erect stems, 8—10 inches high, clothed with lanceolate acuminate leaves, and pretty cylindrical lilac-blue nodding flowers, very freely produced from the upper leaf-axils, and thus forming a second leafy raceme; it has been grown for some years at Kew, but does not appear to have come into general cultivation. Two species of *Statice* have been added from Turkestan: one, called *Statice callicoma*, is of dwarf habit, and has spatulate scaly leaves, and a densely branched cyme of rosy-lilac flowers; another, called *Statice leptoloba*, produces a tuft of radical oblanolate-spatulate leaves, and slender forked flower-stems bearing short spikes of flowers which have a purple funnel-shaped calyx and a yellowish corolla. Turkestan also yields a showy new species of *Larkspur*, *Delphinium corymbosum*, which grows only 1½ foot high, with a corymbosely-branched stem, palmatifid five-lobed leaves, and pale violet flowers in racemes. Eastern North America furnishes a hardy aquatic in the *Nymphaea tuberosa*, a faintly-scented white-flowered species in the way of odorata, with tuberous rootstocks, the tubers resembling those of a Jerusalem Artichoke, and both leaves and flowers rising above the surface of the water. Finally, we have a good Composite in the Japanese *Senecio stenoccephala* var. *conosa*, (*Gard. Chron.* 1881, p. 304, vol. xvi.), a really pretty plant, with ovate acute cordate or hastate leaves, and densely-packed oblong spikes of yellow flower-heads: very distinct in character.

Of the Hardy Bulbs we may particularise a few of the most remarkable. Firstly, *Colchicum crociflorum*, a Turkestan plant, with white flowers striped with purple outside, and at first sight very much resembling those of the Scotch Crocus. From the same country come *Scilla puschkinoides*, a pretty white-flowered species, with broadly linear or obversely lanceolate leaves, and a scape a few inches high, supporting several gay flowers fully an inch broad, of a greyish-white colour, with a blue stripe on each segment; *Allium stipitatum*, a rather stately plant with narrow linear-lanceolate leaves and a great hemispherical umbel of narrow-petalled flowers of a pale rosy-lilac colour; and *Leontice Alberti*, a dwarf plant, with imparted digitate leaves, having five-parted leaflets, and racemes of pretty reddish-orange flowers. *Helicophyllum Lehmanni*, also from Turkestan, is a tuberous-rooted Arad, with the radical leaves narrow lanceolate and petiolate, and the oblong-elliptic spathe 6 inches long, green outside and dark purple within, surrounding a black spadix, which projects some 4 inches beyond the spathe.

This selection of the more interesting plants of the year leaves many welcome additions to our lists of garden plants unmentioned. *T. Moore.*

New Garden Plants.

DOMAËEA SHUTTLEWORTHII, *Mast.*, sp. n.*

(Fig. 14, p. 85.)

This is a new and handsome species, recently introduced from the neighbourhood of Bogota by Mr. Carder, and cultivated by Messrs. Shuttleworth, Carder & Co. The species belongs to that section of the genus marked by a branching inflorescence and equal perianth-segments. To this section, according to Mr. Baker, who kindly placed his notes at our disposal, belong only three hitherto described species, *B. Carderi* (*Mast.*, in *Gard. Chron.* 1876, vol. vi. p. 793, fig.), *B. Jaquesiana*, and *B. formosissima*. From these our present plant differs in the size, shape, or colour of the perianth-segments. The material placed at our disposal by Mr. Shuttleworth consists of rhizomes, roots, tubers, fragments of leaves, inflorescence, fruits and seeds, together with a watercolour drawing of the inflorescence and flowers, executed in Colombia by Mr. Carder. The rhizome is horizontal, of the thickness of the finger; in its under-surface spring very numerous unbranched root fibres of the thickness of whipcord, terminating in oblong-ovoid tubers, having much the colour and aspect of Potatos, but destitute of buds or eyes; umbilicate at the proximal, somewhat acute at the distal or free end. The leaves are about 5—6 by 2 inches, glabrous, ovate-lanceolate, parallel-nerved, the secondary transverse nerves nearly horizontal and at some distance apart, so as to form oblong or nearly square interspaces. Inflorescence of umbellate pendulous cymes, the primary peduncles 5—9 having small bracts at the base of each, unbranched for about 3 inches, then once or twice dichotomously branched, the ultimate pedicels spreading, and as long or longer than the flowers. The perianth measures 2 inches and upwards in length, is funnel-shaped or elongate bell-shaped; of the six oblong-acute nearly equal segments the outer are orange-verticillate (according to the drawing), slightly tinged with green and dotted with small dark spots at the tips; the inner are rather more acutely pointed, canary-yellow, with a red midrib, and green with dark spots at the tips; the fruit is a leathery three-sided club-shaped capsule, scarcely 2 inches long flat at the top, opening from below upwards. The seeds are globose, of the size of a very small Pea, blackish, and pitted on the surface.

The brilliant red and yellow flowers and the equal perianth segments are alone sufficient to distinguish this species from its near allies, and they are likely to commend themselves highly to the cultivator.

The large fleshy tubers are not available for purposes of propagation, inasmuch as they are genuine root-tubers, and as such are destitute of buds, but as stores of nutriment they must be very efficacious, and their presence would seem to indicate a prolonged arrest of growth in the dry season. Probably these tubers would be available for human food, as those of *B. edulis* and *B. balsilla* are said to be. Mr. Shuttleworth tells us that in Colombia pigs take great pains to uproot them, and devour them with great relish.

We have dedicated this species to Mr. Shuttleworth, to whom we owe the discovery and introduction of the beautiful *B. Carderi*, and to which the present species, detected by his associate, Mr. Carder, is no unworthy companion. *M. T. M.*

LELIA CALLISTOGLOSSA, *nov. hybr.*

A new Sedianian hybrid, a seedling between *Lelia purpurata* and *Cattleya Warscewiczii* (gigas). Mr. Harry Veitch kindly informs me that the bulb has the shape of that of *Lelia purpurata*. The young plant has that organ 4 inches high, the leaves attain 12 inches by 2½. Subsequent flowers will no doubt manifest great improvement, as Mr. Veitch conjectures, both from the nature of the glorious parents and the fact

* *Domaëea Shuttleworthii*, *Mast.*, sp. n.—Rhizomate crasso repente hinc radicales simp. ces. tubere oviformi magno terminatus proferente; foliis glabris late ovatis utroque acutis; cymis pendulis umbellatis ramosis, pedunculis pedicellis que longiusculis divaricatis; floribus 2½ poll. infundibuliformibus; perianthi segmentis (ex tunc et Carderi) subobovatis conformibus oblongis acutiusculis exterius aurantiacis rubris, internis hinc apice viridibus illoque punctatis, nervo medio rubrate; capsulis 1½ poll. longis triquetris clavatis apice truncatis; semibus magnitudine post parvum subglobois nigrescentibus compresso-punctatis. In Colombia prope Oceanum, detecta Carder. *M. T. M.*

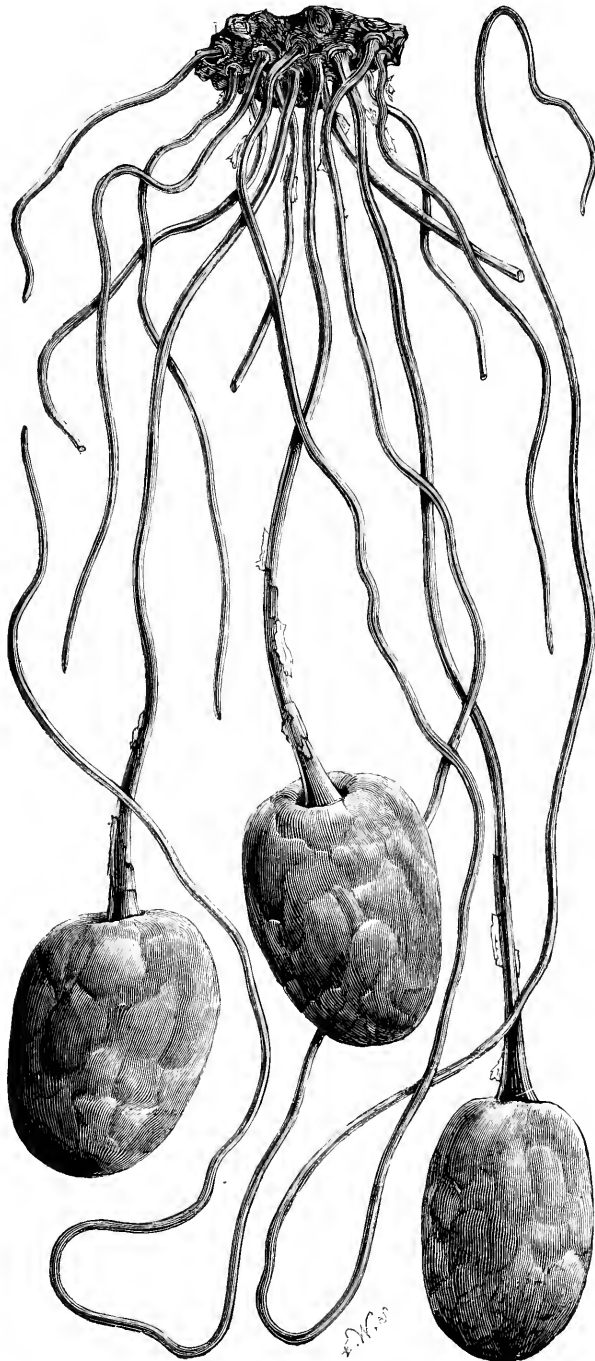


FIG. 11.—TUBERS OF DOMAREA SHUTTLEWORTHII: NAT. SIZE. (SEE P. 76,

that the flower did not enjoy the usual benefits of a covering spathe. I would, however, vindicate the flower against its possessor. Even as it is now, it is a fine thing. The petals are broad oblong acute, the sepals narrower, all pure rose. The lip, my great favourite, has a broad middle lacinia, which is nearly reftuse, and obscure obtusangled small side lobes. All the anterior part is of the warm dark purple of a fine *Laelia purpurata*, the upper edge of the lip yellowish, the disk whitish, with numerous purple lines. The column is very slender, as in the *labiata* group, whitish, with purple point. There are but four pollinia, but since the caudicles are not free on one side, but attached on both sides, and since we can see the limits of the connate pollinia, we prefer to regard it as a *Laelia*. The plant is undoubtedly very promising, and the idea of crossing the two parents was decidedly a fortunate one. *H. G. Rehb. f.*

CYPRIPEDIUM MICROCHILUM, nov. hybr.

A new Sedenian product, a hybrid between *Cypridium niveum* and *C. Druryi*, just sent by Mr. Harry Veitch, who kindly informs me that it is not so sessile as *C. niveum*. It is a very free grower, branching freely. The leaf is larger and narrower than that of *C. niveum*; fine green, with more obscure marbling (the longest one 0.12 : 0.025 m). The stem is said to be about 3 inches high now. The peduncle is 0.13 m. high, dark brown, villous, with a small bract, shorter than the pedicel. The flower is broader than that of *C. niveum*, the odd sepal more acute, the petals not so broad, and more directed downwards. The upper sepal has seven dark cinnamon stripes outside, the middle one only very well conspicuous inside. The petals have a dark purple-brown middle line, and lines of small spots as in the odd sepal. The sepal formed by the two connate segments surpasses the length of the lip. The lip itself has the central anterior part protruded in a retrorse lobe, as in *Cypridium Druryi*. It has rounded obsolete side lobes, and the whole body is not rounded, but runs out in a conical anterior base. There are some purple-brown figures and stripes. It is unusually small; we must, however, wait to see whether it will always remain so very small. Poor *Cypridia* suffer from an exceptional propensity to anomalies, and one of these is the starved state of the lip. The cordiform acute hairy white staminode is not unlike those organs of the parents, even intermediate between them. This is very curious. There is a central yellowish blotch, but without those radiating lines which are so remarkable in *Cypridium niveum*, where they are often comparable to the outline of a chlorophyll mass of a *Zygnema*. *H. G. Rehb. f.*

COLCHICUM MONTANUM.

We learn that the plant shown by Mr. Harpur Crewe at the last meeting of the Scientific Committee (see p. 58), from Smyrna (whence it was introduced with bulbs of *Chionodoxa*), has been determined to be the *Colchicum montanum* of Linnaeus, which has previously been a puzzle to botanists.

PRIMULAS AT CHISWICK.

ALTHOUGH raisers of good varieties or strains of the Chinese Primrose in years past have done good work and brought the flower to high perfection, as far as size and quality, bloom and general habit of growth are concerned, yet with Chiswick must ever be associated the reputation of having given to us that superb rich red strain that under the earlier designation of Chiswick Red has now found duplicates in Swanley Red, Meteor, and other appellations. Prior to that introduction we had not been without some rich hues, both carmine and red; but whilst the carmines were fleeting, too often fading in heat or damp, and leaving behind a spoilt flower, the reds were of the purple type and containing more magenta than scarlet. We have seen in years past and in provincial districts grand blooms fully 2 inches across and finely fimbriated, quite as fine as the best blooms of to-day, having deep purplish-red hues; but these were not well fixed. There has always been a tendency in deep colours to run back, and none has at any time such constancy and permanence as the deep-coloured form now so well known as the Chiswick Red.

Few breaks or new kinds have shown so rapid a tendency to improve as this has. When first sent to

Chiswick from Paris the flowers produced were small, and though of striking colour yet of indifferent quality. That was but four years since, and now the flowers are not only of the finest but the colours deepening every year. The simple process of careful fertilisation of the darkest coloured blooms, and saving seed from these only, leads to the inevitable result. We may in a few years find the Chinese Primrose vining with the zonal Pelargonium in the richness of its floral hues, rendering it more and more valuable as a winter-blooming plant. Some large plants in 24-sized pots in one of the houses should show this brilliant red kind in its best character. We have seen plenty of it as yearling plants usually, but it has yet to be seen as show plants with heads of bloom 1 foot over. A very pretty and distinctive kind at Chiswick is one that has leaves and stalks showing colouring of an intermediate kind, and which produces flowers that open a delicate flesh tint and deepen to carmine. Curious as it is to see flowers of these distinctive hues on the same truss the kind is not the less noticeable for the purity of its lemon eye, which is surrounded by a distinct white ring. The quality of flower and habit of plant are both excellent. From out of this kind, the product of a cross with Chiswick Red, has come a true rich carmine that for all ordinary purposes is very distinctive.

The purples generally are of that fine strain so popular in the market, the flowers large and of good quality. On some of these are being used pollen from the rich-coloured *Rubro-violacea*, with the object of enriching the purples, and yet retaining size and quality. So far great depth of colour of the purple hue has not been found associated with size, and small blooms, however rich in colour, are not now looked upon with favour. Curious and, indeed, beautiful as is the foliage and habit of Williams' Alba Magnifica, yet the flowers fail to make the impression produced by the pure white strain growing at Chiswick. So-called whites, as a rule, always become tinted with pink. This falling is very marked in Alba Magnifica, but the white here is as pure as snow, and the flowers are of first-rate quality. One feature about the eyes of these kinds is noticeable—whilst those of Alba Magnifica are of a confused lemon those of the pure white are orange. The habit and leafage of Mr. Williams' kind is, however, so pleasing and novel that it is hoped raisers will endeavour to engraft upon it various other colours. Having reached to such a point in the flowers there is no reason why the foliage might not have attention.

But the greatest novelty in this direction is seen in M. Lemoine's *Fimbriata cristata nana alba* [such a name should not be tolerated. Ed.], the flowers of which, small, of indifferent quality, are pure white and show evidence of doubleness. The leaves of this kind are singularly crested, each segment round the margin of the leaf being curiously curled, and the feature is even and perfect throughout the plant. This kind should make a capital breeder, but the blooms will have to be split to enable fertilisation to be effected. Some plants of Vilmoren's *Punctata*—which produce curious white specks on the flowers of a reddish-carmine hue and which have broad irregular white margins—now in bloom, do not promise to become a popular variety. It would take a lot of crossing to bring it into form, and the eye needs to be very much diminished. The only kinds in the Fern-leaf section are forms of the lilac-coloured variety that have usually white margins to the petals. That these have been bred from the much older white kind there can be no doubt, as the foliage is of that pale green tint peculiar to the white and this kind. These differ materially, for while one form is of a reddish-pink hue the other is blue-red. Of a similar coloured variety on the ordinary foliage very many of the blooms are distinctly flecked with a darker hue.

Primulas are so well done at Chiswick that we may be excused for wishing to see there just for once a wide representative collection of the single varieties. There is a fine lot of doubles in bloom, but as these can only be propagated by cuttings they produce no new varieties, and therefore lack the interest incidental to hybridised flowers.

A fine lot of *Cinerarias* fast coming into bloom, and which fill a large spanhouse, show splendid culture, the habit dwarf, and the leafage clean and remarkable for size. If the flowers prove as fine as the plants deserve the strain will be a singularly good one.

FARNINGHAM ROSE SOCIETY.—The committee of the Farningham Rose and Horticultural Society have altered the date of their next exhibition to June 29 instead of July 1, as announced, owing to the Crystal Palace Company having decided to hold their Rose show on the latter day.

GRAPE GROWING AT WHETSTONE.

THE acres of glass-houses at Mr. Davis' here have for some years been undergoing a change in the character of the crops grown therein. Where, at one time, plants for market were the principal feature, Grapes have now gradually taken the lead, for, although immense numbers of plants are still grown, yet they in a great measure consist of such things as can be accommodated with the Vines. Since foreign Grapes have reached this country in such quantities, not a few of the English growers have confined their practice to late keeping kinds, which are less interfered with by foreign competition than the earlier produce. Yet Mr. Davis has by no means seen cause to deter him from growing large quantities of early and mid-season Grapes, as well as late ones; the last of which are only finished as the new crop comes in. Five houses, each averaging near upon 100 feet long by 20 feet wide, are forced, so as to have their crops ripe from April 1 to the end of June. I may remark that the root treatment of the Vines is here about as widely different as it well could be imagined. The older Vines, some of which have been in being between twenty and thirty years, are mostly in borders of ordinary size—that is, with a considerable space wherein the roots can extend, whilst those that have been planted more recently have borders unusually limited in extent, not more than 6 feet wide by 4 deep, beyond which the roots cannot get.

Two new span-roofed houses, standing side by side, each 140 feet long, are filled with *Gros Colmar*; the eyes were struck in February, 1880, and planted the middle of June, forty-five in each house. These have borne a crop averaging 12 lb. to each Vine, all cut and sold within twenty months after the eyes were put in, and pronounced by those able to judge equal to any that have ever appeared in the market. Not much waiting here for the Vines getting age, such as is usually considered necessary. I had almost said age and strength, but if they have not the former, the latter is unmistakably present; for notwithstanding the weight of fruit they have borne the canes at a considerable distance above where cut back at pruning time—are of unusual thickness—some 1 measured under the ridge of the house were over 2½ inches in circumference, and it would be difficult to find anything more even than they are through the two houses. The borders are 6 feet wide by 4 feet deep. Another house, 120 feet by 24 feet, all *Gros Colmar*, just finishing a good crop of fine bunches with big berries. Some of these Vines are confined to a single cane, but the greater portion have two; in both cases they are 3 feet apart.

What these Vines have done may be judged from the fact that for eight consecutive years those with single canes have borne 30 lb. each, and those composed of two canes 60 lb. Last year's crop was similar in every way to those that preceded it—the bunches averaging 2 lb. each. A house, 90 feet by 24 feet, all *Black Alicante*, except a few *Lady Downe's*, carried a beautiful even crop, as black as possible, with full-sized berries. One side of a 110 by 15 feet span is also filled with *Black Alicante* in bearing nine years; the weight of perfectly finished fruit in this house was such as needs being seen to be credited, and yet the whole extent of border is only 3 feet 6 inches wide by 4 deep. The opposite side of the house was occupied with *Black Hamburgs* last year, cleared out to make room for *Black Alicante*, as the fire required for the latter, already existent, was so much wasted on the *Hamburgs*. The noted house of *Lady Downe's*, 100 feet by 24, now in bearing fifteen years, has during that time been seen by many Grape growers from different parts of the kingdom, and is justly looked upon as having few equals in the weight and quality of the fruit it regularly bears. Nothing in the way of this excellent keeping Grape could be finer or more uniform in condition from end to end; it contains 375 bunches that will average 1½ lb. each. None of them will be cut before the end of February, the whole not finished until the beginning of April, when the first of the new ones come in.

Large as the quantity of Grapes grown here now is, it promises to be much larger. Two new span-roofed houses, each 186 feet by 23, have been built, and were planted in July with *Lady Downe's* raised from eyes in February, which have made beautiful growth, reaching to the top of the houses.

These two spans contain 900 feet of 4-inch piping. Vets another new house, half-span, 120 feet by 25, planted in July with *Altwick Seedling*, the eyes direct from Mr. Bell, and like the *Lady Downe's* struck last February; they have done as well as the others already noticed. The even growth of the whole is most remarkable—scarcely a single rod lagging behind its neighbours.

It has been the fashion to condemn the use of stimulating manures in the formation of Vine borders, but Mr. Davis does not follow such teaching, as he uses plenty of dung for the roots to feed on from the first.

Camellias are largely grown, four big houses being filled with them, one of which is a series of spans 80 feet long by 60 feet wide. Most of the trees are planted out, and have attained a large size, and are in the most perfect health, as evidenced by their free growth and beautiful dense foliage, which is kept perfectly clean, so that the leaves shine like Laurels. It is doubtful if the equal of one of the trees here exists elsewhere; it measures 60 feet round the extremities of the lower branches, and about 16 feet in height, as thickly clothed with foliage as a *Portugal Laurel*. Some five years since account was kept of the number of flowers gathered from it in a single season, which reached 7000. Mr. Davis' system of *Camellia* growing is not to let the plants carry more flowers than they can support, and grow to full size; for to this reason the buds are thinned so as to leave two to each shoot.

Red Currants have for many years been extensively grown here, and occupy a considerable extent of ground. Through the season that the fruit is ripe a ton is sent to market every other day. T. B.

THE CULTURE OF EPACRIS.

THE cultivation of the *Epacris* for the supply of cut flowers, and also for the decoration of the conservatory, is not appreciated as it deserves to be. Healthy and vigorous plants will yield an abundant harvest of cut bloom, lasting well for at least a week after they are severed from the plant. There is no lack in variety of colour, nor is there in the size of the individual spikes; every plant will give variety in size to suit every requirement. Flowering throughout the winter months in any cool house, they are of great value to many who may be placed in disadvantageous circumstances with respect to early forcing of varied shrubs and bulbs. We grow them here in quantity, and find them extremely useful and much appreciated.

When housed in the autumn, generally during September, they are placed in ainery at rest, and where the wood is partially thinned out. As each house in succession is started they are removed to others at rest, until the latest inery is started in March. About this time they will show signs of starting into fresh growth; when indications of this are seen they should at once be cut back tolerably close if the plants are past their best in regard to flower. When breaking freely any that require a shift should be seen to before a too vigorous growth is attained. For this operation select good sound fibrous peat, from which any crude, inert matter should be removed: this with a good mixture of silver-sand and a few pieces of charcoal if the plants are large, will give a suitable soil for them. Be careful not to pot any that can be depended on to do well another season without being disturbed.

The temperature of the late inery seems congenial to the development of a good growth, without which a good supply of bloom need not be expected. We remove ours to cooler quarters when the shade from the Vines becomes too much for their well being, gradually hardening them off till about the first week in June, when they are stood out-of-doors on a bed of coal ashes. During the latter part of the summer they should be exposed to the full sunshine to harden their growth. By the treatment here detailed, I find them to come earlier into flower than if always kept under greenhouse treatment.

The following is a good selection of varieties:—Of whites, *Hyacinthiflora candidissima*, *Alba odorata*, *Vesta* and *onosemiflora* are good kinds; *Hyacinthiflora*, *Kinghorni*, *Delicata*, *Albertus*, *Devoniana*, *Lady Alice Peel*, *Mrs. Pym* and *Vesuvius* are all good sorts, varying in colour from pale pink to crimson. *Miniata splendens* and *Eclipse* are first-rate kinds, but quite distinct in growth from the aforementioned;

these should be grown under ordinary greenhouse treatment, thinning out weakly growths and tying the stronger ones to keep the plants somewhat shapely. At all times give close attention to the watering of these plants. They soon show signs of distress if overlooked, on the other hand they must not be overdone. When in full flower a rather more liberal supply should be given. Rain-water is always preferable where there is a good supply. *James Hudson, Gunnersbury House, Acton.*

TOMATOS PLANTED OUT.

THE public are beginning to appreciate the virtues of the Tomato, and the demand for them seems likely to be greater than the supply. The best way to meet this demand—which is as great in winter as in summer—is in having well appointed houses in which they can be planted out and trained on some systematic principle. The house we use here for giving a supply of Tomatos through the late summer and winter months is a span-roof with a 12-foot rafter, which gives the plants ample room to develop. The beds we plant in are 2 feet wide and 1 foot 6 inches deep, and are formed by building up the sides with turf, commencing on the floor of the house, which is formed of rough gravel, and this acts as drainage for the beds.

The soil for the Tomato when planted out should be open and porous rather than rich. A good fibrous loam, with one part of lime rubbish and a sprinkling of bone-meal, will be found to answer well, and retain its porosity for a considerable time, not readily becoming soured with frequent doses of liquid manure which will be required when the plants get over their first flush of vigour, and commence to fruit the whole length of the rafters. The greatest mistake generally made in growing the Tomato is in the training of the plants, which are allowed to run in all directions till they become a confused mass, and this is often aggravated by stopping the plants above every show of fruit. The method we adopt is to train the plants as single, double or triple cordons. For the first method of training we plant about 10 inches apart, and for the other methods we give room according, that is, about 10 inches for each growth. These cordons are allowed to run from the bottom to the top of the house without being stopped, and we never find them fail to show fruit about every six inches; and if the temperature and atmospheric conditions of the house are kept right every flower will set perfectly, and the result is a perfect wreath of fruit from bottom to top, and from end to end of the house.

As fast as the first fruits ripen and are gathered from the lower part of the cordon, another leader is brought away from the base, and is allowed to proceed as fast as the fruit is gathered on the first cordon. The second shoot soon commences to show fruit, and with a little thinning of foliage and the removal of the greater part of the foliage from the lower part of the original shoot, the young fruit has room to develop, and the result is that the house is kept continually furnished with fruit, without the growths getting in any way entangled or confused. A little care must be exercised in watering when there are many fruits ripening on the plants, as they are very liable to crack with a sudden dose of water, especially if the plants have been allowed to get very dry, but the most prolific cause of cracking is closing the house, and watering and syringing the plants at the same time.

The temperature we find to answer through the spring and winter months is 55° to 60° by night, and about 63° by day; during the summer the temperature can be regulated according to the weather, as fire-heat will not be needed unless the weather should be very dull and damp, when it will be necessary to use it a little to keep the atmosphere buoyant, and as an aid to free ventilation, as it is at all times necessary to have a circulation of fresh air through the house, and this should not be overlooked with moisture. A damp, stagnant atmosphere is fatal to obtaining a full set of fruit.

The varieties of Tomatos to select from are now plentiful enough; our favourites are Hathaway's Excelsior and Trophy. The former is a handsome variety of medium growth, and a sure fruiter; the latter is one of the largest varieties, very prolific, and perhaps unsurpassed in quality. Seed of some approved variety should be sown at once in brisk

heat, shifting them on as they fill their pots with roots, and confining them to single stems till they reach the height of the trellis to which they are to be trained, when they should be allowed to grow as single or double cordons. *J. Roberts, Gunnersbury.*

FLOWERS OR SHOOTS.

In the *Gardeners' Chronicle* of January 7 there is a very interesting and suggestive extract from Count du Buysson, which I would like to notice. Gardeners very well know that whether plants will flower profusely, sparingly, or not at all, depends to a great extent on the state of maturation to which they have been brought previously. This is true alike of Apple trees, Rhododendrons, or Orchids, and almost all flowering plants cultivated in gardens, as well in the open air as under glass. The idea that after flower-buds are formed they may be changed into leaf-shoots is, to me, a new one, and so extraordinary that I venture to think some misinterpretation of the facts has occurred [and so do we]. We are all perfectly aware that when shoots, bulbs—what you will—of Dendrobies are imperfectly ripened they in many instances, notoriously so in the case of *D. nobile*, produce leaf-stems where flowers generally appear. This results, as has generally been understood—and as I, for one, still believe—not because of any particular treatment the plants receive after the buds begin to grow, but because of the want of due exposure to the light the previous autumn.

Many, very many, plants have the power of modifying their manner of propagation according to the circumstances under which they are placed. Common Leeks, for instance, in cold climates produce many miniature bulbs on the top of the flower-spikes instead of the seed which they form under more favourable circumstances; not because of an extra supply of nutriment, but because of the want of enough light and heat. Other instances your readers will readily recall. The idea presented to me in the extract referred to is that a certain measure of starvation will make matters right. So far as regards plants growing under climatal conditions which we cannot modify, such is the only course left us, and has been pursued by us for many years; for it is with this end in view that we have used grit in our fruit tree borders, and have employed loam without much manure, and have rammed it hard to prevent a too rapid taking up of even what limited supplies of food were available. And when I did feed it was by surface-dressing, which would encourage the roots to seek the sun-warmed food, so that no lowering of the temperature of the trees might occur through cold sap. All this I have done, and so far it agrees with what is hinted, excepting that we never dreamed that a wet spring would change our blossom-buds into "leaf-shoots," although it might spoil the flowers that did form.

It is, however, more particularly to house plants, and especially Orchids, that the Count refers. As we differ altogether from the opinion that extra supplies in spring do the mischief, we think that, generally speaking, any degree of starving should be avoided, because we have the climate of hothouses in our own hands to a great extent. I by no means mean by this that Dendrobiums at all stages of their growth should be liberally supplied with water, either in the soil or the air, for such would certainly defeat our purpose if flowers were our aim. At the same time I think that it is not good to starve in any degree. The right thing in the case of Dendrobium *nobile*, and many other plants—Vines, for instance—is to start early in the season, so that the growth may be made up early, and fully matured under the influence of the sun ere yet the sun's beams have lost their power to mature. No plant requires the same moisture at the root while ripening that it does while pushing out shoots and leaves rapidly, and in many instances disaster will result if growing conditions are maintained for ripening plants.

In the case of Dendrobium *nobile*, and many others, we find that when the growths are fully made up by August, in a house not too moist or shaded, and afterwards exposed to the full sun and abundance of dry warm air, that a very free state of flowering results. When the growth is made up late, and in moist shady quarters, the result of this drying and exposure later on is shrivelling, debility, a scarcity of flowers, and a predisposition to produce "leaf-shoots" in spring, no matter what conditions they are

then subjected to. This year our Dendrobiums are flowering less profusely than they did last year, and yet they had both years the same treatment. The seasons, however, were in this district very different: 1880 was fairly sunny, while the autumn was particularly bright; 1881 was cold and dull, especially in autumn. The consequence of this was that all our indoor plants, even although helped by extra fire-heat, were later in making up their growths, and finished them under unfavourable circumstances. In the case of our Vines we fired on later to make up for deficiencies; but our Dendrobies (for want of sun in autumn, not because of too liberal supplies now), are producing flowers less freely than usual, and many more "leaf-shoots." Those later on, as with the Count's, produced more freely at the tops of the bulbs, while the former are, like his, produced lower down. This, we consider, is owing to the tops being less fully ripened, and not to any special determination of sap to the tops. Such a flow of sap may help to produce larger, finer flowers, but I cannot think it would change flowers into shoots.

In the case of many other Orchids which grow freely but flower sparsely, or not at all, all they want is more air, more light, and more heat, rather than a withholding of supplies. *Olonoglossum cirrosium*, which in a cool, moist, shaded house grows so very freely, and throws up long spikes which never flower, or only produce one or two blossoms to the yard of spike, change for the better when grown in a light, airy position in an intermediate-house, but they will grow less freely. As a matter of fact, Nature strives to reproduce the species by seed, and when the atmospheric conditions for that are unsuitable, she falls back on the vegetative method as a last resource. Taking advantage of this fact we can produce the majority of plants at will by whatever mode promises the best results. Taking advantage of this we improve the artificial climates in our vineries by firing—not by starving—so as to prepare the Vines to propagate themselves by seed to as great an extent as possible. Taking advantage of the knowledge painfully and slowly acquired, we limit the food supplies to our outdoor trees, where that is necessary, and secure the same result; when the trees are young and scarce we follow the opposite course to secure, not seeds, but "leafy shoots" to graft with.

It is the same with all our fruiting and flowering plants, Orchids not excepted. It is this knowledge which causes us to adopt so very different practices where different results are wanted; and this which makes us adopt quite different modes, according to the subjects we cultivate and the latitude in which we practise. It is this which shows one course to be right under bright skies and in dry localities, and wrong when clouds lower and rains reign, and *vice versa*. *Practical.*

A FAMOUS PLANT-POTTER.

ON the evening of November 15, James Markey, who has gained a national reputation as an expert greenhouse workman, dropped dead of heart disease, near his residence on Jersey City Heights. Though only thirty-four years of age, he had been employed in the greenhouses of Peter Henderson for nearly twenty-three years, having begun at the early age of eleven years. In all operations in the greenhouse Mr. Henderson has always claimed he had no peer for rapidity and neatness. In the operation of potting he daily did the work of two average men, and was paid accordingly.

It will be remembered that some years ago, when Mr. Henderson asserted in the columns of the *Gardener's Monthly* that James Markey potted 7500 plants in ten hours, several of our readers questioned the fact. Long since then Mr. Markey had far surpassed even that extraordinary record, and had repeatedly potted 10,000 in one day of ten hours; and on one special occasion—in April, 1881—he potted 11,500 rooted cuttings of *Verbenas* in 2½-inch pots—a feat probably never equalled, or even approached. Besides being an extraordinary workman, few men of his years were possessed of such varied and comprehensive knowledge of greenhouse work. Mr. Markey was a native of county Meath, Ireland, but came to this country at an early age, and, except two years which he served in the war of the Rebellion, had been from first to last in the employment of Mr. Henderson. He was modest and unassuming to a fault; a generous-hearted open-handed fellow, and enjoyed the respect of his employer and fellow-workmen to an extent that few men ever attain. *American Gardener's Monthly.*

PINUS CEMBRA.

Of all the trees which cover the mountains of Switzerland, the Arolle (*Pinus Cembra*) is that which offers the greatest interest and the most distinct appearance. Originating in the great forests of Central and Northern Asia this tree migrated into our western countries during the glacial period, when enormous glaciers and wastes of snow covered the centre and north of Europe. Later on the heat increased, and the arctic vegetation took refuge on the high ground, where it met with the necessary conditions for its existence. *Pinus Cembra* did the same, and invaded all the valleys of our higher Alps. It is the only resinous tree met with at that altitude, but at the present time it is unfortunately decreasing and becoming more and more rare. It is the only species of tree capable of living at so great an elevation, and the herdsmen have no other firewood. The destruction of these trees proceeds then in proportion as civilization advances. Already they have disappeared from several of our cantons, while in others the Government has been obliged to take steps to prevent their total destruction.

Setting aside the advantage that it presents, in its growth at heights where no other tree flourishes, it possesses properties which render it very valuable. Its hard balsamic wood is excellent for firewood and for constructive purposes. It is full of resin, and its seeds furnish nourishment to a number of animals which frequent our high Alps. Besides, it has the advantage of growing in places the least favourable to vegetation in general, as on loose rocky soil, and on the moraines, where it serves to check the progress of avalanches and inundations.

It attains a great age, and specimens have been found in the Alps at a great elevation, supposed to be more than 1000 years old. It grows to a height of from 20 to 25 metres (60—70 feet), which is enormous in comparison with the dwarf and liliputian herbs which grow at these elevations. It is a noble-looking tree, with spreading branches disposed horizontally, but turned up at the tips so as to resemble an immense candelabrum. The illustration fig. 13 shows one of these Pines which grows near Gruben in the Upper Valais, near the Turtmann glacier. During the heat of summer the tree exhales a very agreeable resinous odour. Its distinctive character resides in the fact that the leaves are arranged in fives in each sheath. They are of a glaucous green colour, and very long. The cones are obtuse and irregular, and take several years to arrive at maturity. They contain seeds like those of *Pinus Pine*, which are eaten and much sought after by animals, which is one reason of its scarcity. At Geneva there are several specimens which are greatly admired. The tree, which has been called with much reason the Cedar of the Alps, succeeds well in stiff and stony soil, nevertheless our dry climate, and our cold, dry north winds, do not suit it. The English climate suits it much better. There is a very fine Arolle in the garden of the Campagne Neville near Geneva, which dates from the time of Horace Benedict de Saussure. This tree is 10 metres in height, but has not yet produced seed. There is at Pregny, in the fine garden belonging to Baroness Rothschild, an Arolle younger than the preceding, but growing under better conditions. It is planted in a cool place, and sheltered from the hot rays of the mid-day sun. Several members of the Alpine Club have transported to their gardens specimens which are flourishing more or less. M. Darier, at La Servette, near Geneva, has a particularly fine specimen. M. Davall, of Vevey, who specially interests himself in the cultivation of *Pinus Cembra*, raises them successfully.

Transplantation of this species from the mountain side to the plains is not a good plan, although it is the one adopted by ninety-nine out of a hundred persons desirous of growing the plant in their gardens. Thus this tree has the unmerited reputation of being very difficult to grow. The best time for transplantation is in May or June, a period when nobody goes to the Alps because there is still too much snow. If uprooted in August or September it is still too hot to plant it successfully, while in October it is already too late, as the mountains are then covered with snow. Most tourists transplant the tree during their summer trips, which cannot be otherwise than prejudicial to success. The best method, therefore, of multiplying the plant is by seed. Some succeed very well by grafting it on *Pinus Strobus*, but propagation by seed, when it can

be done, is the best method. To be sure of obtaining the true species it should be imported direct from the Grisons or the Valais, as what is sold is often not of the true kind. The seed takes a year and a half to germinate, so that seeds sown in the autumn of 1881 will not come up until the spring of 1883. While the seed is below-ground, certain animals, such as

When the seedlings are up the wire netting is taken away, and the seedlings are pricked out. M. Davall has shown that the growth of *Pinus Cembra* is much more rapid in the mountains than in the plains. He sowed at the same time seeds at a great elevation on the mountain side, and at Vevey at an altitude of 100 metres above the lake, and he found that while the plants on



FIG. 12.—ANCIENT PINUS CEMBRA.

mice and squirrels, seek it out with avidity, and find it out with a persistence that would excite admiration were it not so disheartening to the cultivator. Our foresters sow the seeds in beds surrounded by strong planks thrust to the depth of 15 inches into the ground, and rising to an equal height above it. The seeds are sown thinly, and are covered with a few centimetres of soil, and then a wire trellis, the meshes of which are close enough to prevent the mice from entering, is fixed over the whole.

the mountain side had attained an average height of 2½ metres, at Vevey, during the same period, they had not attained 1 metre (3 feet 3 inches) in height. The Arolle does not dislike limestone or rocky soil; it prefers, nevertheless, a stiff and slightly moist soil. Several varieties are in cultivation, but none of them are equal to the type; *P. Cembra* var. *pumila*, and *P. Cembra* *pygmaea* are, however, interesting varieties. H. Corveon, Inspector, Botanic Garden, Geneva. [The illustration fig. 12 shows a specimen of this

tree growing some years since in Tyrol at an elevation of 6300 feet, and the trunk of which below the lowest branch measured between 6 and 7 feet in diameter. ED.]

Notices of Books.

Christowell : a *Dartmoor Tale*. By R. D. Blackmore, M.A. 3 vols. Sampson Low & Co.

When called on to notice in these columns a book treating of some horticultural or biological subject, it

The author has a story to tell, and his characters are made to tell the story. In some novels the story or plot is the main thing, and the delineations of character are quite subordinate. In other cases the reverse obtains. Between the two great classes there are innumerable transitions, so that it is often difficult to class a particular work, and fit it into its proper place. *Christowell* is, to our thinking, one of these intermediates; the plot does not arouse that breathless interest with which the gradual unfolding and ultimate culmination of some stories are accompanied; in fact, it is difficult at first—as well it may be—to divine what is the motive of the hero of the piece,

the consequence is that though we do not for a moment dispute all that the author says of her, we have no very urgent feeling of wishing to extend our acquaintance with her. True, she has special claims on our notice, as she can prune Vines and thin Grapes, but as it would seem under direction only; the feminine mind in gardening matters does not seem to be able to rise to an emergency, or to be able to deal with new and unfamiliar conditions. There is a villain who is most opportunely got rid of by the electric stroke—there is a country parson of the manual school, a capital sketch—there is a carrier—another well-drawn portrait—and there are various country gentlemen, poachers, sheep stealers, and other *dramatis persone*, who are made to play their parts efficiently. In dealing with humanity the author makes us know the Dartmoor peasantry and their ways and modes of thought and speech, while a vein of quaint and not ill-humoured satire runs through the book. In depicting natural scenery, the author without effort makes us feel the whiff of moorland air and the sweet fragrance of the wild flowers. But, as we have said, the chief interest for gardeners lies in the fact that the hero of the book is a gardener, and his gardening experiences are alluded to in almost every chapter. The author, indeed, knows how to handle the pruning-knife as well as he does how to wield the pen. Let us give some illustrations to prove the latter part of the statement :—

“The finest gardener that ever grew, knows well that he cannot command success, and has long survived young arrogance. Still, he continues to hope for the best; for the essence of the gentle craft is hope, rooted in labour and trained in love.”

Here is a description of a vineery and its contents :—

“It was a long low span-roofed house, with no side-lights and very simple, not even framed with rafters. . . . Here were the sweet obedience and the gay luxuriance of the Vine, than which no lovelier creature grows. Broad leaves spreading into pointlets waved and cut with crisp indenture, coving into or overlapping the ripple of each other; clear round shoots cresting up like swans and sparkling with beads of their own breath; infant bunches on the bend as yet, but promising to straighten as the berries get their weight; some bravely announcing Grapes already, some hoping to do so before nightfall, through the misty web of bloom; others only just awaking into eyes of golden dust, yet all alike rejoicing, shining, meeting the beauty of the early sun and arousing their own to answer it.”

The heroine, too, gets enthusiastic over her work, and is right in the main in her physiology, though perhaps she does give her imagination rather loose rein.

“Papa, I am sure there is nothing in the world half so beautiful as gardeners' work. What are jewellers, or watchmakers, or ivory-carvers, or even painters, to compare with a genuine gardener? The things that they handle are dead and artificial, and cannot know the meaning of the treatment they receive. But our work is living and natural, and knows us, and adapts itself to follow our desires and pleasures, and has its own tempers and moods and feelings exactly the same as we have. For people to talk about 'sensitive plants' does seem such sad nonsense when every plant that lives is sensitive.”

And here we take leave of *Christowell*, hoping we may induce some of our readers to extend their acquaintance with its pages, and feeling sure that among its other qualities they will not overlook or fail to appreciate the nervous style in which it is written.



FIG. 13.—PINUS CEMBRA IN THE VALLEY OF TURTMANN. (SEE P. 80.)

is natural for the reviewer to endeavour to find out what the author intended to do, how he has done it, and what are the general results to be inferred from the whole. The words, “What,” “How,” “Why,” “Wherefore,” and “Therefore,” may briefly serve to indicate the reviewer's ordinary method of procedure. He treats a book, indeed, much as a student engaged in an original investigation into the natural history of any subject would do. A similar course, modified to suit altered circumstances, may be followed in the present instance. It is not necessary, however, to inflict on the reader the details of the whole process, as would be required if a scientific analysis were to be attempted. In such a case how the reviewer arrives at his conclusions is of little interest to the reader, nor, provided they are sound so far as they go, does it concern the author himself.

and when at length it is revealed it is as human motives are apt to be, not sharply defined, but so mixed—“such a tangled web”—that it would need a very acute and impartial student of ethics to determine whether or not the hero, consistently and persistently, did the right thing or not under the circumstances. Without revealing too much—which would be unfair to the author—it may be said that the chief interest lies in the fortunes of a gentleman who, for reasons not here to be divulged, as they form the core of the book—has thought fit to retire, under an assumed name, into the seclusion of a Dartmoor hamlet, together with his daughter, and there, apart from crowds, to devote himself to gardening pursuits. The heroine of the book is beautiful of course—that we grant—but her personality is indicated by the author rather than made to assert itself;

— *Journal of the Royal Horticultural Society.*—The sixth volume of the *Journal* of the Society, containing the records of the proceedings from September, 1879, to August, 1880, has just been issued. It is a condensed report, bringing the narrative of the Society's work down to the date indicated. Its most valuable feature is the index to the principal plants exhibited and certificated. It is to be hoped that as soon as the arrears are overtaken means may be taken to publish the *Journal* with greater regularity, and make it more useful to the Fellows and more worthy of the Society. The speedy publication of the elaborate reports on the effects of the frosts of the last two winters is specially to be desired.

— *Commercial Law Annual.* (W. Cate, Curator Street).—In addition to the usual calendar matter this contains an abstract of various legal enactments, old as well as modern, and of interest not merely to legal practitioners, but to business men of all descriptions.

Orchid Notes and gleanings.

ORCHIDS FROM SEED.—It has always been understood that *Cypripedium Stonei* platyterium was, as its name implies, merely a form or an improved variety of *C. Stonei*. But why call it a "non-strosity"? (see p. 49). That it is a seedling form there is probably not much doubt, but as it is a variation from the original species it is very likely that seedlings from it will also vary, but some may be even better than it, and it is not unlikely that a large proportion will revert to the original. If "H. C.'s" suggestion is right, that Mr. Gedney acted wisely in not seeding the *Cypripedium* in question, Mr. Spjers must have acted unwisely in doing so, and has brought distress and probably death on a valuable plant. I think differently, and should have acted exactly as Mr. Spjers has done. I have ripened many seed-pods on *Cypripediums*, and raised seedlings from them, but never yet saw a healthy plant injured in the least. There is a small plant of *C. Hookeri* in our stove now bearing a seed-pod, the second one within two years; the first was broken off just before the seed ripened; and as another flower opened immediately it was set. Now another flower is coming up as if no seed-pod had been drawing sustenance from the plant—a small one in a 4 inch pot. Would "H. C." kindly bring evidence in support of his statement that seeding *Cypripediums* "is well known to bring distress and sometimes even death to very healthy plants"? Surely it is the nature of Orchids to bear seed, and propagate their species in that way, and I cannot understand a seed-pod killing a very healthy plant, although it might be like the proverbially "last straw" to one in the last stages of its existence. *J. Douglas.*

LELIA ANCEPS VAR. VEITCHII.—This variety was shown by Messrs. Veitch at the last meeting of the Floral Committee, and received a First-class Certificate. The segments of the flower are oblong acute, white, suffused with a lilac shade, and with the tips of a deeper violet. The lip is violet, with narrow purple lines and a yellow blotch at the base. To the eyes of some connoisseurs this is not so fine a variety as *L. anceps Dawsonii*, which has broader segments.

VANDAS are often subject to the reproach that they do not flower till the plant has attained a considerable size and age, but this delay is not always observable. A small plant of *V. tricolor* at Mr. Williams' at Holloway, about three years old, is now bearing flowers.

RENANThERA COCCINEA.—This grand old Orchid is seldom seen in flower, but I was pleased to meet with a nice young specimen in bloom at Benetton Rectory, near Salisbury. The plant is above 4 feet high, and has thrown a splendid spike of flowers, over sixty on the spike; it is very showy. Mr. Lampard attributes his success to fully exposing the plant at all times to the full rays of the sun, only shading just the pot. *A. O.*

MR. BLAKE'S COLLECTION OF ORCHIDS, at The Elms, Winterbourne, near Salisbury, is a very interesting one, grown and tended by Mr. Blake, who is a great lover of this beautiful class of plants, and takes great interest in matters connected with horticulture generally. When I had the pleasure of spending an hour or two with him recently I noticed the following in flower:—*Cypripedium igneum* and *C. villosum*, *Calanthe Veitchii* and *C. vestita*, *Lelia anceps Barkerii*, *L. autumnalis rosea*, *Lycaste skinneri*, *Masdevallia Veitchii*, *M. tovarensis* (over forty flowers on a plant in a 4½-inch pot), *M. Davisii*, *Oncidium varicosum*, *O. leucostomum*, *O. pubes*, *O. Cavendishii*, *Ptilanota fragrans*, *Odontoglossum crispum*, *O. Pescatorei*, *O. citrosum*, and *O. pulchellum* (many good varieties), *Sophronites grandiflora* (lovely varieties, well-flowered), *Zygopetalum Mackayi*. These made a very nice display, and I saw besides fine plants with good growth, showing flowers, of *Coleogyne cristata*, *Epidendrum macrochilum*, *Oncidium leucechillum*, *Odontoglossum gloriosum*, *O. cordatum*, *O. roseum*, and *O. citrosum*, *Lelia purpurata*, *Pendrobium formosum giganteum*, *Angreum sesquipedale*. They are all well done, and will shortly make a grand display; the growth of the

Vandas, *Saccolabium*s, *Cattleyas*, *Pleiones*, &c., shows that the treatment they receive from the hands of their enthusiastic owner is just what they require. I must not forget to mention a specimen of *Dionaea Muscipula* ("Venus' Fly-trap"); this plant is the finest grown specimen I have ever seen; it is in a 48 pot, growing upon a shelf in a temperature above 50°; it had over forty very finely developed traps, many measuring over 2 inches, and in splendid health. *A. O.*

THE VALUE OF RARE ORCHIDS.—When people begin to cultivate Orchids they are usually content with plants of the different favourite genera, without paying much attention to the merits of particular varieties. They procure representatives of, say, the various kinds of *Cattleyas*, *Lælias*, *Dendrobium*s, *Oncidium*s, *Odontoglossum*s, *Masdevallias*, *Phalenopsis*, &c., and if they get the different species nominally they feel satisfied, and can scarcely understand the course followed by many of the enthusiasts who form collections, and who often pay ten times the ordinary price for an exceptionally fine variety of some or other of the different favourite species, forgetting that these finest forms do not turn up every day, being simply the thinly scattered exceptions amongst the crowd of ordinary varieties that are imported, the chance of obtaining which adds no small zest to the risk incurred by those who import or who buy unfloured plants. It occasionally happens that amongst hundreds or thousands of ordinary varieties a few plants of an unusually fine form make their appearance, beyond which possibly nothing equal in colour and shape is seen for years; the result being that the variety is often divided and subdivided so far as it will permit, and still remains scarce. In confirmation of this may be noticed the fine plant of *Lælia elegans* Turneri, bearing thirteen flowers on a spike, shown by Messrs. Veitch at the August meeting of the Royal Horticultural Society; this had been grown from a single bulb which is now decayed and has been cut away, leaving eleven others in single file that have sprung from it, gradually increasing in size and strength until the leader formed last year produced the unusual number of flowers named. But it must not be forgotten that from the single bulb it has taken eleven years to bring the plant to what it is. This will show those who have not considered the subject how it is that rarities in Orchids command a high price.

ODONTOGLOSSUM MIRANDUM.—This plant, referred to at p. 59, is in flower with Mr. Bull, at Chelsea, and his plant is probably the only one that has flowered in Europe—if there is another one of the same kind in existence. [Mr. Warner has a plant. Ed.] It has not been sent to Professor Reichenbach, because there is but one spike, and Mr. Bull is loth to cut it. It may be a hybrid from *O. Lindleyanum* crossed with some deeper and better formed yellow-ground species. Whether it is a hybrid or species it is a very handsome and desirable *Odontoglossum*. *J. Douglas.*

VANDA LAMELLATA VAR. BONALLII is one of the newer varieties, with relatively small primrose and buff coloured flowers—an unusual but pretty combination of colours. At Mr. Williams' nursery a plant of this variety has lately produced eight spikes.

COLEOGYNE MASSANGAENA.—This is now in flower at Mr. B. S. Williams' establishment at Holloway; its pendulous racemes of pale buff flowers with a brown coloured lip are very pretty. We hope shortly to give an illustration of this plant.

DENDROBIUM LUTEOLUM is one of the less conspicuous species, but withal so chaste and pretty in its pale primrose flowers that not many, we imagine, would be disposed to discard it. It may be seen just now at Mr. Williams'.

COLEOGYNE BARBATA.—It was too bad of Mr. Douglas to put up a "caution" notice about this Orchid. If he had contented himself by stating it was not to his taste, or that, as I am informed is the case, it is slow to flower, no one could have raised any objection, as it would then have been understood to have been a personal matter; but those who care to see the plant at Mr. Bull's or Mr. Williams' just now will not at all agree with Mr. Douglas, while some will find the contrast between the pure white segments and the sepia or smoke-coloured lip as very effective. *A. O.*

The Kitchen Garden.

ORDERING SEED.—Now that the season for ordering a supply of seed for the current year's sowing has arrived, and with it a goodly number of trade catalogues, each containing lists of the best and most approved varieties of the different kinds of kitchen garden seed, it may not be inopportune to indicate a few of the leading sorts indispensable in every establishment. Therefore, with catalogue in hand, let us repair to the seed-room and examine the contents of the individual drawers, entering, as the inspection of the stock of seed remaining in store since the preceding year is proceeded with, in the catalogue or order-sheet, the quantities required:—*Asparagus*: *Conover's Colossal*. Broad beans: *Seville Longpod* and *Taylor's Broad Windsor*; and in the dwarf and tall sections *Canadian Wonder* and *Champion Runners*, which are the best. *Beet*: the *Fine-ape Short-top variety* may be depended upon as possessing all the essential points of this esteemed root. *Broccoli*:—*Spring varieties*: *Brimstone*, *Chappell's Cream*, *Frogmore Protecting*, *Carter's Champion*, *Cooling's Matchless*, and *Cattell's Eclipse*; for autumn use: *Veitch's Self-protecting*, *Grange's Early White Cape*, and *Early Purple Cape*; and for the present season, *Snow's Winter White*, *Backhouse's Winter White*, and *Early Penzance*. *Borecole* or *Kale*:—*Cottagers' and Dwarf Curled Scotch*. *Brussels Sprouts*:—*Imported, and Scrymger's Giant*. *Cabbages*:—*Wheeler's Imperial*, *Carter's Heartwell Marrow*, and the *Rosette Colewort*. *Savoy*s:—*Drumhead*, *Dwarf Green Curled*, and *Early Elm*. *Carrots*:—*Altringham and Long Red Surrey* are among the best long, and *Early Nantes* the best short horn varieties. *Of Cauliflower*s the *Early London*, *Walcheren*, and *Veitch's Autumn Giant* are unquestionably the three best. *Celery*: *Leicester Rod* and *Turner's Incomparable White* are excellent kinds. *Endive*:—*Batavian Broad-leaved* and the *Green and Moss-curbed varieties*. *Leeks*:—*Musselburgh and Carentan*, two fine varieties. *Cabbage Lettuce*:—*All the Year Round* and *Victoria* for summer, and *Lee's Immense Hardy* and *Hammersmith Hardy* for winter and spring use. *Cos Lettuce*:—*Paris Green* and *Paris White* for summer, and *Hick's Hardy* and the *Black-seeded Bath Cos* for winter and spring cultivation. *Onions* for spring sowing:—*The Reading*, *Banbury*, and *White Spanish* are three fine large varieties, and for long-keeping qualities *Jamies' Keeping*, *Danver's Yellow*, and *Deftford or Strasburg*, should be included; for autumn sowing: *The Queen*, *Early White Naples*, and *Giant White Tripoli*. *Early Peas*:—*Sutton's Bijou*, *Maclean's Little Gem*, and *William I.*, the two former from 12 to 18 inches high, and the latter 3 feet high, are all good varieties for early work, either planted in pits or grown in pots; and for the same purpose, for sowing out-of-doors *William I.*, *Sutton's Ring-leader*, *Emerald Gem*, and *Day's Early Sunrise*. As second early and mid-season varieties we would recommend *Dickson's Favourite*, *Laxton's Supreme*, *Carter's Stratagem*, *Culverwell's Telegraph*, and *Carter's Telephone*; and the late section should include *Veitch's Perfection* and *Ne Plus Ultra*—the latter the finest late Pea in cultivation. *Turnips*:—*Early Purple-top Munich*, *Early Snowball*, and *Carter's Jersey Marrow*. *Potatoes*:—*Kidney*, *Hammersmith* and *Myatt's Ashleaf*; *Round varieties*, *Champion* and *Schoolmaster*; and among *Vegetable Marrows*, *Moore's Cream* is the best.

SEED SOWING.—As soon as the condition of the ground will permit of its being done a small sowing of *Early Nantes Horn Carrot* should be made in a south border. Before drawing the drills the ground should be dusted over with some new soot, which will be the means of keeping the roots free from the attacks of wireworm. A small sowing should also be made in the same situation of *Early Purple-top Munich Turnips*, and *Early White Naples Onions*—the latter for drawing young.

FORCING DEPARTMENT.—A good supply of warm dung and leaves (about three parts of the latter to one of the former) should be kept in readiness for making the linings of hotbeds on which *Potatoes*, *Carrots*, &c., are growing, as a means of maintaining a gentle heat therein, also with which to make up fresh beds for similar purposes where necessary. Another batch of

Potato-sets (in quantity according to the extent of bed or pits to be planted) should be put in 3-inch pots or boxes in leaf-mould, and placed in an early vinery or Peach-house to start them into growth, and when they have made shoots 2 inches long they should be planted on the beds previously prepared for them in the manner described in the Calendar for December 10, p. 755, vol. xvi. Where Seakale is not forced in the Mushroom-house another batch of crowns should be covered with pots or boxes, and then with about 3 feet thick of fermenting leaves from the leaf-coop. A batch of Kharbar crowns may be treated in a like manner. No time should now be lost in making a sowing on a hotbed or in boxes to be placed in heat, of Early London Cauliflower, Brussels Sprouts, and Cabbages, including a pinch of the Red Dutch, also a small sowing of Cos and Cabbage Lettuce, and a pan of the most approved variety of Celery for early use; and as soon as the plants appear through the soil they should be placed near the glass and in a less warm temperature, where they can have a little air to prevent their becoming drawn and making a weakly growth. Keep a good supply of good soil in the potting-shed out of the reach of inclement weather wherein to raise French Beans, and subsequently to top-dress them.

MUSHROOMS.—Collect horse-droppings, and keep them spread out thinly in a dry shed for a few days, with which to make succession-beds, which should be formed as soon as the necessary quantity of droppings for that purpose has been collected and be beaten as firmly together as possible. A dipping thermometer or "test-stick" should be inserted in the bed, and when the heat has declined to 75° or 70° it may be spawned, inserting pieces about half the size of a hen's egg under the surface of the beds about 6 inches apart, and then covering with half an inch of such droppings pressed firmly down, after which the surface of the bed should be covered thinly with finely-sifted loam of the same temperature as the bed, and beaten firmly together with a spade. A rather moist atmosphere, with a temperature of from 55° to 66°, should be maintained in the house, but in the absence of fire-heat it will not be necessary to distribute moisture in the house. *H. W. Ward, Longford Castle, Wilts.*

—The remarks of your correspondent "Visitor" respecting Mr. Laytham's success in growing the above ought to be sufficient to convince any 60° temperature man that his own practice is not absolutely necessary to ensure the best results, and that he may, if he chooses to divest himself of his crotchets and old-fashioned ideas, obtain crops of Mushrooms quite up to "par" by a great saving of fuel and, I would add, labour also. To suppose that a practice which was successfully adopted by our great-grandfathers must necessarily be an orthodox one, is little short of idiosyncrasy, and the sooner we awaken to this fact and cease to be fettered by what are frequently termed old-established principles the better. Mushrooms, like a good many other things, may be grown and produced in abundance without going to any great expense or without any special qualifications on the part of those who undertake their culture.

Although I am not prepared to say that good crops may not be obtained with a temperature of from 60° to 65°, I have on the other hand no hesitation in saying that equally good, in fact better, crops may be had with 15° or 20° less, and for this reason beds in a lesser degree of heat continue in a bearing state for a greater length of time. We ourselves are quite as successful in growing Mushrooms as we need wish to be, and go to very little expense or trouble in their culture. When a new bed is required the cart is simply despatched to the dung-yard, and as much hot short dung brought away as is wanted; the bed is made up, spawned, and soiled over forthwith: should the dung, however, happen to be, as it sometimes is, a little too hot, a portion of the old bed is mixed up with it: from this it will be seen that a few weeks' preliminary collecting and turning over of droppings is not with us a *sine qua non*. To be successful in growing Mushrooms there are two important points which cannot be over-rated or too closely adhered to, viz., new spawn of a good quality—this can invariably be procured from any house in the seed trade of high standing—and sufficient heat in the bed to give the spawn a good start; if one of these two points is more important than the other it is that of new spawn: use old, and in nine cases out of ten failure is a foregone conclusion. *J. Horsfield.*

Peaches and Nectarines.

THE earliest varieties in the early house will by this time be pretty well set, and may now have a gentle syringing with tepid water twice daily on bright days; on dull days once will suffice for the present. They will also very soon require disbanding, a little of which may be done daily, going over the terminal and strongest shoots first, in preference to finishing a tree at once. Give them a thorough watering at the roots with tepid water, for if allowed to get at all dry, many of the fruits will drop off as soon as set. Keep the temperature about the same as already advised. The difficulty this season has been to keep the night temperature low enough, for with a little air on all night very little fire-heat has been required. If not done, a third house may now be started according to directions given for early houses, and a fourth one may be prepared for starting by the end of the present month. Keep late houses as cool as possible by keeping the ventilators open to the fullest extent night and day. Examine the borders, and if they are getting at all dry give a thorough watering with cold water. *J. Wallis, Keele Gardens.*

Grapes and Vineries.

THE CHATSWORTH GRAPE.—The remarks of "W." (p. 17) respecting this Grape tempt me to write a line or two in its behalf. If what "W." states as to its "dingy red" colour on the two occasions on which it has been before the Fruit Committee of the Royal Horticultural Society be literally correct, it is quite clear that that body have not had it put before them in its best form. It may possibly interest "W." to learn that with the right treatment it can be coloured quite as well as Alicante, Hamburg, or other black varieties. There is an impression abroad that it will not hang, or at least a certain amount of scepticism as to its keeping properties: this I will endeavour to dispel by stating that the bunches Mr. Ward saw in the Grape-room here and commented on at p. 852 of your last volume, were coloured up to the footstalk and fully ripe at the beginning of August last. On October 8 they were cut and bottled, and on December 18—rather more than a fortnight after Mr. Ward, who wrote of the berries as being "large, plump, and finely finished," saw them—they were cut and sent to the dinner-table, and were then quite plump and fresh. Now the inference to be drawn from the above is obviously this—had the bunches in question been ripened six weeks later they would have kept very well till February or March. Of course there is no disguising the fact, that in its keeping properties alone it is no match for either Alicante or Lady Downe's, but in flavour and other points it is, in my opinion, much superior. *J. Horsfield, Heytesbury.*

GRAPEB NOT KEEPING.—"Grapes are selling badly, and showing signs of indifferent keeping" (see Covent Garden report, p. 60). In the matter of keeping this remark is quite in unison with our experience here. I never saw Lady Downe's keep so badly during eighteen years' experience with the same plant in our late house. I must say that the berries are not quite so well thinned out as they ought to have been, and the berries are most likely to become mouldy when the leaves are falling; but even after all the leaves were removed many sound berries became mouldy, and infected others. *F. Douglas, Loxford Hall.*

PEARSON'S GOLDEN QUEEN GRAPE.—We have this Grape growing here on its own roots, and in-arched upon Lady Downe's seedling. The house in which they are growing is all of Lady Downe's except one Vine of Golden Queen on its own roots, which is planted at the coolest end near the door at the end of the range; and another which is in-arched on a Vine of Lady Downe's near the other end of the house. The rafter is about 24 feet in length, and the Golden Queen was in-arched at about 10 feet from the bottom. The Grapes on both Vines finished beautifully last year, both bunches and berries, however, being larger on the Lady Downe's stock than on its own roots. The latter, however, was far superior to the former as regards flavour, being more crisp and juicy. I consider the Golden Queen a second class Grape, but not quite at the top of the class. *John Garrett, Whittinghame Gardens, East Lothian.*

Plants and their Culture.

ROSES.—Of stove flowering subjects at this season of the year, *Thyracanthus rutilans* is one of the most distinct and beautiful. Grown as a standard, it shows itself to greater advantage than in a dwarf state. Care should therefore be taken of any young stock with which to make nice heads for another season. Give them a favourable position after blooming, potting them after a little rest. Poinsettias that have ceased to be attractive may be laid on their sides in a dry place in a temperate-house. *Begonia insignis*, where past its best, may be moved to a cooler house, casting off any plants that are getting old. This may also apply to *Eranthemums*, when out of flower, keeping only sufficient stock of such things as these to ensure next winter's supply of young stuff. If *Allamandas*, *Bra-gavilleas*, or the climbing *Clerodendrons* are required in flower early in the summer, the most promising should be pruned at once, and when showing indications of fresh growth the balls should be reduced, if the plants are in large pots. Where a size larger pot is contemplated, it would not be advisable to reduce much, beyond removing any sour soil not occupied with healthy roots. Considerable advance has been made of late years in the genus *Amaryllis*, seed of which can now be purchased at a moderate price. If sown now, advantage will be gained by getting a long season's growth—in fact, they need not be rooted till they have once attained to a flowering stage. All of this class of plants are attractive, good results may therefore be reasonably expected. Keep the temperature of the stove proper still at a minimum—bad weather may yet be in store for us. Economy in fuel should be practised now—later on, when more in request to maintain active growth, it can be better expended.

GREENHOUSE.—A few plants of *Solanum* of the capsicastrum varieties of a good strain may be placed in a gentle heat, an early batch of cuttings can then be had, dispensing with old scrubby plants. *Bouvardias* and *Tree Carnations* may be treated in like manner. *Cytisus* advancing into flower must be watered liberally, occasional doses of weak guano-water would be beneficial. *Lachenalis* should be watered freely now they are pushing up their spikes. Keep this structure well ventilated, remove all decaying foliage, and watch for fly, which, with the mild weather we are having, soon gains a foothold.

PITS, &c.—With a little heat, a small sowing of Ten-week Stocks may be made for flowering in pots. An early sowing of *Rhodanthe* will be serviceable, and give a pleasing variety when in flower. Well established pot Roses may be placed in heat now with good results, choosing well-tried kinds. *James Hubson, Gunnersbury House, Acton.*

CORREA CARDINALIS.—Among greenhouse plants this is one of the most useful, flowering as it does all through the depth of winter, when it quite lights up a stage with the rich glow of its blossoms. These are long and tube-shaped, and are borne freely on the ends of its small twiggy shoots, the only drawback to the plant being its thin spare habit and the peculiar curl of the foliage, which latter gives it the appearance of being in a rather unhappy condition. The curled or arched leaves, however, are quite natural to it, as they are always the same even in the most healthy plants, which have them very glossy and bright looking without downy coating, such as seen on the foliage of some of the others. Being a weaker grower *C. cardinalis* is generally grafted, as it is found to do best on a stock, the freest sort being chosen for the purpose of working it on. The soil most suited to grow this *Correa* is in fibry peat, which should be used somewhat rough, and not pressed so firm as is usually done in the putting of Heaths, as the roots, being larger, cannot ramify freely. To get plenty of growth in the spring, on which their blooming depends, the plants should be placed in a house where they can be kept a little close and have the syringe drawn over them on the afternoons of bright sunny days. Later on in the season the plants will be greatly benefited by being stood out-of-doors, as then, with the exposure to more air and full light they get, the young wood is ripened and hardened up better, and consequently flower with more freedom. *J. S.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan 23	Sales of Rare Lilies, and Other Bulbs, at Stevens' Rooms; and at the Auction Mart, by Frothergill & Morris.
WEDNESDAY,	Jan 25	
THURSDAY,	Jan 26	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Jan 27	
SATURDAY,	Jan 28	Sale of Plants and Bulbs, at Stevens' Rooms.

It will no doubt be readily admitted that the best time to PLANT DECIDUOUS TREES of all kinds is soon after the leaves have fallen. It may hardly be necessary in all cases to wait for this event taking place, but where planting has to be done upon a large scale the planting season has necessarily to be considerably extended, and planting may be successfully performed at any time from the end of October until the beginning of March, when the condition of the weather will admit of its being done. Few seasons have hitherto proved so favourable for planting operations as the present. It will also be admitted that the best method of preparing the soil for the reception of young trees is to dig or trench it at least two spits deep, and if poor to give it a good dressing of manure or fresh soil if it can be obtained, which is not often the case. We may also here allude to what is possibly the worst method of planting trees, and which is unfortunately the one too frequently practised, viz., that of digging a hole or pit so exceedingly small that the roots of the tree can with difficulty be crammed into it. This method is infinitely worse than what is known as the T form of planting, which is sometimes practised on poor rocky soils in Scotland and elsewhere with tolerable success; and where anything in the form of digging or trenching is out of the question.

Trees planted in this way must necessarily be of comparatively small dimensions. The operation itself is exceedingly simple, and consists of the operator merely making a slit in the turf with his spade, and then inserting the same at one end of the slit, at right angles with it, and by pressing down the handle of the spade the slit will be forced to open more or less, when the assistant passes the roots of the tree into the opening thus made, and a slight amount of pressure with the foot is all that is required to steady the tree, care being taken to leave it in an upright position. By this method an immense number of trees can be planted by a man and a boy in a comparatively short time.

In cases where pits or holes are dug out for the reception of trees, the same should always be of considerable dimensions as regards width as well as depth, and corresponding, of course, with the size of the trees about to be planted, but always sufficiently large to admit of the roots of the plants being spread out to their full extent, and sufficiently deep to admit of a portion of the best of the soil being placed in the bottom of the pit, in order to raise the bottom to the requisite height, and to allow the roots of the tree a portion of friable material into which to extend themselves.

But it is to the planting of trees in properly prepared soil—that is, in soil which has been drained and dug, or trenched, that these remarks are intended principally to apply. Too deep planting of trees on such prepared soil has been no doubt deservedly condemned; but it is to be feared that some planters in their endeavours to avoid Charybdis have fallen upon Scylla, and on some kinds of soil too shallow planting is as necessary to be avoided as too deep planting. On heavy and imperfectly drained land deep planting should by all possible means be avoided, and the trees may in such cases with advantage be planted on a slight mound, or slightly elevated above the level of the surrounding soil; while on very light land the converse of this practice should rather

be followed, as in the event of continuous dry weather setting in several inches of the surface of such soil becomes perfectly desiccated, and before the roots of recently planted trees can penetrate the soil to a greater depth many of them must inevitably perish. Many years ago we had occasion to know something of a large estate, a portion of which consisted of very light poor land, and a considerable part of this about the time alluded to was being planted with forest trees of various kinds, chiefly Larch, and the planting of which was entrusted to an old trustworthy man of great experience in such matters, whose invariable practice was to plant somewhat deeply, and in addition to this to form, as it were, a shallow basin round each tree, as is done in the light soil at Kew, thus securing for it as ample a share of the rainfall as was possible, or, at all events, to effectually prevent the same running from it during sudden or heavy falls of rain. This practice was generally attended with every success that could reasonably be expected, considering the nature of the soil and the prevalence of ground game. But a change happened to occur in the management of the estate, and the new manager, or agent, chanced to be one of those who fancy they have nothing to learn, and who had possibly been accustomed to land of a different character. So he demurred to this method of tree planting, declined to discuss the matter with the old planter, and peremptorily ordered him to plant as he (the agent) desired, which was accordingly done. The weather during the following spring months proving dry the result was in all respects a complete failure.

— ROYAL HORTICULTURAL SOCIETY.—The Council recommend for election at the annual general meeting, to be held on February 14, in the places of the late Dr. Denny, and of A. Grote, Esq., and Sir Chas. Strickland, Bart., who retire—Edmund Giles Loder, Esq., J. H. Mangles, Esq.; and William Lee, Esq., Leatherhead. The Council also nominates the following gentlemen as officers for the year:—President, Right Hon. Lord Aberdare; Treasurer, William Haughton, Esq.; Secretary, Major F. Mason. Expenses Committee-men: Lord Alfred S. Churchill, Major F. Mason, and William Haughton, Esq.; and Auditors: R. A. Aspinall, Esq.; John Lee, Esq.; Harry J. Veitch, Esq.

— ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—We have received the schedule of prizes to be offered for competition at the great International Horticultural Exhibition, to be held under the auspices of this Society in Edinburgh, on September 13 and 14. Since the former exhibitions were held in Edinburgh the new Waverley Market has become available, and is pronounced to be the finest hall for shows of this kind in the United Kingdom. The Council are naturally anxious that this exhibition should excel its predecessors, and that it may do so it is necessary they should be in a position to offer such prizes as will induce all the celebrated growers in the kingdom, and abroad, to send exhibits. The Council accordingly appeal to all those interested in the success of this exhibition for their cordial and liberal support. Subscriptions will be received by Mr. JOHN STEWART, W.S., 4, Albany Place, the Secretary; Mr. WILLIAM YOUNG, 33, South Bridge, the Assistant-Secretary; Mr. P. NELL FRASER, Rockville, Murrayfield, the Treasurer of the Society; or by any nurseryman in Edinburgh. Schedules may be obtained from the Assistant-Secretary.

— RAISING SEEDLINGS.—Mr. PETER HENDERSON's method is thus described in the *American Agriculturist*:—"Mr. PETER HENDERSON having hit upon a method which greatly increased the certainty with which he could raise seedling plants, not only of such rapidly growing things as Cabbages, but of slower starting greenhouse plants and of shrubs, employed it in his own establishment to his great advantage. It is very simple, as most valuable things are. In preparing his seed-beds, or seed-boxes—1st,

he puts down a layer of good loam, run through a half-inch sieve, and patted down moderately firm. Over this about one-fourth of an inch of dried sphagnum—common peat moss, such as is used for packing, thoroughly dried, and run through a wire sieve about as fine as a mosquito-wire gauze—this powdered moss, about in the condition of fine sawdust, being evenly spread. Upon this moss is placed a coating of loam about three-fourths of an inch thick, and well levelled. The seed is sown thickly on the loam, pressed down by a smooth board, and fine moss sifted on, sufficient to cover the seed, and the whole watered with a fine rose. The top layer of moss keeps the surface always moist, preventing all drying and baking, and allows the young plants to easily reach the light. The layer of soil below it affords nourishment to the seedlings, which, as soon as their roots reach the layer of fine moss below, form a mass of fibrous roots. No one familiar with raising seedlings need to have the advantages of this method pointed out."

— THE "FLORIST AND POMOLOGIST" for January, which remains under the management of Mr. MOORE, opens with a good plate of *Lilium Parryi* and *L. polyphyllum*. Mr. BARRON continues his serviceable articles on Vines and Vine culture, accompanied by woodcut illustrations. It is to be hoped that this excellent series of articles will be reprinted. A new feature of this old-established periodical consists in the "Register of Novelties," in which short descriptive notes of all the principal novelties in the various departments of horticulture are comprised.

— THE "BOTANICAL MAGAZINE" for this month opens with a good figure of the handsome *Pitcairnia corallina*, remarkable for its long racemes of crimson flowers. *Abelia spatulata* is a shrub with funnel-shaped flowers, like those of *Weigela*, but green; *Lespedeza bicolor*, a beautiful hardy shrub, with pinnate leaves, and long, many-flowered racemes of small, reddish, papilionaceous flowers; *Saxifraga diversifolia*, a species with leaves like a Violet, and terminal loose cymes of yellow flowers; *Cambesidea i paraquayensis* is a Melastomaceous greenhouse shrub, with rosy-lilac flowers.

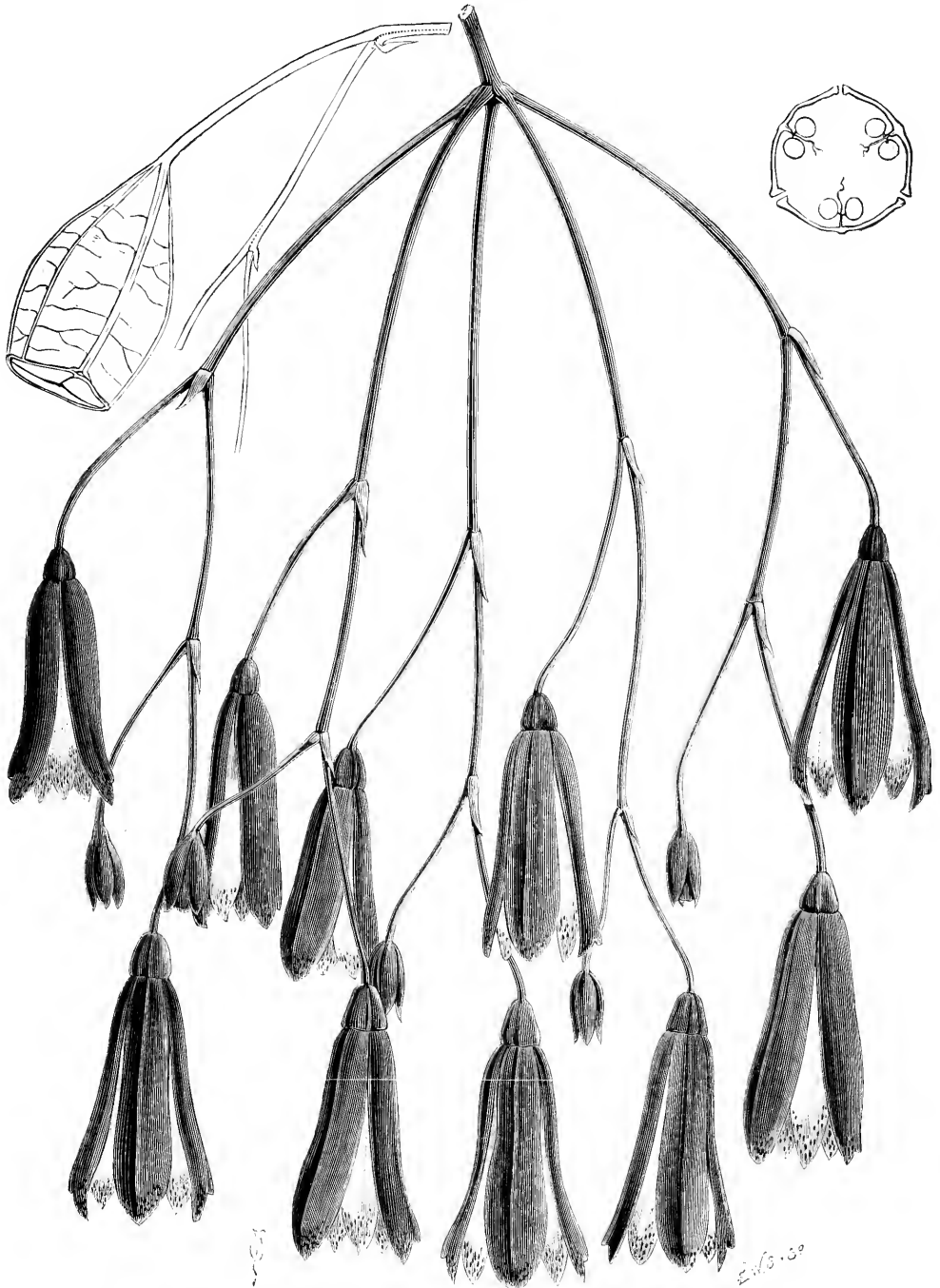
— THE "BELGIQUE HORTICOLE" for August—October, which has just reached us, contains the very useful enumeration of "New Plants of 1880," arranged according to their natural orders by M. A. DE Vos. The plants figured are *Anoplophytum incarnatum*, *Echmea Glaziovii*, and *Montbretia crocosmiflora*.

—"JOURNAL OF BOTANY."—It is proposed to issue a complete index to the *Journal of Botany* from the commencement. We trust sufficient support may be afforded to the conductor to carry out this greatly needed work; but in matters of this kind, though I admit the utility, few are found willing to contribute to the expense, which must be considerable.

[—"ILLUSTRATION HORTICOLE."—The last issued part contains coloured figures of various foliage Begonias, of which we shall speak elsewhere, as also of *Masdevallia Shuttleworthii*, *Gynura aurantiaca*, *Bouvardia Alfred Neuner*, *Rose Guillaume Gillemot*. The text contains articles by MM. JOLY, RODIGAS, DELCHEVALERIE, and others.

— ERICA HYEMALIS ALBA.—We inadvertently omitted to state last week in our report of the meeting of the Floral Committee that Mr. KINGHORN received a First-class Certificate for this plant. It is a white-flowered sport from the valuable and popular *E. hycmalis*, and being a thoroughly good novelty, we are the more anxious that it should have its due reward. It seems to be quite fixed in character, as Mr. KINGHORN has several small plants all true to the type of the plant shown; and no doubt, being a real white winter-flowering Heath, it will be much sought after.

— THE CANTALOUPE MELON.—According to an article in *Les Mondes*, transferred to the *Belgique Horticole*, this originated in the gardens of a country house called Cantalupo, near Rome, frequented by the Popes in the summer months. The gardener in the time of Pope INNOCENT VIII. was one THOMASSO, a man of great repute in his profession. Under



[FIG. 14.—BOMAREA SHUTTLEWORTHII: FLOWER-SEGMENTS ORANGE-SCARLET AND YELLOW. (SEE P. 76.)

THOMASSO'S guidance the Pope became a connoisseur in Melon growing, and pointed out to his guests the signs of ripening in a Melon when the stalk begins to crack away from the fruit.

— **BEST WINE.**—M. AUGUSTE DELEUIL brings under notice wine made from a variety of red Beet. Beet has for long furnished both sugar and spirit, but now, in view of the ravages of the Phylloxera, it is proposed as a substitute for the Vine in wine manufacture. The gentleman above named, whose address is Gardanne, near Marseilles, offers to supply agriculturists gratuitously with seed. He tells us that the wine is as good as the wine of Southern France, which is not saying much.

— **THE EPPING FOREST NATURALISTS' FIELD CLUB** has issued another part of its *Transactions*, containing useful hints on the formation of a local museum, interesting reports on the exploration of the earthworks known as Amblesbury Baris, by General FITZ RIVERS; and on the origin of the British Flora, by Mr. BOULGER. The record of the various meetings is pleasantly given, and not too discursively, while the account of the excursion to Grays, with the accompanying photograph, may be taken as models of what such things should be, and must contribute to the members increased knowledge of the district they inhabit.

— **HOW TO PROFITABLY IMPROVE OUR SOILS.**—This is a brief pamphlet, by Dr. TAYLOR of the Ipswich Museum, on the nature of soils and the means to be taken to increase their productiveness. Rotation and manuring are dealt with, and the use of artificial manures advocated. The indiscriminate and injudicious use of these substances, however, would make things worse rather than better, and the exorbitant prices sometimes asked even for the best would render their use anything but profitable to the farmer, especially as he has no control over the seasons. Every farmer should try experiments on a small scale before embarking on large ventures.

— **NEMOPHILA INSIGNIS IN JANUARY.**—It is rarely that we see this lovely annual in flower out-of-doors in January from autumn-sown seed. Mr. KING, gardener, Wolsley Grange, Esher, is in the habit of sowing a bed early in September, in order to raise plants for planting-out in the autumn to flower the following spring. Last September a bed was sown as usual, and the surplus stock not required for planting out are now in full flower in the seed-bed—an unusual occurrence in January.

— **NORTH MIDDLESEX NATURAL HISTORY ASSOCIATION.**—A natural history society has just been established at Holloway under the above title, the objects of the Association being the formation of a natural history museum, and a library for reference and circulation among members; also the diffusion of natural history knowledge by means of lectures, papers, discussions, &c. It is also proposed to organise field excursions during the summer months. The meetings are held every Tuesday evening between the hours of 8 and 11 o'clock P.M. Further information relating to the Association may be obtained upon application to the Secretary, Mr. CHARLES M. ALLEN, 26, Ingleby Road, Grove Road, Holloway, N.

— **GARDENIAS FOR PARIS.**—The business that goes on in garden produce, including both flowers, fruit, and vegetables, between this country and France is generally supposed to be all on one side; climate and the price of labour being entirely in favour of our neighbours. But there is at least one exception. Mr. LADDIS, the leviathan flower grower, is, we understand, this winter sending Gardenias to Paris. These fragrant favourites, as known to those who have had experience in their cultivation, are terribly stubborn in refusing to open their blooms in the depth of winter; but at Bexley they have this winter been gathered six days per week.

— **HAILSTORM INSURANCE.**—We learn from the report of the directors of the General Hailstorm Insurance Society, Norwich, presented at the annual general meeting held on January 7, that the results of the last year's business were more favourable than in the year 1880, as notwithstanding the continuance of agricultural depression and the inevitable diminution of business, yet the balance on the year's

transactions was a favourable one. The falling off in the amount of business arose partly from the unusual weather up to the beginning of harvest, and the decreased breadth of corn grown, but mainly to the great depression in agriculture. And it is a matter of sincere regret that of the large number of old insurers who received heavy compensation for the disasters of the year 1880, only about 60 per cent. of them continued their insurances in the year 1881. The Society was established in the year 1843, and it has during the long period of thirty-eight years held on its beneficent career, giving, we believe, general satisfaction to those connected with it.

— **MYRTLES COVERED WITH BERRIES.**—Seldom have the common forms of Myrtle been so profusely covered with berries as they are this season. Large plants in good health, with their leaves a deep green, and thickly covered with berries, are not to be despised for conservatory decoration at this season, among Camellias, Cytisus, and other spring-flowering plants. The deep purple bloom upon the berries renders them especially interesting, and reminds one of a Sloe bush in autumn covered with fruits. Those who have ever seen the large pyramid specimens at Lowther's lastle will be able to form a judgment as to the appearance of such plants when thickly set with berries at this season.

— **CYDONIA JAPONICA AS A BUSH SPECIMEN.**—Every one is familiar with this old-fashioned plant as seen grown against the walls of cottages during the early spring months, which it adorns with its large scarlet blossoms; but a huge bush of it, 30 feet in circumference, in full blow in the middle of January is a rare sight indeed. The specimen alluded to is in the grounds of J. P. CURRIE, Esq., Sandown House, Esher, where, from its conspicuous situation and the brightness of its numerous open blossoms, it is at present an object of great attraction, and is much admired. The specimen is in the centre of a triangular figure in grass, from which three walks radiate in different directions, and comes in for no small share of admiration from visitors who are permitted within the grounds. The great drawback to what would otherwise be a remarkably handsome floral display is the want of foliage to show off the bright scarlet blossoms, which one can hardly believe to be real without taking a second look.

— **NAMES OF HERBS.**—We learn that Mr. BRITTON'S reprint of TURNER'S *Names of Herbs*, 1348, with full indexes and determinations, is ready for publication.

— **STRELTZIA REGINA.**—There are many ardent horticulturists who have a desire for plants and flowers out of the common, and to such this old subject will tend in some degree to satisfy their ambition. It is the flower that is peculiarly striking, being borne upon the terminal points of self-supporting spikes, and composed of large orange petals, in the centre of which is a sword-like sheath of purple, which grows more beautiful in form and colour as you examine it minutely. A fine plant, bearing three strong flower-spikes, is now to be seen in the conservatory of J. F. EASTWOOD, Esq., Esher Lodge, Surrey. In Mr. COLLINS' hands the plant is flowered very successfully, notwithstanding that it is somewhat difficult to bring about this desirable condition.

— **EUPHORBIAS IN SMALL POTS.**—Fine plants in small pots are a sure indication of high cultivation, and seldom fail to command that need of praise which is due to superior skill and attention. *Euphorbia jacquiniiflora* is a plant so well known and so commonly grown that there is very little left to say about its cultivation. There are exceptions, however, to all rules, and when one meets with examples of unusual excellence, such as Mr. COLLINS has succeeded in growing at Esher Lodge, Surrey, during the past season, they certainly deserve a brief notice. Mr. COLLINS has grown his plants, or rather the majority of them, in small 48-pots, with two shoots to each plant, and with 15 inches in length of flowering stem to each shoot. The plants have been grown from cuttings struck during the past season.

— **THE SEASON.**—A correspondent sends us from Taunton a shoot of Horse Chestnut, with the outer bud-scales all fallen, and the young leaves sufficiently expanded to show the inflorescence, which has

already attained a length of about half an inch. Some Horse Chestnuts are invariably much in advance of their neighbours. It is not stated whether this is the case in the present instance.

— **FUCHSIA CORYMBIFLORA FOR LARGE CONSERVATORIES.**—Those who have large conservatories to fill and who do not already possess this plant should make its acquaintance as early as possible, and grow it on as a standard or in any other form that may answer the nature of the position that the plant is intended to occupy. At Garrick's Villa, Hampton-on-Thames, Middlesex, we lately saw two fine standards from 6 to 8 feet high, grown by Mr. SPENCER, and which are found very useful for the embellishment of the large conservatory there. The plants are sometimes stood out-of-doors during the summer months, but it is as conservatory ornaments that they shine most.

— **DRAECINA TERMINALIS RULRA CUT DOWN.**—It will be no exaggeration to say that there is no plant of its kind more largely employed for decorative and furnishing purposes than this *Draecina*. Small plants of it from 18 inches to 2 feet in height are common enough, and pretty objects they are too, when in good health, but "bushes" of it are the exception, not the rule. And yet bushes would be found a great boon for vase or basket-work. Where plants have been destroyed by exposure to cold or other circumstances incident to furnishing they may be cut down sufficiently low to get "three breaks," which, when they have grown the necessary height, will make handsome bushes for a pair of vases, or a single plant will make a good centre for a basket.

— **BEGONIA NITIDA.**—Among winter-flowering plants there are few at this season that can compare, all things considered, with this fine old plant, either for cutting purposes, or for arranging with choice fine-leaved plants which its presence brightens up considerably, or for training up the back walls of plant stores, or indeed any house where a temperature of from 65° to 70° is regularly maintained. For cutting purposes, where there is room to spare, it is best to plant out, by which means a great wealth of flowers are obtained in winter. The plant is, however, amenable to any system of cultivation, and perhaps it is grown in its most useful form upon single stems in 4-inch pots and dotted about the plant stove or the house, where its charming heads of white flowers, with orange centres, has a distinct effect from most other things that come into flower at this season.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending January 16, issued by the Meteorological Office, London:—The weather, though very free from rain, has been exceedingly gloomy, with much mist or fog. The temperature, has continued above the mean, the excess varying from 4° over the greater part of England to 7° or 8° in Ireland and Scotland. The maxima were very high for the season, the thermometer rising to 57° at Dublin on the 14th, and to the same height at Nairn on the 15th. At most other stations the highest readings varied from 50° to 56°. The temperature fell a little below freezing point in "England, S.W.," and "Scotland, E." The rainfall has been very slight everywhere, and in the "Wheat-producing districts" was scarcely appreciable. Bright sunshine districts were decreased in all places, and was very deficient, the percentages ranging from 14 in "Scotland, E.," to 1 in "Scotland, W." Depressions observed:—At the commencement of the period a depression of considerable depth and magnitude was travelling in an east-north-easterly direction off the north coast of Scotland, while the barometer was highest over France. The wind consequently varied from a strong westerly or west-south-westerly gale at our northern stations to a moderate or fresh west-south-westerly breeze in the south. As this disturbance passed away, pressure, with very slight interruptions, continued to increase steadily with moderate or light south-westerly breezes, and on the 16th the mercury had reached the exceptional height of 30.9 inches on our south-east coast, and 30.5 inches to the north of Scotland.

— **GARDENING APPOINTMENTS.**—Mr. H. YOUNG, late Foreman at Rolleston Hall, has been appointed (through Messrs. YERFILL & SONS) Gardener to W. F. GEORGE, Esq., Downside, Stoke Bishop, Bristol.—Mr. RICHARD LYE, late of Brooklands, Dorchester, is now Gardener to W. A. KINGSMILL, Esq., Sydmonton Court, Newbury.—Mr. ALEXANDER LAING, Foreman at The Glen, Inverleithen, has been appointed (through Messrs. DOWNIE & LAIRD, Edinburgh) as Gardener to WILLIAM NELSON, Esq., Salisbury Green, Edinburgh.

EVERGREEN HEDGES.

HEDGES in parks and ornamental grounds generally are usually composed wholly or in part of subjects that partake of an evergreen character. Where only required for purposes of division a good deciduous fence effectually answers, but where shelter has also to be considered, that screen which preserves its efficiency undiminished throughout that portion of the year when the cold blasts sweep over vegetation with most disastrous effect, is certainly preferable. The appearance also of evergreens in hedges during the dull months of the year is no slight recommendation, for however much we may admire the beauty of form and variety of tint and colour presented by the trunks and branches of leafless trees, little can be seen of that beauty in trimmed and bare hedges.

Disappointment and failure have followed the use of many evergreens that have been highly recommended from time to time, but which have proved either unsuitable in habit, or insufficiently hardy for the purpose. Holly would still be one of the best of fence-forming materials could it be induced to grow a little faster—its slowness of growth being the only, yet weighty, objection to its employment in any but the very coldest districts of the United Kingdom. Laurels are more suitable for an irregular screen than for a trimmed fence, but are occasionally used with good effect. Neat fences may be formed of the evergreen Privet (*Ligustrum ovalifolium*), which will quickly give the required shelter. Bat of all classes of plants adapted for making hedges that will afford good shelter and quick growth, combined with pleasing appearance, there are none more suitable than Conifers. Many sorts have, however, been used that have not stood the severe test as to hardness to which they have been subjected by the unusual severity of the late winters; whilst others that have endured the cold with impunity yet proved themselves to be ill adapted for fences by their habit of growth. The base of hedges formed of such *Thuias* as *occidentalis* and *tatarica* has a tendency to become bare from the lowest branches ceasing to extend, and the former has not stood severe cold as well as was expected.

Two long hedges here, planted with American *Arbor-vitæ*, were rendered so unsightly by deaths and injuries occasioned by the winters that it became necessary to remove them. I know of no tree more suitable for ornamental fences than *Thuia Lobbi* (*gigantea*). It is of very quick growth, and is extremely hardy. Many of the hedges here are composed of it, and it did not even the slightest evidences of the effects of frost even on the tip of a single shoot, which is more than can be said of the *Yew*—the oldest and perhaps yet the best tree in some respects for the purpose—which certainly suffered a little from frost-bite.

As this is a time when much of the planting necessary to supply the place of injured hedges will be done, a word in favour of a trial of *Thuia Lobbi*, and for the extended planting of the common *Yew*, may not be out of place. The former is of a brighter and more shining green than is common in Conifers, and contrasts favourably with the sombre effect of the *Yew*, while both are admirably suited for making durable fences that will stand trimming well, and for withstanding injury from frost or breakage of branches from snow, which will find no place for lodgment amidst the close growths of either, when they are kept regularly clipped.

In order to secure a satisfactory fence it is necessary to select good, young, and freely grown plants. The use of large plants is not in itself objectionable, provided they are not stunted—owing their size to age rather than to vigour of growth. The ground where the fence is to be formed should be deeply trenched before planting, working in a considerable quantity of well rotted manure. And where planting requires to be done on ground that has been previously occupied by a hedge or shrubs, it will greatly assist the plants and hasten their usefulness as a screen if some fresh soil could also be added to the site. It is unreasonable to expect free and vigorous growth in hedges that are planted on exhausted soil in positions where there is little chance of give them any after-assistance.

There are at the present time, doubtless, many evergreen fences that have not been killed by the severity of the late winters, but are much injured, and which have made little progress towards restored health during the summer, but to which it is yet thought advisable to give another chance before finally uprooting. In such a case planting may be deferred until the likeli-

hood of their recovery may be determined when growth commences in the spring; as from the middle of April to the end of May is as favourable a time for planting most evergreens as the present season. At the same time it may be well to point out that one disadvantage of late planting is the likelihood of the due preparation of the site being neglected at so busy a season, and also that the labour entailed in watering during June and July, should those months prove to be dry, must likewise enter into any considerations bearing on the fittest time for planting. *Ralph Crossling.*

PRIMULAS AT FOREST HILL.

In few establishments in this kingdom can be seen growing expressly for the production of seed such a large collection of Chinese *Primulas* as are now developing bloom daily in Messrs. Jas. Carter & Co.'s nursery at Forest Hill. It is not by dozens, or by scores, or even by hundreds that the plants are to be counted, but literally in thousands, so large is the number in the various houses devoted to their culture. One great advantage arising from seed growing under these conditions is that the entire stocks are produced under the immediate superintendence of the principals, who ruthlessly relegate to the rubbish heap all plants that do not produce high-class flowers. Growing also specially for seed the Messrs. Jas. Carter & Co. do not encourage high culture in their plants. They rather aim at getting them to bloom after the turn of days, and in restraining rather than encouraging coarse growth, such as the growers of market plants delight to secure. Of the thousands of plants now in bloom or coming into bloom at Forest Hill, nearly all are in 4's, and are remarkably clean, healthy and stocky. They are all that can be desired in a batch of Chinese *Primulas*, but are not fed in any way as the soil in which they are grown is rather poor than otherwise. The great benefit resulting from this style of culture is that the plants produce seed much more freely, in fact, the pollen is more abundant and more fertile than it is on plants which have been fed to produce luxuriant foliage and giant flowers. Whilst the houses are apparently low enough to suit the plants, the manager has sought to help the production of dwarf, robust growth by lifting each plant up to the light, and standing it upon an inverted flower-pot. That the plants are by this arrangement far more exposed to light and air is evident, and equally it is evident that they like it.

One of the most interesting features of this huge collection of *Primulas* is yet undeveloped. In one house there are arranged by dozens sample plants of some sixty diverse kinds, or from diverse stocks or growers. This is an annual test, and not a kind noted for any special quality or novelty of character is left out. It will, however, be a few weeks ere this interesting collection is in full flower, and when it is we may be sure that it will be worth seeing.

The great feature just now in connection with this beautiful winter flower, however, is the new blue *Primula*, now known as *Holborn Gem*, and of which we saw a few days since some 500 plants in flower, and many more coming into bloom, not one of which but is of high quality—large, flat, well fringed, and throughout as true to colour as is the most common kind we have. Here and there plants carry blooms showing even deeper hues, and these will doubtless be selected to produce the seed stocks for another year. The blooming habit of the strain is excellent. The trusses are well thrown up above the foliage, and the flowers look the spectator straight in the face. The history of this blue *Primula* is a simple one. A plant, bearing inferior flowers of a lavender tint, came into bloom from amongst a batch of seedlings. It was selected, and its pollen used to fertilise the flowers of a dark red kind of good quality. From this cross sprang the present blue strain of *Holborn Gem*, a slaty blue flower upon the old red habit and quality, and a fine rosy-pink kind that has been well named *Rosy Morn*, for it is most charming and bright flowered, the blooms large, bold, and abundantly produced. One feature of this rosy kind is the tendency of some of the flowers to assume distinctive bizarre tints, the flakes of deeper rose upon the pink ground being very clear and pleasing. There is no reason why with careful selection there may not be in time evoked from out this kind some really permanent flaked forms.

It is worthy of remark that the blue *Holborn Gem*

is in no way the product of the lilac-tinted kind that has long been grown here. This latter form is associated with the white kind, as it has the same habit and hue of foliage, the leaves and stalks being of a pale green colour. Messrs. Carter's new *Blue King*, on the other hand, has very dark leaves and stalks, so that it promises for that reason to deepen its hue rather than to lose it. These dark leaved kinds also exhibit the strongest constitution. Several hundreds of plants soon to bloom are the product of crosses of pollen of *Holborn Gem* upon flowers of rich coloured kinds. It need hardly be said that their development is being looked forward to with much interest.

A TRIAL OF MIGNONNETTES.

REPUTED varieties of the *Mignonette* are constantly appearing, but the difference they show is generally of a slight character. It will be readily understood that there must of necessity be some difference of character among the many thousands of plants of *Mignonette* annually raised, and where what appears to be a new departure from the normal type appears and possesses good characteristics it is not to be wondered at if some one seizes upon it, takes seed from it, grows it, and when a sufficient stock is obtained, announces it as a new variety. In a year or two the rigid selection applied in the first instance is withheld, and then the produce is apt, and invariably does, revert to the old type. At its best it could scarcely be termed a distinct variety, but it was a good selection, and a good selection is often better than a new variety. In a wholesale seed list we have just counted twelve reputed varieties of the *Mignonette*, but can they be very distinct one from the other?

Last summer Mr. Bause sowed a collection of eight assumed varieties at the General Horticultural Company's *Mellourne Nursery* at *Anerley*, which comprised the *Large-flowering*; *Miles' new Spiral*, a very fine white variety; the *Victoria*; *Garaway's White*, like *Miles' Spiral*; *Odorata ameliorata*, with yellow flowers; *Compacta nana*, *Parson's Giant White*, and *Odorata gigantea pyramidalis*. The most useful for pot culture is called *Compacta nana*, because of its dwarf habit, its fine close spikes of flower, and their rich perfume. To say that one strain of *Mignonette* is freer of bloom than another is assuming too much, for all *Mignonettes* are very free in producing flower-spikes, and it is the natural tendency of the plant to produce these all the season, especially when the spikes are freely cut from the plants. The dwarf compact *Mignonette* grows about 6 inches in height, the flowers of a reddish hue. The *Odorata gigantea pyramidalis* has large spikes of white flowers, is very good, and richly perfumed. A good type of what is known as *Parson's Giant White* is one of the best *Mignonettes* that can be grown. It is a selection from the *Large-flowering*, and where kept true is all that can be desired for pot and border purposes. Perhaps the durability of the *Mignonette* as a plant to cut from is not so well appreciated as it deserves to be.

A sowing should be made on a warm sunny border, which has been well manured, about the end of March, the seed being scattered as thinly as possible on the soil. When the plants appear, and are large enough, they should be thinned out to 1 foot apart, and as soon as spikes of flower show themselves, and are large enough for the purpose, they can be cut.

Then will follow a succession, lasting till Christmas if the bed be kept well watered in dry weather, and a little weak manure-water be added once a week. Those who grow the *Mignonette* in pots sow the seed in 5-inch pots, at the end of August or early in September—some make a point of sowing on September 1—some eight or nine seeds being placed in a pot, and the pots placed in a cold frame close to the glass, but shaded from the sun. Here they remain all the winter, and the plants are kept covered up in severe weather. By April and May fine heads of bloom can be obtained. *R. P.*

ROSE LA FRANCE.—Few of the hybrid perpetual *Roses* are so strongly scented as *La France* when forced early in the season. The abnormal state of things generally which has been brought about by the mild weather is playing mischief with gardeners. I have recently seen a batch of hybrid perpetuals which usually come in about March with several expanded blooms, conspicuous among them being the subject of these remarks. *W. Hinds.*

BOUVARDIAS AS EXHIBITION PLANTS.

MR. BLOMILY, gardener to W. Crosfield, Esq., Oaklands, Aigburth, Liverpool, a successful exhibitor of stove and greenhouse plants at the Liverpool and other local exhibitions for many years, has kindly furnished us with a photograph of a plant which forcibly illustrates what charming specimens these Bouvardias make either for exhibition purposes or for home decoration. The colours of the flowers, it need hardly be said, are very telling in a collection of stove and greenhouse plants in the month of November, and have enabled Mr. Blomily to carry off the leading prize for plants upon more than one occasion at the winter exhibitions of the now defunct Liverpool Horticultural Society.

The plant of which the illustration (fig. 15) is given is a very credible example of the variety *Vreelandii*, and was exhibited by Mr. Blomily at the great show of the Liverpool Horticultural Association held in Sefton Park, Liverpool, on August 2 and 4, 1879. "The specimen was over 3 feet in diameter, and the same plant," writes Mr. Blomily, "continued to flower through the greater part of the winter in the coolest and lightest position in the plant-stove. Briefly summarised, Mr. Blomily's system of cultivation after eight years' experience in growing specimens is as follows:—Cuttings about 3 inches in length taken from the points of the young shoots are inserted in a sharp compost as soon as they can be obtained in February or early in March, and plunged in a brisk bottom-heat, where they soon take root, and are gradually exposed to more light and air. It is important that the cuttings be potted off immediately they are properly rooted, in order that the young plants may not sustain a check to growth through want of sufficient root-nourishment, which at this early stage would induce a firmness of growth which would militate against their rapid development into specimens. After potting the plants are returned to a gentle bottom-heat, and as soon as they have fairly recovered from the shock and commence to grow freely they are pinched, which operation is repeated at intervals throughout the season. It is particularly recommended that the pinching of plants that are intended to be grown into specimens be not neglected in a young state, or the foundation of a handsome specimen cannot afterwards be laid out of straggling irregular-jointed growth.

In a genial growing temperature plants progress rapidly, and repotting will require attention when the roots are found to be numerous at the sides of the pots. It is, however, by no means desirable to repot until the roots have taken possession of the whole ball of earth without being what is commonly termed matted. Ample drainage is given of broken potsherds from 1½ inch in depth to a 6-inch pot to 2 inches in a 10 or 12-inch pot. A thin layer of sphagnum moss is laid over the drainage, and upon this the rougher portion of the compost, which consists of three parts rich fibrous loam and one of leaf-mould and old cow manure, with a dash of sand to keep the whole open. After repotting the plants require careful watering for a time, indeed Mr. Blomily ascribes his success in a great measure to strict attention to watering throughout the whole season's growth. When a plant is watered the soil in the pot is thoroughly soaked down to the drainage, and the plant is not again watered until it is a shade upon the dry side. About the middle of the month of June the plants are turned out into a cold pit or frame with a south aspect, which is kept close for a few days, after which ventilation is increased as the weather gets warmer. The plants are syringed overhead every afternoon in bright weather. During August and September the plants may be turned out-of-doors, but if there is accommodation they are better kept in pits and frames, where they can be protected from heavy rains, which saturate the soil and are injurious to the roots. Old plants with plenty of matured wood in them Mr. Blomily finds flower more freely than young ones, and any one growing from one to two dozens of plants in 6 or 8 inch pots, and giving them a light position in the plant-stove, need not be without a supply of these charming flowers from October to March.

Mr. Blomily treats old plants like *Fuchsias*—they are cut close back, started in an early vinery, partially shaken out and repotted, and treated as already described. The varieties Mr. Blomily recommends are *elegans*, *Hogarth*, *Queen of the Roses*, *Vreelandii*, *Bridal Wreath*, and *Maiden's Blush*. *W. Hind.*

HOME CORRESPONDENCE.

The Culture of *Tecophilea cyanoceros*.—I give with pleasure the information asked for at p. 44, as to culture of *Tecophilea cyanoceros*. I found the bulbs to the kindness of my friend M. Max Leichlin, and his directions were, "Keep cool and airy; a little frost will do no harm, but the greenhouse is too close and warm." Acting on these I sunk the pot in a bed of ashes in a *Lilium auratum* case in our large unheated orchard-house. I had two bulbs only—one of them has flowered. I have some notions as to a rockery which should enable us to grow what are considered half-hardy bulbs; time will show whether our hopes will be realised. Mr. Dominy once said to me, "A gardener should have two lives"; the longer one gardens the more one feels the force of this. *George F. Wilson, Heatherbank, Weybridge.*

Imantophyllum miniatum.—I am glad to see that attention has been called to this plant, as unquestionably it is one of the finest things out, for besides having handsome and very healthy-looking foliage, it bears magnificent heads of large Lily-like flowers, that last a long time in perfection. In shape the blooms bear a close resemblance to those of the well known *Agapanthus umbellatus*, and they are borne on stout stems much in the same way; and as they are as large as those of the *Valloia purpurea*, and of a bright orange-scarlet colour, some idea may be formed of the effect they produce. For large windows in houses I know of nothing in the plant way so valuable, as the leaves, being very thick and fleshy, and having a smooth shining surface, stand the dry atmosphere of a room well and are proof against the injurious effects of the fine particles of dust almost always floating about. Another reason why it does so satisfactorily in a dwelling is that it will stand almost any amount of watering, as, like the *Agapanthus* and *Arum*, it is half aquatic in its nature, and such plants as a rule are the best for amateurs to cultivate, as they do not take much room. When grown in pans that receive the drainage, the continuous wet from which rots the roots of the most of them. Although *Imantophyllum miniatum* is generally regarded as a greenhouse plant, it does very much better in a little more warmth, thriving best when grown in an intermediate temperature, in which it not only flowers more freely, but the blossoms come of a brighter and richer colour. Plants of it also force well, and may be had in bloom almost at any time during the winter by subjecting them to the heat of a stove. The *Imantophyllum miniatum* is a very rosy subject, and likes plenty of pot-room, and a free, rich, open, porous soil to feed on. That which suits it best is fresh rough fibry loam and leaf-mould, with a little old rotten cow-mannure, in which mixture, if potted loosely, the plants grow and spread at a great rate. The only way to propagate is by division, which may be most readily effected by shaking the plants out, as then the suckers can be pulled off, or the crowns split up with safety. To get the plants so obtained to root freely, they should be potted, and plunged in gentle bottom-heat, which will soon cause them to root afresh, and give them a good start. *J. Sheppard.*

Strawberries for Market.—Your correspondent, "Market Gardener," who inquires at p. 59 for the names of two or three of the earliest and best varieties of Strawberries to be grown for market on a gravelly soil have given some inkling as to the locality he hails from; but, assuming that he lives in England, somewhere there is no difficulty in recommending him three varieties that cannot be approached by any others in cultivation for the purpose he mentions. They are as follows:—*Vicomtesse d'Hericart* of Thury, President, and *Sir Charles Napier*. They come into bearing in the order in which their names are given. If your correspondent hails from the North of England he will probably find the former variety sold under the names of *Garryhall* or *Duc de Malakoff*, but it has been so much written about of late years that its synonyms are pretty well known. *Sir Charles Napier* can hardly be called an early variety, but it is indispensable for marketing purposes. It is positively unapproachable by any other variety for marketing purposes in nine cases out of ten, and comes into bearing immediately after *President*. *W. Hind.*

Ice Storing in Sawdust.—I can corroborate all that Mr. Melville has said as to the great value of sawdust in the storing of ice. Mr. Melville says he is not aware that sawdust has ever been used for preserving ice out-of-doors, but I have known it to have been used in several places for at least twenty years with great success. I shall only mention one place where the experiment was regarded as highly satisfactory—viz., *Hallyburton House*, the seat of the late Right Hon. Lord Hallyburton, where a large supply of ice was always on demand, but never could be kept longer than October in the ice-house, although

the house was in all respects a good one, I went there as foreman in the year 1863, and in that year the sawdust was tried, but previous to that, for some years, they were in the habit of building stacks, using turves and straw to cover them; but that expensive way was ultimately abandoned. In January, 1864, three stacks were built, two round and one square, or rather oblong, the latter being put up as an experiment to see how long ice would keep stored out-of-doors in sawdust. It contained about sixty loads as near as I can remember. After it was built several pits of water were thrown over it and left for two or three days in the frost uncovered, when it got like a solid block; it was then properly thatched with Wheat straw and covered with sawdust to the depth of 20 inches, and, with the exception of filling up all cracks in the sawdust, was not touched for two summers, and in the winter following several loads of ice were taken out. It may be as well to note that not so much expense as they do at Dunrobin in making pits, as I built them entirely on the surface, and I believe they have done so year after year ever since with the same amount of success. I consider that stacks built on the surface with ample drainage, (which should never be overlooked, as drainage is one of the great secrets in keeping ice), and the sawdust properly looked after, will be quite as satisfactory as the more expensive system of digging out deep pits. *J. Inglis, Howick Gardens, Leith, Northumberland.*

Wall Copings.—The concluding paragraph in Mr. Fawke's practical letter at p. 59, sums up in a few words the difficulty that must have presented itself to most gardeners at some time or other when considering the subject of wall copings, and the gradual change by additional appliances from simple protectors to the similitude of indifferent fruit-houses. It is likely that so long as our climate remains what it is, some years yielding good results from the open wall, although others sadly perplex the cultivator, there will always be a portion of the more tender stone fruits grown upon walls that are only protected by copings in gardens which are favourably situated either in latitude, soil, shelter, or other local circumstance; while that supply will be somewhat extended by the supplies of the fruit-houses proper. That open walls were productive of regular crops of Peaches and Nectarines when glass structures were neither so cheap nor so plentiful as now, and when more attention was devoted to them because of their then comparatively greater importance, is an undoubted fact which it is becoming the fashion to ignore. I have been acquainted with gardens both in the North of England and in Scotland, where heavy crops of Peaches were the rule and deficient ones the exception. The seasons have recently been adverse, but I venture to suggest that the all-engrossing attention required by the houses in large forcing establishments, and the growing disinclination of journeyman gardeners for the work of a supposedly lower branch of the profession, have had a greater share in the poor results and consequent condemnation of open walls for the more tender cultivation of fruit-covers of any other cause. It is no uncommon circumstance to see the cultivation of Peaches given up, and their places filled by Pears or other fruits, on walls that were noted for nearly half a century for cultural attention and splendid results. Is it that we of the present generation are less persevering? or, which is more likely, are the duties in gardens now of too multitudinous a character to admit of as much time and such close attention being devoted to open walls as in former times?—of which, however, they are as worthy as ever. Good results were and are obtained by permanent projecting copings of an opaque character, and by the use of nets, branches, or other make-shift appliances during the blooming season. That a stone coping which projects more than a few inches from the wall is in some respects open to objection I freely admit, but that it "should certainly not project more" is a hard and fair rule that is upset by copings of good results and of such good effect, which certainly has virtues as well as faults. I am limited that a stone coping is absolutely essential, it is not a matter of great additional outlay to have it a trifle wider; and the extent of wall from which the sun's rays will be obstructed by an extra six inches of projection will be small except in the hottest months of summer, when such a shade is not likely to be a disadvantage on a wall with a southern aspect; whilst in the autumn the direction of the sun's rays are such as to be scarcely intercepted at all in exercising their beneficial and maturing influence on even the highest shoots. The question of the helpful results of rain and dew that are lost by the use of a heavy permanent coping is less easily disposed of, yet where the water supply is good it can be as freely applied as the exigency of the case requires, or the discretion of the cultivator deems necessary; and the drenchings of rain by day and condensed moisture by night—which combine during continued dripping weather occurring at the season of ripening to the production of decay and the

destruction of quantities of fruit—will be in a good measure warded off. In reality it is with many not a question of house or house-like protection, but simply such a coping as will best protect the wall—and consequently the trees—from wet and hoar-frost, and at the same time afford facilities for attaching additional protection speedily on emergencies. And that one means of accomplishing this is by projecting stone coping I have proved from practical experience in several districts, and by observation of results in others. R. C.

Glass Wall Protectors.—I must disclaim the merit of the invention of these structures; the design was given to me by M. van Lierde, a Belgian horti-

Kerner in his work on alpine plants classes it as belonging indifferently to either. Nevertheless in Switzerland we usually find the plant on limestone soil, and in our experimental cultivation we have found lime particularly suitable for it; without it the peculiar white velvety appearance of the involucre is not produced. *Henry Correvon.*

Orange Blossoms.—I send for your inspection two or three sprays of *Citrus Aurantium*, cut from a tree 5 feet high and 4 feet in diameter of the branches, which is covered with bloom from top to bottom. The tree was removed in March from the conservatory, and reotted in a compost of two parts of fibry loam, one of peat, and the remainder nightsoil taken from a

gardener (Mr. Milne) both tasteful and careful management. At the time of my visit (the beginning of December), about the most gloomy period of the year, the houses were most attractive with *Chrysanthemums*, zonal *Pelargoniums* (of which *Ambassador* and *Indian Chief* formed striking features), *Mignonette* exceedingly well done, and the same remark applies to *Chinese Primulas*. A span-roofed stove formed as a whole one of the most charming pictures I ever saw, and yet the material used was exceedingly simple, consisting of *Panicum variegatum* and *Selaginella Krausianum*, as an edging and groundwork. *Calanthe Veitchii*, *Adiantum cuneatum*, *Begonias manicata* and *nitida*, tastefully arranged, all combined to awaken the



FIG. 15.—A SPECIMEN HOUWARDIA. (SEE P. 88.)

culturist. My share in the matter consisted of having contributed an idea, which he afterwards improved upon. *T. Francis Rivers.*

Apricots in Bloom.—I send you some blooms from Apricot trees on the open wall. Some of the fruits are set, and the foliage is fast expanding, showing the unprecedented mildness of the winter. We had a few blooms of Apricots out at Christmas. Broccoli we have been cutting without cessation. The minimum temperature here on December 23 was 27°, with eighteen wet days in December, registering 4.38 inches. *J. C. Mundell, Moore Park, Rickmansworth.*

Alpine Plants; Soil for the Edelweiss.—I perceive that one of your correspondents took exception some time since to my statement that the Edelweiss is specially a limestone plant, and asserts that he finds it more frequently on granite than on calcareous soil. This may be so in Tyrol, indeed, I find that

Vine-border that had been top-dressed with the same twelve months previously. It was then put into an early vinery, and after making its growth was placed in a cool vinery, and from thence taken out-of-doors to a position under a north wall, and kept moderately dry, to thoroughly ripen the shoots. In the third week of October it was again placed in a cool-house until it fairly showed its bloom-buds, when I removed it into a stove temperature of about 60°. *Alfred Bishop, The Gardens, Elm Grove, Saffron Walden.*

Vale Royal, the Cheshire Seat of Lord Delamere.—Few gardens with which I am acquainted are better kept than this. The fruit and kitchen gardens are most productive, while the floral department, consisting of a well-kept flower garden immediately in front of the mansion, and several span-roofed plant-houses well stocked with a judicious selection of free-flowering plants, which are constantly a blaze of floral beauty and sweetness, indicates on the part of the

admiration of the beholder in equal degree to the most choice display of valuable Orchids. What is the inference? Just this—that in order to produce the most pleasing effects it is not absolutely necessary to use the most expensive plants. It is quite refreshing in these days to come in contact with some of the good old-fashioned things which have been in too many instances discarded for novelties. Look at the enormous quantity of new kinds of Crotons and Dracaenas which have been brought into cultivation during the last few years; and yet I venture to say that, take them all round, the three old Crotons—viz., *angustifolius*, *pictus*, and *variegatus*—are equal in every respect to any three of the newer kinds, and the same remark will apply to Dracaenas—*D. terminalis* and *D. Cooperi* have not yet been beaten; therefore, it seems desirable to stick to the good old things, and not cast them away until you are quite sure that you have better ones to take their places. This seems to be the rule adopted at Vale Royal, and

hence it is that you meet with a quantity of the good old-fashioned things which makes it a most interesting place to visit. *Tipton*.

Carriage of Goods by Rail.—A few days ago I received from London a small sack of Peas, Beans, and other seeds by L. & N.W. Ry., with a charge of 5s. 6d. for carriage, the weight of the parcel being 11 lb. more than 1 cwt. I refused to pay, and have since got the demand reduced to 3s. 6d., with an explanation that it was "a mistake." As I still regard the 3s. 6d. as "a mistake," I have refused to pay that until I get further explanation. I am a country seedsman in the Midlands, and had I not some knowledge of railway rates I should have paid the 5s. 6d. as a legitimate charge. When packages, however, go to private persons, many an overcharge is paid for want of knowing what the proper rate should be, and I ask you to give a word of caution to senders to be careful how they consign goods, so as to have them brought by rail at a proper rate, instead of a much higher one, and in fact it would be a great help if consignors would send with invoice or advice note an intimation of the rate of carriage each consignee should pay. This information ought to be placed before us by the railway companies, but is not done, but the information can be obtained by the wholesale houses. *A Warwickshire Seedsman*.

Hoya imperialis.—This old stove climber may now be seen bearing fine umbels of its singular and quaint flowers, in company with the *Spiraea Horsfallii*, in the plant-houses of Messrs. Cripps, Tunbridge Wells Nurseries, which contain one of the most interesting collections of plants in the county of Kent. *Hortus*.

Helleborus fœtidus.—After trying with indifferent success many varieties of aspect, situation, elevation, depression and composition of soil, I have come to the conclusion that Hellebore, and especially Christmas Roses, require atmospheric conditions which cannot be supplied out-of-doors in a cold clay district. There is, however, one Hellebore which thrives very well here, and is ornamental in winter—I mean *Helleborus fœtidus*, the only evergreen native Hellebore. Fifty years ago it was abundant on the limestone rocks on both sides of the Derwent, between Cromford Bridge and Matlock Bath, but it is now hardly to be found there except in the private grounds of Wiltshire Castle, where it still grows wild plentifully. It likes pockets of lead-mould amongst the shady parts of the rocks, but in cultivation it is not particular about soil or situation. It sometimes in its third or fourth year from seed forms a bush a yard high, and as much across; at this age it is liable to be broken by wind or by its own weight, and is not reproduced from the root, though cuttings of it will strike. In most seasons it ripens seed plentifully, which is shed in June, and germinates on rocky light soils the following spring. The seed is stored dry till spring it sallows down. The juice of the plant contains a strong acrid poison. I collected some seed last summer, and with opening the pods my thumbs and forefingers were made as sore as if they had been scalded. The large deeply cut dark green leaves and the light green flower buds, which are produced in large bunches, and last all through the winter months, make it a handsome plant for a rough stone bank, or a dry shrubby walk. *C. Witley Dow, Edise Hall, Malpas, Jan. 16*.

Plants in Flower at Colwyn Bay.—I send you a list of plants in flower to-day in my garden at Nant-y-Glyn, Colwyn Bay, without any protection. I would particularly call attention to that abominably named Tea Rose, *Isabella Sprunt*, which has been for the last two or three months, and still is, producing numerous blooms almost, if not quite as good as if it were early autumn:—*Arabis albidus*, *Iberis sempervirens*, *Wallflowers*, *Stocks*, *Viola* (Czar), *Hills*, *Tea Roses*, *Corydalis caryophylla*, *Othonna chertifolia*, *Chrysanthemum indicum*, *Schizostylis coccinea*, *Snowdrops*, *Fuchsia macrophylla*, *Veronica ligustifolia*, *Berberis Aquifolia*, *B. Darwini*, *B. nepalensis*, *Escallonia sp.*, *Lonicera fragrantissima*, *Pittosporum Tobira*, *Ceanothus punicicus*, *Rhododendron arboreum*, *Arbutus Unedo*, *Laurustinus*. *Alfred O. Walker, Chester, Jan. 16*.

Plants for Covering Walls.—A very knowing writer, a gardening correspondent of the *Field*, who lately undertook to grow more alpine in a common ploughed field than gardeners could grow on all their rockeries, recommends in last week's issue amongst useful climbing or creeping plants for covering unsightly walls, out-houses, &c., Tea plants, specifying *Thea bohea* and *Thea viridis*, which he has seen used for such purposes with very good effect. I quote the sentence:—"The Tea plants, *Thea bohea* and *T. viridis*, are rapid-growing plants, of elegant appearance, and will grow anywhere. I have seen them used to good purpose in hiding unsightly spots in back-

yard gardening." One might suspect that he means *Lycium barbarum*, commonly called the Tea-plant, but he writes with such confidence, and is apparently so well up, that I write to ask whether the Tea plants proper are usually hardy in England, and whether in any country they could be used as wall climbers? *C. W. P.*

Lycopodium Forsteri.—This beautiful Fern has been spoken of as a newly introduced species. Nearly twenty years ago, when serving in the gardens of the late Mr. Hadwen, at Edge Hill, Liverpool, we frequently exhibited this *Lycopodium* in collections of Ferns at the exhibitions then held in the Botanic Gardens. It is a charming plant when nicely trained, and nearly equal to a *Cleicheia* in merit when exhibited in a collection of Ferns. It thrives well in an intermediate fernery, and puts on a beautiful colour when grown in rather deep shade. No lover of Ferns should be without this plant, as it is the gem of the climbing kinds. *J. Roberts, Gunnersbury*.

The Snowdrops (*Galanthus nivalis*).—Whether flowering in the cottage or palace garden, or in the wayside hedges, it matters not, the thoughts and the impressions which they convey are the same, and in the words of Miss Howell they are—

"White as driven snow,
And as snowflake pure;
Drooping heads they show,
Of our welcome sure."

A blessing on the early flowers
Which take us back to childish hours!"

Since the beginning of the new year the Snowdrops—principally of the single variety—have been and are still flowering very profusely in many of the village gardens and orchards in this district, which with the embossed masses of pure white, with a background of rich verdure, and the trees musical with the song of birds, have a very chaste and cheery effect in the middle of January, when contrasted with the surrounding landscape. On either side the winding walks in the shrubberies here, which are edged with flints, is a row of double Snowdrops, which in the aggregate are about 2 miles long. The curvilinear lines of these when in full flower, with the red gravel in the foreground and the ornamental evergreens in rear, together with the murmurings of the rivers Avon and Chalk, which flow through and unite at the bottom of these grounds, and overhead the flutter of pigeons consequent on the sound of approaching footsteps, makes a pretty picture for the time of year. *H. W. Ward, Longford Castle*.

FORESTRY.

HEDGEROW TIMBER.—An important branch of forestry, and one which deserves considerably more attention than has hitherto been bestowed upon it, is that which is generally termed hedgerows. Hedgerows are grown for various purposes, such as shelter and shade to man and the lower animals, ameliorating the climate of the country, yielding useful and valuable wood and timber, and beautifying and embellishing the landscape. These all, except perhaps the first and last, can be attained by other, and in some respects cheaper and better means. To those, however, who are charmed with and see beauty more in lines or chains of trees than in other phases and features of the landscape, and believe that kind of rural adornment surpasses all others, there is no need or reason for applying argument, and therefore, if you can afford it, there is no good reason why they should not have and enjoy their own luxury as others do theirs, and in order to assist them in this commendable and praiseworthy undertaking, the following observations may be found serviceable.

In the first place, when rows of trees are proposed to be planted in lines of fences, divisions of fields, or along roadsides, it must be seen to that the ground is sufficiently dry, for although some species of trees—as the Alder, Willow, and Poplar—flourish for a time in damp or even wet soils, they yet soon lose their root-vitality within and decay. In flat-lying districts hedgerows now, as in the days of the Romans, are planted upon mounds or ridges, laid up for the purpose. Some of the mounds are only about 6 feet wide and 3 feet deep, and others, as should be, are often more than double these dimensions. When the land is of small value the mound may be made 15 feet wide at the base, and rounded, so that the highest and deepest part is in the centre, which may be about 7 feet deep. In such cases, Thorn or Quick-set hedges are planted near the base of the mound on each side and a row of trees in the centre, 30 to 40 feet apart. This kind of hedgerow is very useful as

a game covert, and in such both partridges and pheasants delight to breed and find shelter and protection, and the hedges may either be trimmed or allowed to grow up roughly as taste and other things suggest. Such mounds, which are usually formed of wet or clay soils, become sufficiently dry when so raised above the natural level of the ground, and are well adapted for the growth of several species of forest trees. Clay soils are adapted to Oak, which also makes an excellent hedgerow tree, and some of our finest qualities of timber are grown on strong tenacious clays. Beech also grows well in strong clay soils, especially on mounds, and is also very ornamental in such situations, but if allowed to stand to old age, especially on flat clay ground, it is very liable to become decayed in the heart. The quality of clay-grown Beech, however, like that of the Oak, is very superior, and only requires attention to cutting at the proper age. The common Ash is also an excellent and valuable hedgerow tree, and its timber upon clay soils is of the very finest quality. As an object of beauteous trees surpass the Horse Chestnut, and it grows in almost any soil, if only dry. It, however, though very hardy in these respects, does not stand the wind well, as its branches are very brittle, and its excessive shade is also against it. Clay-grown Ash should, however, be cut before its bark becomes cracked, as after that period it often becomes decayed in the heart, and deteriorates in quality by losing its toughness. The grey or Able Poplar and Willow also grow well on clays, but, like the Beech and Ash, require to be cut before attaining old age, otherwise decay in the heart deteriorates their value, and at best they are but short-lived.

The Silver Fir, as an evergreen tree, often very properly called into service, and supplies an important requirement in the landscape, especially for winter effect. It grows well on clay soils, and often attains large dimensions and considerable age, and still remains quite sound. It is also very hardy, and endures with impunity all kinds of weather except frost, when young, in low situations. As a single grown tree, however, it inclines much to branches, and unless they are judiciously checked and containing leaders relieved the value of the tree as timber is much deteriorated.

A truly beautiful line of trees, surpassing probably all others, is that composed of Horse Chestnut and copper-coloured Beech planted alternately at 40 to 60 feet apart, according as the trees are expected to grow to very large or medium size.

The distances apart at which the trees in all cases should be planted, how they should be pruned, and when they should be cut, are all matters requiring much attention. Having planted hedgerow trees at all distances apart, from 30 feet to 30 yards with equal success, it may safely be left to the taste of those whom it is to please, to plant at such distances as they prefer. If hedgerow planting is done with a view to profit 30 feet apart is sufficient, as thereby each tree spreads its branches 15 feet before coming in contact with the nearest adjoining tree; but, as already said, hedgerow planting is most frequently done entirely with the object of beautifying and enriching the landscape, and when this is attained the end in view is considered well accomplished. Trees in the landscape, where they should stand isolated, and each showing itself in full perfection, should be about 50 yards apart. Great attention should, however, be paid to the work of planting, especially in seeing that the trees are not too deeply planted, which is too often the case, as the results are destructive and ruinous. Nothing tends more to the decay of the roots and central lower part of the trunk and blowing down of the trees than deep planting. Small trees are not so apt to be too deeply planted as large ones are, for it is too often the practice to plant large trees deep in order to firm them in the ground, and avoid the necessity of laying stones over their roots, driving stakes into the ground, and adopting other means of supporting them against blowing down by the wind. *C. J. Michie, Forester, Cullen House, Banff*.

ROYAL BOTANIC SOCIETY.—We learn that the special exhibitions organised by this Society for the coming season will include shows of *Camellias* and *Ilyacynths* from March 8 to 18, by Messrs. William Paul & Son, Waltham Cross; *Hardy Azaleas*, *Rhododendrons*, and *American plants*, in May and June, by Mr. Anthony Waterer, Knapp Hill; and *Roses* in pots and cut blooms from July 18 to 25, by the Cranston Nursery Co., Hereford.

Reports of Societies.

Edinburgh Botanical: Jan. 12.—The Society met in 5, St. Andrew Square, Mr. Alex. Buchan, M.A., Vice-President, in the chair. The following communications were read:—

I. "On the Geology and Botany of the Isle of Man," by the late Professor Edward Forbes, with additions by J. F. Robinson, Frodsham.

II. "On the sudden appearance of Epilobium angustifolium on burnt clay forming the lower part of an embankment of the Great Northern Railway in the parish of Breadsall, Derbyshire," by Mr. Joseph Whitaker. The plant is rare in the neighbourhood; a patch of it was known to Mr. Whitaker in a lane 2 miles distant from the new station, but this is now extinct. He had also picked up a solitary specimen in a lane in 1879, some 6 or 7 miles distant from the railway embankment.

III. "A series of recent researches submitted to the Botanical Society of France regarding variation of intensity of colour in the same species at different altitudes and varied latitudes," by Andrew Taylor, Assistant-Secretary.

Mr. John Sadler, Curator of the Royal Botanic Garden and Arboretum, intimated that he had received from Mr. Elwes, Cirencester, Gloucestershire, a collection of ninety packets of seed, from Tibet, to be raised in the Botanic Garden, and said he expected that many of these would prove to be new species and new varieties. This was the first consignment of any extent of seed that had been sent home from the uplands of Tibet. He had also received a collection of seed from the Botanic Garden at Saharanpur, collected principally between 10,000 to 15,000 feet in the Himalayan Mountains. Referring to the improvement which was being carried out at the garden, he said they had got the walls up of the new house to raise those seeds and to grow cool plants, and in a week or two it would be completed, the cost being about £200. This was an important acquisition to the garden. They had also got a nursery finished which they called a marsh or bog garden. They had always been at a disadvantage in the cultivation of certain plants which required to be grown in boggy or marshy soil, and in this marsh garden they intended to give them a place, and they thought they had a much better chance of flowering properly than in pots. With regard to the Arboretum, he might say they were making progress. They had formed a nursery to receive the donations which were coming in in a few weeks from New, and from many nurserymen. They wanted to make a start with the planting by the end of February or beginning of March, when they hoped to be able to show the public and the Society a nice collection of trees and shrubs. It would take four or five years to make anything like a complete collection, and he hoped they should have the sympathy of all who could assist them in making it a success. In submitting his report on the progress of open-air vegetation at the garden Mr. Sadler said this was the most remarkable season he had ever had anything to do with. He could not get one season to stop that he might begin with another—the thing went on continually. For instance, during November they had in the aggregate only 1 1/2" of frost. In December the thermometer was at or slightly below the freezing-point on sixteen occasions. The greatest frost was on the 22nd, when it fell 27°, and 25° were registered respectively. That was the heaviest frost—in fact, the frost—of the whole month. This was very extraordinary, when they considered the severe frost they had at the same period last year. Since January commenced the thermometer had been at the freezing-point on eight occasions, the lowest temperatures being on the 4th and 5th, when 28° and 29°, or 1° and 3° of frost respectively, were registered. In consequence of the exceptional mildness of the season, vegetation had hardly been retarded. He had, that afternoon, gathered out fifty-two species and varieties of plants in full leaf, and these were now on the table for the inspection of members. The collection included fourteen different species of Hellebores, which he strongly recommended gardeners to propagate. In the course of some further remarks, Mr. Sadler said that he had not been so very serious for them yet. He called their attention especially to sprigs of Mignonette in flower, which he supposed was a thing unheard of in the memory of man—in the vicinity of Edinburgh at all events. He also specially mentioned Crocuses, Fannies, Koses, and many other plants.

VI. Miscellaneous Contributions: 1. Mr. John Campbell, Ledaig, Argyllshire, sent the following flowers in bloom:—Rhododendron Noëlbium, Galbanus nivalis, and Erica heather. 2. Messrs. J. C. Grove, Strirling, and the botanist, in the basket of Orchids presented by Dr. Paterson, Bridge of Allan, to Her Majesty, on her last journey southwards from Balmoral.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on Tue. day, January 3, 1882. Mr. John Downie, President, in the chair.

Mr. W. Wilson Macdonald read a paper on the "Food of Plants," the paper on this subject, and of which we shall publish in another issue. Mr. Chas. Buchanan, Penicuik House gardens, exhibited two flowers of Luculia gratissima, cut from a plant which had over thirty flowers upon it. Mr. Robertson Munro, Abercorn Nursery, exhibited a collection of hardy cut

flowers, all taken from the open air. The most noticeable in the collection was a bunch of Gloire de Dijon Roses in splendid condition, the other articles, were Carnations, Hepatica biloba, Veronica rupestris, Wallflower, Jasminum nudiflorum, Primrose, Christmas Rose, Daisies of sorts, Polyanthus, and China Roses. The Lawson Seed & Nursery Co. exhibited a plant of the new double Bourardii, Alfred Neuner, in flower. Messrs. Ireland & Thomson also exhibited a plant of this Bourardii, and a flower-spike of Anthurium Andreanum. It was intimated that Mr. Isaac Anderson-Henry, F.L.S., F.R.S.E., Honorary President, had in preparation a paper, to be read at a future meeting of the Association, on the retardation of vegetation of seeds in various tribes of plants.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JANUARY 18, 1882.

Table with columns: MONTH AND DAY, BAROMETER, TEMPERATURE OF THE AIR, Hygrometric Deductions, WIND, RAINFALL. Rows for Jan 11-18.

- Jan 11.—A dull, overcast, foggy day. Fine night.
12.—A fine morning, but overcast day. Fine cloudy night.
13.—A fine day, but dull and overcast. Fine night.
14.—A fine but dull day. Fine night, but damp falling in the evening.
15.—A fine fresh morning; dull, overcast day. Fine night, but misty.
16.—A dull, foggy day, and night damp and cold. This is the first day since December 25th that the temperature has been below its average.
17.—A very dense black fog, day and night cold. Remarkable high reading of the barometer.

LONDON: Atmospheric Pressure.—During the week ending January 14, the reading of the barometer at the level of the sea decreased from 30.25 inches at the beginning of the week to 29.25 inches by midnight on the 8th, increased to 30.36 inches by midnight on the 9th, decreased to 30.16 inches by midnight on the 10th, increased to 30.45 inches by 9 A.M. on the 13th, decreased to 30.41 inches by 3 P.M. on the 13th, and was 30.64 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.35 inches, being 0.56 inch higher than last week, and 0.42 inch higher than the average of the week.

Temperature.—The highest temperature in the shade in the week was 51.5, on the 11th. On the 14th the temperature did not rise above 42°. The mean of the seven high day temperatures was 47.5.

The lowest temperature in the week was 36°, on the 10th, on the 11th the lowest temperature was 45.4°. The mean of the seven lowest temperatures was 39.2°.

The greatest range of temperature in one day was 12.9, on the 8th; the smallest was 3.5, on the 14th. The mean of the seven daily ranges was 8.3.

The mean daily temperatures were, on the 8th, 41.6°; on the 9th, 41.3°; on the 10th, 42.6°; on the 11th, 48.1°; on the 12th, 44.9°; on the 13th, 44.3°; on the 14th, 40.2°.

The mean temperature of the air for the week was 43.6, being 0.1 higher than last week, and 7.3 above the average for the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 87°, on the 13th; the highest, on the 8th and 14th, was 46°. The mean of the seven readings was 60.2.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 35.5, on the 10th. The mean of the seven readings was 35.2.

Rain.—Kain fell on two days, to the amount of 0.54 inch, of which 0.51 inch fell on the 9th.

ENGLAND: Temperature.—During the week end-

ing January 14, the highest temperatures were 56° at Truro, 53.8° at Plymouth, and 52° at Cambridge. The highest temperature at Hull was 48°, at Wolverhampton 48.5°, and at Brighton and Leeds 49.7°. The general mean was 50.9°.

The lowest temperatures in the week were 31.5° at Wolverhampton, 32° at Truro, and 33.8° at Leicester. The lowest temperature at Liverpool was 39.4°, at Leeds 38°, and at Bristol 37.5°. The general mean was 35.3°.

The greatest ranges of temperature in the week were 24° at Truro, 18.8° at Plymouth, and 17.7° at Leicester. The least ranges were 11° at Leeds, 11.5° at Liverpool, and 12.3° at Bradford. The general mean was 15.6°.

The mean of the seven high day temperatures was highest at Truro, 53.4°, at Plymouth 50.9°, and at Sunderland 49.5°, and was lowest at Hull, 45.7°, at Wolverhampton 45.8, and at Bradford 46.4°. The general mean was 48°.

The mean of the seven low night temperatures was highest at Truro, 43.3°, at Plymouth 42.8, and at Liverpool 41.7.4; and was lowest at Wolverhampton, 31.9, at Leicester, 36, and at Nottingham 36.8. The general mean was 39.3°.

The mean daily range was greatest at Sunderland, 11.1; at Wolverhampton 10.9, and at Leicester 10.8, and was smallest at Bradford, 5.6, at Leeds 7.4, and at Bristol 7.8. The general mean was 8.7°.

The mean temperature for the week was highest at Truro, 48.1°, at Plymouth 46.6, and at Bristol 44.6, and was lowest at Wolverhampton, 40.1, at Hull and Leicester 41.2. The general mean was 43.5°.

Rain.—The largest falls were 1.09 inch at Bristol, 0.83 inch at Cambridge, and 0.63 inch at Leicester. The least falls were 0.08 inch at Sunderland, 0.23 inch at Hull, and 0.26 inch at Sheffield. The general mean was 0.44 inch.

SCOTLAND: Temperature.—During the week ending January 14 the highest temperature was 57, at Glasgow; at Dundee the highest temperature was 48°. The general mean was 51.9°.

The lowest temperature in the week was 36.9, at Aberdeen; at Paisley the lowest temperature was 34.7.

The general mean for the 34th week was highest at Paisley, 45.5; and lowest at Aberdeen, 40.7. The general mean was 42.7°.

Rain.—The largest falls were 0.96 inch at Greenock, and 0.89 inch at Glasgow. The least falls were 0.04 inch at Aberdeen, and 0.06 inch at Edinburgh. The general mean was 0.43 inch.

JAMES GLAISHER, F.R.S.

Obituary.

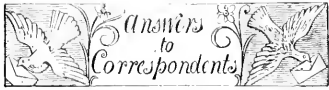
It is but a comparatively short time since Mr. KIPPIS retired from the office of Librarian to the Linnean Society a post he had filled for more than fifty years with such zealous faithfulness that the award on the part of the Council of his full pension was felt by all to be only what was fitting under the circumstances. Mr. Kippist, however, has not long lived to enjoy his well-earned leisure. For some years past he had suffered from chest affection, and to this he succeeded in his seventy-second year, at his residence in Chelsea, on the 14th inst. Mr. Kippist entered the service of the Linnean Society so long ago as 1830, and in 1842 he was appointed Librarian in place of the late Professor Don. Precise and methodical almost to a fault Mr. Kippist completely identified himself with the Society, and it is very questionable whether the President and Council did not, in his opinion, hold a higher place than any other or department of State, no matter how exalted, from his long association with successive generations of Fellows Mr. Kippist was imbued more deeply with the ancient traditions of the Society, and had a fuller recollection of its departed worthies—the Browns, the Stanleys, the Lamberts, the Bennetts, and many others—than any one, save perhaps Mr. Bentham, happily still spared to us. Faithful to his trust and diligent in his work Mr. Kippist, though in this, as in other matters, scrupulously careful as an observer, and with a well-stocked memory, published but little. He had, however, a good knowledge of plants, especially Australian plants, Proteaceæ, &c. His name will be commemorated among botanists by the name Kippistia (a genus of Composite), named in his honour by Baron von Mueller, but those who came in contact with him will need no such reminder of a man who by his devotion to the Society and his fidelity to his duties, and his courtesy and willingness to aid others, earned the goodwill and respect of the Society at large and of naturalists generally.

—We regret to record the death, at Melrose, N.B., on the 14th inst., aged twenty-two years, of Mr. CHARLES WALTER ORMISTON, of the firm of Ormiston & Renwick, seed merchants and nurserymen.

Enquiries.

He that questioneth much shall learn much.—Bacon.

DECAY OF CONES.—I am desirous of ascertaining how long various cones float before becoming waterlogged. I am also trying to ascertain whether all Cedar cones fall piecemeal, and whether Abies cones decay much more rapidly than those of Pines. Can any reader help me? J. S. Gardner.



BOOKS: A Young Beginner. 1. Either Oliver's Elementary Lessons in Botany (Macmillan & Co.), or Botany for Beginners (Bradbury, Agnew, & Co.). 2. Ross' Practical Remains of the Latin Language (Blackwood). Any bookseller could get them for you.

CAPABILITY BROWN: II. A portrait of Lancelot Brown exists in the Pagoda Room at Burghley, according to a writer in Notes and Queries. Brown is said by some to have died in 1773, when at work at Burghley; by others it is asserted that he died in 1783, while acting as head gardener at Hampton Court.

COLOURS OF ROSES: J. Fair. Baron Rothschild, crimson; Catain, bright rose; Heroine Vaucheur, clear rose; La Favorite, rose; Madame Bellenden Ker, white; Madame Charles Bude, pale rose; Madame Lilienthal, bright rose; Rev. H. D'Ombraun, carmine; Senateur Cheveau, bright red. We cannot find the other names in any list in our possession.

CUCUMBERS AND BEANS: A. P. The plants have become so weak check to their growth, but we can find neither fungus nor insect. They are not diseased, but what is the cause of the mischief we cannot say. Has it been done by pouring water on pipes or flue while over-heated?

ERIOSTEMON NERIFOLIUS: A. P. B. By cuttings in glass, inserted in sand, and covered by a bell-glass.

HEDGROW TIMBER: Landed Proprietor. See p. 90.

MYSTACIOUS PLANTS: T. H. T. We presume it must be a misprint for "myrtaceous."

NAMES OF PEARS: W. H. B. Not recognised, being too much decayed.

NAMES OF PLANTS: G. Steel. 1. Erica Melanthera; 2. E. Caffra; 3. E. Boniana; 4. Erica Mrs. Pym. — T. P. The specimens were too much damaged for recognition through the post. You should pack them in green moss in a small tin box.—J. Sauter. The shrub is Photinia serotina; the white seed, Job's Tears (Coxia laetifolia). We do not recognise the other.—H. E. Franka verticillata, var. sinensis.—J. H. The seeds received from the West Indies, and labelled "Yellow Valloa," will probably turn out to be the Pynolirion aureum, syn. Anarjalis aurea. We have never heard of a yellow Valloa. —Hatch & Son. From your description we suppose Arum Draconculis is the plant you allude to.—Constant Reader. Cupressus nutkanensis, better known as Thuopsis borealis.

PERIANTH: T. H. T. This is a general term applied where the distinction between calyx and corolla is not obvious, as where both are similarly coloured, as in the Tulip, Crocus, Iris, &c., or it may be used in cases where the calyx is brightly coloured and the corolla is present, or only in the form of scales, as in Daphne, Grevillea, &c.

SEEDSMEN AND ASSISTANTS: Roberts. No doubt both seedsmen and assistants have sufficiently good reasons for advertising under noms de plume, and it would do no good to publish your letter.

STRAWBERRIES: S. August is, of course, the best month for planting out Strawberry runners, but it is not always convenient to plant then, and the work is deferred until nice open weather sets in, in February or March. If carefully planted in good soil the "prepared runners" will do well, but the weight of the crop the first season will depend upon the strength of the crowns when planted.

SUTHERLAND GARDEN ENGINE: F. Urquhart & Co. We do not know the name of the maker.

TWIN FLOWERS OF EUCHARIS: H. & Co. Not uncommon. It is the result of union at a very early stage from compression.

WANTED A GARDENER: Synophthalma. We cannot interfere. Every one has a right to do as he pleases in such matters.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editor," and not to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

CATALOGUES RECEIVED.

- WILLIAM BULL, 536, King's Road, Chelsea—Select Flower and Vegetable Seeds, &c.
SHERRATT & POINTON, Huddulph, near Congleton—Garden and Farm Seeds, &c.
CHARLES TURNER, Slough—Seeds for the Garden and the Farm.
STEPHEN BROWN, Weston-super-Mare—Vegetable and Flower Seeds.
E. P. FRANCIS & Co., Hertford—Hairy Ornamental Trees and Shrubs, &c.
WALTER FORD, Farnor, Basingstoke—Flower, Vegetable, and Farm Seeds.
JAMES DICKSON & SONS, 108, Eastgate Street, Chester—Vegetable and Flower Seeds.
HOGG & ROBERTSON, 23, Mary Street, Dublin—Vegetable and Flower Seeds.
JOHN CATTELL, Westerham, Kent—Garden and Agricultural Seeds.
JAMES DICKSON & SONS, 32, Hanover Street, Edinburgh—Vegetable and Flower Seeds.
H. THORNTON & Co., Fallow, S.W.—Kitchen Garden, Agricultural, and Flower Seeds.
THOS. INRIE & SONS, Ayr—Vegetable and Flower Seeds, &c.
LITTLE & BALLANTYNE, Carlisle—Spring Seed List.
DICKSONS & Co., 1, Waterloo Place, Edinburgh—Seeds for the Vegetable and Flower Garden.
W. P. LAIRD & SINCLAIR, Dundee—Vegetable and Flower Seeds.
JOHN WATERER & SONS, Bagshot—Rhododendrons and other Hardy Plants.
GEORGE COOLING & SON, Bath—Vegetable and Flower Seeds.
S. DIXON & Co., 34, Moorgate Street, E.C.—Vegetable and Flower Seeds, and Amateurs' Guide.
JOHN LAING & Co., Forest Hill, London, S.E.—Garden and Farm Seeds, &c.
C. FIDLER, Reading—Seed Potatoes.
RAFFAELLO MERATELLI, 18, Via Della Mattonaia, Florence—Descriptive Catalogue of Camellias.
COMMUNICATIONS RECEIVED.—T. Christy (many thanks).—H. N. M. King.—J. Hughes.—S. H. F. K.—W. H. C.—W. D.—A. P.—H. E.—H. G.—Heath & Son.—J. B.—J. T. B.—C. J. S.—Paris.—F. S.—W. H. C.—Geneva.—P. B.—S. M.—J. S.—P. W.—W. G. H.—H. W. H. C. G. N.—Hate.—R. D.—W. M.—H. E.—W. Mick.

Markets.

COVENT GARDEN, January 19.

Our market remains the same as last week, with a continued demand for good Apples. James Webber, Wholesale Apple Market.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with columns for plant names and prices. Includes Aralia Sieboldii, Arabis var. (golden), Begonias, Bouvardia, Cyclamen, Dracena terminalis, Euphorbia, Eucyamus, Evergreen, Ferns, Ficus, Foliage Plants, Hyacinths, Lily of the Valley, Myrtles, Palms, Pelargoniums, Primula, Scabiosa, Tulips.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with columns for flower names and prices. Includes Abutilon, Azalea, Bouvardia, Carnations, Cyclamen, Euphyllium, Gardenias, Hyacinths, Primula, Tropaeolum, Violets, Lily of Val.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with columns for vegetable names and prices. Includes Artichokes, Lettuce, French Beans, Onions, Peas, Potatoes, Radishes, Rhubarb, Spinach, Tomatoes, Kent Regents, Champignons, Magnum Bonitas.

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with columns for fruit names and prices. Includes Apples, Grapes, Kent Cobs, Lemons, Peas, Pine-apples.

SEEDS.

LONDON: Jan. 18.—Owing to the weather being so dark and foggy the market to-day opened with extreme quietness. All kinds of Clover seed, however, keep firm in value. For both American and Canadian red rather more money is asked. As regards Italian Rye-grass choice samples have now got into very narrow compass. In spring Tares the tendency is still upwards. Hemp seed being scarce for the time is dear. The trade for Canary seed is slow. John Shaw & Son, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.

At Mark Lane on Monday prices ruled fully 6d. lower for Indian Wheats. The white descriptions of foreign were also generally rather easier where sold. Other sorts were about as before, but with very little doing. Flour was in limited demand, at about previous rates. The official top price of town flour has been reduced 3s. 6d. to 47s. per cwt. Fine quality Barley upheld late value, but grinding sorts were barely supported. Common Russian Oats were 3d. to 6d. lower, with a dull sale, but good qualities were steady. Beans and Peas were steady, and Maize, with large supplies, was 3d. to 6d. easier on the week.—On Wednesday, so far as English Wheat is concerned, there was no disposition to accept lower bids on the spot. Foreign Wheats on the spot were dull and nominally unaltered. Barley was unaltered on the spot, but weaker forward. Maize on the spot was quieter, off-ast firm, and forward weaker. There was rather a steadier tone in the Oat trade, though business was restricted.—Average prices of corn for the week ending January 14:—Wheat, 45s. 5d.; Barley, 32s. 6d.; Oats, 20s. 3d. For the corresponding period last year:—Wheat, 42s. 1d.; Barley, 32s. 1d.; Oats, 19s. 3d.

CATTLE.

At the Metropolitan Market on Monday trade in beasts was slow, but little change occurred in prices. Sheep were in short supply; choice qualities sold well and the general trade was steady. Calves brought previous value. Quotations.—Beasts, 4s. to 4s. 8d., and 5s. to 5s. 10d. (in some cases 6s.); calves, 1s. 8d. to 1s. 6d.; sheep, 5s. to 6s., and 6s. 6d. to 7s. 4d.—Thursday's trade was very quiet, and without feature. Supplies were short, but in the absence of demand sufficient, both beasts and sheep being nominally the same as on Monday. Calves were unaltered.

HAY.

Tuesday's Whitechapel Market report states that with large supplies, of hay more especially, trade was dull. Quotations:—Prime Clover, 120s. to 136s.; inferior, 120s. to 95s.; prime meadow hay, 115s. to 126s.; inferior, 55s. to 90s.; and straw, 30s. to 54s. per load.—On Thursday there was a moderate supply of fodder on sale. The trade was dull for Clover and hay, and prices were lower for meadow hay, but for straw stiffer.—Cumberland Market quotations:—Superior meadow hay, 120s. to 130s.; inferior, 84s. to 100s.; superior Clover, 126s. to 136s.; inferior, 90s. to 110s.; and straw, 50s. to 56s. per load.

SPITALFIELDS.

The Borough and Spitalfields Markets reports state that foreign arrivals continue moderate, but English supplies are fully adequate to the demand, which is dull, at the following quotations:—Best Scotch, 75s. to 110s.; Scotch, 60s. to 80s.; Essex, 60s. to 70s.; Roscoff, 100s. per ton; German reeds, 3s. 6d. to 4s. 6d. per bag.—The imports into London last week were as follows:—1600 bags Hamburg, 664 tons Roscoff, 50 casks Dundee, 73 tons Earleury, 91 tons Pampul, and 113 tons Dunkirk.

COALS.

The following are the prices current at market during the week:—Beaside West Hartley, 14s. 3d.; East Wylam, 17s.; Ravensworth West Hartley, 14s. 3d.; Walls End—Hetton, 17s. 6d.; Hetton Lyons, 16s. 3d.; Thorns, 13s. 6d.; Lambton, 16s. 6d.; Oriental Hartlepool, 16s. 6d. and 17s. 6d.; Wear, 15s. 6d.; South Hetton, 17s.; Chilton Tees, 15s. 6d. and 16s. 6d.; Tees, 17s. 3d.; Caradoc, 16s. 6d.; East Hartlepool, 15s. 6d.

Government Stock.—Consols closed on Monday at 100 to 100 1/2 for delivery, and 100 1/2 to 100 1/4 for the account; the same figures were recorded at the close on Tuesday. On Wednesday Consols for delivery closed at 100 1/2 to 100 1/4, and at 100 1/4 to 100 1/2 for the account. Thursday's final quotations show prices to be easier for delivery, and 1/2 lower for the account.

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POPLARS, large Standard Canadian and Lombardy; fine LIMES, LABURNUMS, Paul's Double Scarlet, Double Puck, and Single Scarlet HAWTHORNS, Chichester ELMs, &c.; Purple BEECH—fine moved stuff.

ALDER, large, 5 to 8 feet; SYCAMORE, 3 to 4 feet; LARCH, 1 to 2 1/2 feet; Spanish CHESTNUT, 2 to 3 feet; ASH, &c.

QUICK, fine transplanted, for Hedges.

Standard and Half-Standard H.P. ROSES, well rooted.

EVERGREENS.

Fine, clean, bushy, Common LAURELS, 1 to 2 feet; Claucsson LAURELS, 2 to 3 feet; AUCUBA JAPONICA, 2 to 3 feet, and extra large specimens, 4 to 6 feet; BIOTA ELEGANTISSIMA, 3 to 4 feet; YUCCA RECURVA, fine specimens.

CAMELLIAS, in bud, fine home-grown plants, G. B. & Co.'s selection, 30s., 42s., and 60s. per doz.

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P.S.—WANTED, PINUS AUSTRIACA, bushy, 3 to 4 ft.; EUONYMUS EUROPEUS, 3 to 5 feet; Evergreen OAKS, 3 to 4 feet. Samples required per South-Eastern Railway to Maidstone.

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Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz: 15 per Cent. for Cash with order, 10 per Cent. for Cash within One Month of date of invoice, 5 per Cent. for Cash within Three Months of date of invoice. After Three months No discount can be allowed.

The following are some of the Goods they hold large and very fine Stocks of:—

- ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9s. to 15s. per dozen, 63s. to 100s. per 100, £68 to £60 per 1000.
 - .. Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 100.
 - NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
 - .. French Varieties of 1880, 18s. per dozen, 130s. per 100.
 - CURRANTS—Black, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100; cheaper by the 1000.
 - NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6d. to 9s. per dozen, 40s. to 60s. per 100, £68 to £75 per 1000.
 - ASPARAGUS—Extra fine, strong planting roots, 2s. 6d. to 3s. 6d. per 100, 20s. to 30s. per 1000.
 - HERBS of many kinds, 3s. to 6s. per dozen.
 - PLUM (Prunus)—Variegated, common (P. domestica variegata), 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.
 - ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
 - POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 240s. per 1000.
 - WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
 - .. Corulan, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per doz., 25s. per 100; 10 to 12 feet, 6s. per doz.
 - ASH—(Fraxinus excelsior) atrovirens, 3 to 4 feet, 12s. per dozen; aucupifolia, 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 15s. per dozen; 8 to 10 feet, 21s. per dozen.
 - .. spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 21s. per dozen.
 - BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen; 6 to 8 feet 24s. per dozen.
 - .. Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 15s. per dozen; 6 to 8 feet, 24s. per dozen; 8 to 10 feet, 30s. per dozen.
 - .. Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 15s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
 - .. Purple-leaved, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 75s. per 100; 5 to 6 feet, 15s. per dozen, 120s. per 100; 6 to 8 feet, 24s. per dozen.
 - .. Weeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 15s. per dozen; 6 to 8 feet, 24s. per dozen.
 - HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 3 to 4 feet, 9s. per dozen, 60s. per 100; 5 to 6 feet, 12s. per dozen, 75s. per 100.
 - .. Scarlet-flowered, 6 to 8 feet, 15s. per dozen; 8 to 10 feet, 24s. per dozen.
 - ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
 - .. Giant or Huntingdon (macrophyllus), 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
 - .. Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 15s. per dozen; 6 to 8 feet, 24s. per dozen.
 - .. Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per doz.; 12 to 15 feet, 30s. per doz.
 - POPLAR—Golden-leaved Canadian, 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
 - MAPLE—Norway (Acer platanoides), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 10s. per dozen.
 - WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
 - EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 16s. per 100.
 - ELDER—(Sambucus nigra) variegated, a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
 - .. cut-leaved—a handsome lacinated form, and like other Elms, extremely useful for ornamental planting close to the sea. 6s. per dozen, 40s. per 100.
- A slight extra charge must in most cases be made for packing. Where cash in payment of goods is sent *before the order*, the amount for postage may be towards the stamps after despatch of goods. All the above prices are subject to the discounts named at head.

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Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL
Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

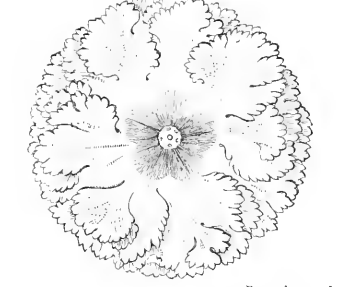
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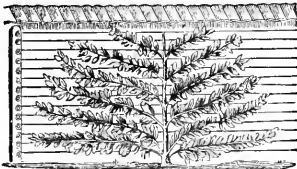
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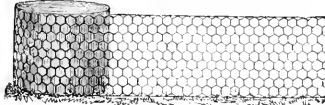
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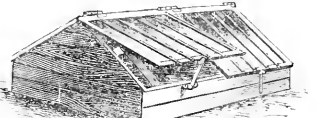
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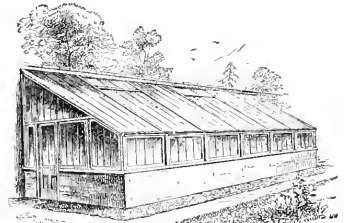
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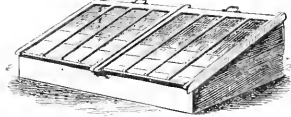
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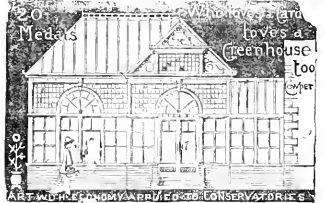
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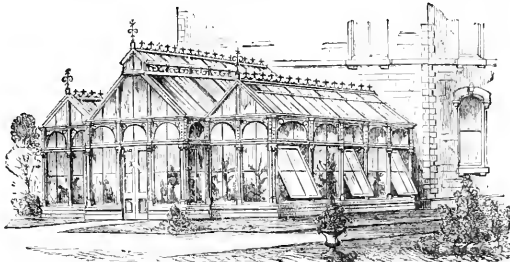
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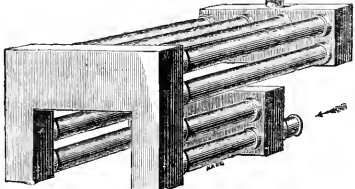
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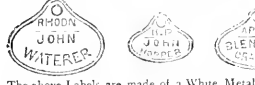
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Published by the Societe Belge de Horticulture. Edited by M. E. Pynaert.

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LANDSCAPE GARDENING. Students

to the profession can now be received in the CRYSTAL PALACE COMPANY'S SCHOOL OF GARDENING.

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—Must be competent—a good General Propagator of Hard and Softwooded stuff, to include Azaleas, Camellias, Double Primulas, &c.

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where plants are required in quantity. Must be well acquainted with the strict investigation.

WANTED, IMMEDIATELY, a young MAN

with a knowledge of Herbaceous and Alpine Plants, and to fill up spare time in the Houses.

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WANTED, by HUGH LOW AND CO., for a New Nursery they are forming near Enfield, an active MAN.

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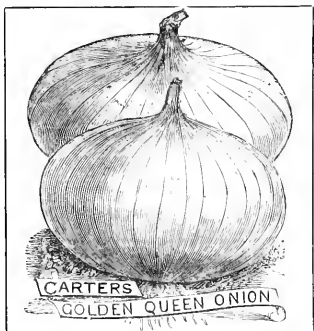
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DUKE OF ALBANY,

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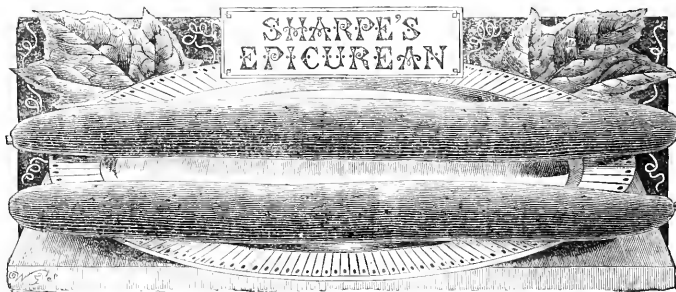
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Seedling from Vick's Criterion. Fruit, smooth, elegantly oval, and produced in immense bunches. Colour, bright red, with a tinge of blue. In size and appearance resembling a Victoria Plum. It is a vigorous grower, requires no stopping, producing a bunch of fruit at every joint, and is well adapted for training up the raters in the manner of a Grape Vine. It is admirably adapted for winter fruiting, and for summer fruiting it is one of the best. From the quantity of handsome fruit it produces and its exquisite flavour, it is certain to become an universal favourite, and

TOMATOS ALL THE YEAR ROUND can easily be secured by cultivating the VICTORIA.

Price, 1s. per Packet.



This, the perfection of frame Cucumbers, is a cross between Telegraph and Tender and True; in form it has a resemblance to Telegraph, but is of a darker green and much longer—fruit 31 inches in length having been cut from it. In flavour it is superior to Tender and True, but its chief recommendation is its marvellous productiveness, in which it excels everything that has come under our notice, as many as 300 and 400 fruit having been cut at one time from 12 plants, in a 3-light pit, 3-quarter span.

For succession it is unequalled, bearing as abundantly at Christmas as Midsummer—and in addition to its handsome form and lovely colour, it is a variety that seldom produces seeds, not one in a hundred containing a trace. This peculiarity has delayed sending out the stock for a year or two, and at one time it was so nearly lost that only by striking cuttings could it be preserved.

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CHARLES SHARPE & Co., SLEAFORD.

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"EARLIEST OF ALL" PEA

(LANTON).

Dwarf. Price, 3s. 6d. seed half-pint.

Opinions of Eminent Authorities:—

Mr. BARRON, Royal Horticultural Garden, Chiswick, writes:—"When I had the pleasure of visiting your Seed Farm last summer I was very highly pleased with the appearance of a Pea which very appropriately bore the name of Earliest of All, and it was not only a most cropper, the pods of good size, fine colour, and the quality, when cooked, really excellent. It seems to me that this will prove to be a very valuable and useful early Pea."

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For best Twenty-five Pods of this Pea at the Royal Horticultural Society, June 27.—1st Prize, 31s. 6d.; 2d, 21s.]

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Per packet, 1s.

"Enormously productive. The fruit of one plant 37 lb. 7 oz."

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For this Tomato at the Royal Horticultural Society, July 25.—The Heaviest Fruit—1st Prize, 21s.; 2d, 10s. 6d. The Handsomest Dish of Nine Fruits—1st, 21s.; 2d, 10s. 6d.

QUEEN OF THE VALLEY POTATO

7 lb., 6s.; half bushel, 21s.; bushel, 31s. 6d.; three bushels, 80s.

"But, alas! for the mutability of earthly honours; even the Prime Minister had so unexpectedly popularised the 21-oz. tuber... the Messrs. Hooper, of Covent Garden, had exhibited at the Crystal Palace a regular whooper, against which even 21-oz. tubers became pigmies, for this huge specimen of the progeny of the Queen of the Valley weighed 2½ lb., or 49 oz."

Then ye wish that mankind to aid With idle dreams like Plato's, Betake ye rather to the spade, And plant some large Famos.

PRIZES

For this Potato at the Royal Horticultural Society, October 10.—For the Heaviest Tuber, 1st, 21s.; 2d, 10s. 6d. For the Best Nine Tubers, 1st, 15s.; 2d, 7s. 6d.

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Half-ounce Packets, 1s.; one ounce, 1s. 6d.

"Taken invariably the 1st prize with the following astonishing particulars. The bunches were 10 inches long; in 1875 fifty heads weighed 7 lb. 2 in 1876, 7½ lb.; in 1877, 8 lb. 14 oz.; in 1878, 8 lb 2 oz.; in 1879, 100 heads 15½ lb."—The Gardener.

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OUR ANNUAL DESCRIPTIVE CATALOGUE of the above is published; it contains select lists of Kitchen Garden and Flower Seeds, besides all the leading "Novelties" for 1882. Post free on application. OSBORN AND SONS, The Fulham Nurseries, London, S.W.

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1-yr. 1-yr. transplanted... 3 6 per 1000. Twice transplanted, 6 to 12 in. 10 6 " Twice transplanted, 9 to 15 in. 18 0 "

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HAVE FURNISHED THEIR COMMISSIONERS OF
AMERICAN TUBEROSES, both the ordinary Double variety and the Dwarf Double Pearl.
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LEAF. Prices moderate.
J. MARTIN, Hollycote House, Emmeth, Wisbech.

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NATIVE LARCH.—Splendid stuff, well
rooted, transplanted, 2 to 3 feet. Half a million to offer.
Unprecedented low prices. Samples, with price on application to
WILLIAM BOSCHON, Manor Farm Nurseries, Carthorpe,
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Strong Transplanted Larch.
LARCH, 1½ to 2, 2 to 3, and 3 to 4 feet;
now being sent out as fine trees as can be grown. Prices
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Apply to
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J. C. WHEELER AND SON can offer 2-yr.
Seedlings of MAHONIA AQUIFOLIA and BER-
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PERPETUAL BEARER
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This valuable New Pea is now being distributed by the undersigned, and can be obtained from all Seedsmen and Florists in the United Kingdom.

Price, per sealed packet, 3s. 6d.

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SPIRÆA PALMATA, the largest stock of forcing plants in Europe.
DWARF ROSES, good, 9s. per dozen.
RHODODENDRONS, covered with buds, for forcing.
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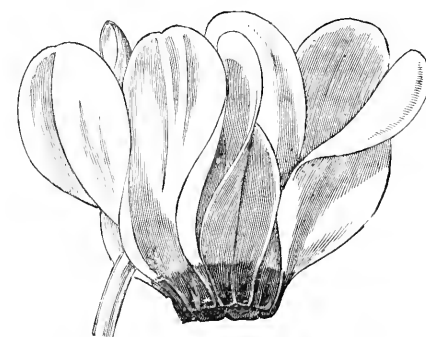
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12, OLD MILLGATE, MANCHESTER
Offer the following extra choice Seeds:—

BEET—D & R's Improved Dwarf-top Black, per oz.	1/6
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Having for many years devoted special attention to the improvement of the Cyclamen persicum, I had, a few years ago, the honour to introduce the improved types of Giant Cyclamen, with their splendid reflexed petals. They are now pronounced by growers all over the world (see Press Reports and Testimonials) to be the finest strain in cultivation. I still assiduously continue to bestow the greatest care to select such plants of these magnificent strains as are most suitable for the production of seed. My strains this year are without exception the finest ever offered.
The difference in price applies to quantity, the quality of all being alike.

WILLIAMS' CYCLAMEN PERSICUM GIGANTEUM	Per Packet—2 s. d.
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.. ..	2s. 6d. and 3 6
WILLIAMS' CYCLAMEN PERSICUM BRILLIANT	2s. 6d. and 3 6
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WILLIAMS' CYCLAMEN PERSICUM—superb strain
..
WILLIAMS' CYCLAMEN PERSICUM—superb strain, six vars.
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WILLIAMS' English-grown SEEDLING GLADIOLI—suitable for masses and borders 3 0
WILLIAMS' GLADIOLUS BRENCHLEYENSIS—the most showy flower of our gardens 2 6

For Descriptions see ILLUSTRATED SEED CATALOGUE. Post-free on application.

B. S. WILLIAMS,
SEED MERCHANT and NURSERYMAN,
VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

MAGNIFICENT IMPORTATION OF BURMESE ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on MONDAY, January 30, at half-past 12 o'Clock precisely, a

GRAND IMPORTATION of ORCHIDS from BURMAH,

consisting of large quantities of DENDROBIUM WARDIANUM, DENDROBIUM CRASSINODE BARBERIANUM, DENDROBIUM FALCONERI, ten plants of DENDROBIUM RHODOPTERYGIUM, and other fine DENDROBES; also a large lot of DENDROCHILUM FILIFORME, CATTLEYA DOLOSA, AERIDES QUINQUEVULNERUM, and other importations.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

DENDROBIUM WARDIANUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 1, at half-past 12 o'Clock precisely, by order of Messrs. H. Low & Co., a large quantity of very choice Burmese ORCHIDS—the First Consignment of the Season from Mr. BOXALL—comprising:—

DENDROBIUM WARDIANUM and DENDROBIUM CRASSINODE, the unusually fine varieties sent by Mr. BOXALL some years since;

D. DEVONIANUM, D. FALCONERI, D. PRIMULINUM, D. THYSIFIORUM, D. CHRYSANTHUM, and D. either SUAVISIMUM or CHRYSOTOXUM.

The plants are to hand in splendid condition, and amongst them are numerous fine specimens.

At the same time will be offered strong Imported Plants of CATTLEYA LABIATA VARIETIES, many of which were seen by the Collector in flower in November last and marked by him as specially fine; also strong plants of ONCIDIUM MARSHALLIANUM.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CATTLEYA LABIATA PERCIVALIANA
(Rchb. f.)

TRUE AUTUMN-FLOWERING LABIATA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by Order of Mr. F. SANDER, on THURSDAY, February 23, a wonderful Importation of this magnificent CATTLEYA. It is well known there are numerous varieties among the old Cattleya labiata, such as PESCATOREI, PICTA, &c., and the varied Bulb show that many varieties are among the lots offered. It is true Autumn-flowering. Flowers will be on view of this the finest Brazilian CATTLEYA: sepals and petals broad, deep rose or light purple; lip broad, large, splendidly fringed with deep velvety-purple: in some varieties quite one half of the lip is dark; throat golden-yellow. We have never previously seen imported a Cattleya so floriferous: there is hardly a Bulb which has not flowered, and whose spike does not show three and four flower seats. Mr. Seidl, the lucky discoverer, states that one mass alone had 380 flowers fully expanded when collected, and many others had faded. This piece had to be cut into four, to facilitate its transport to the far distant coast. We are extremely pleased at being able to offer it to the public, having looked for it without success for many years. The green and red-leaved varieties are among the importation, which is altogether in simply superb condition. The whole will be given into Mr. Stevens' hands, and comprise all that could be found, and none sold privately; but Mr. Sander earnestly invites prior inspection at the St. Alban's Nurseries, which are easily reached by the Midland, London and North-Western, or Great Northern Railways, from any of the Metropolitan Stations, Liverpool Street, King's Cross, or from St. Pancras, by fast train in half an hour.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

SPECIAL NOTICE.

B. S. WILLIAMS

Takes the opportunity of announcing to his numerous Customers that he has just posted to them his Illustrated SEED CATALOGUE for 1882. Another Copy will be forwarded on application, to any who may not yet have received one.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS, IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

Carter's HIGH CLASS SEEDS IN USE THROUGHOUT THE WORLD. Illustrated Catalogues gratis and post-free. THE QUEEN'S SEEDSMEN H.R.H. THE PRINCE OF WALES TO 237 High Holborn, London, W.C.

T O T H E T R A D E

PRIZETAKER PEAS. WOOD'S FRAME RADISH. HOLLOW-CROWN PARSNIP. WHITE SPANISH ONION. ROUND LEAF SPINACH, extra.

Having surplus stock of the above, we shall be pleased to make special offers.

HOWCROFT & WATKINS, SEED MERCHANTS, COVENT GARDEN, LONDON.

GEO. JACKMAN & SON, (ESTABLISHED 1810.)

Cultivators of FRUIT and FOREST TREES, Evergreen and Flowering TREES and SHRUBS, ROSES, RHODODENDRONS, Climbers and Hardy Climbers.

THE GLEMATIS A SPECIALITY.

Descriptive Priced Catalogues free. WOKING NURSERY, SURREY.

SPECIAL OFFER. LARCH, 1 1/2 to 2 feet, 18s. per 1000, do. 2 to 3 feet, 20s. per 1000. ASH, Common, 2 to 3 feet, 18s. per 1000. SPRUCE, F. Hk. 15 to 20 inches, 45s. per 1000. PINE, Corsican, 12 to 18 inches, 50s. per 1000. PRIVET, Oval leaved, 1 1/2 to 2 feet, 35s. per 1000. Evergreen, 1 1/2 to 2 feet, 45s. per 1000. POPLAR, Black Italian, 9 to 10 feet, 10s. per 1000. CHESTNUT, Horse, 6 to 8 feet, 50s. per 1000. HENRY DERYSHIRE, Darley Hillside Nursery, near Mallock, Derbyshire.

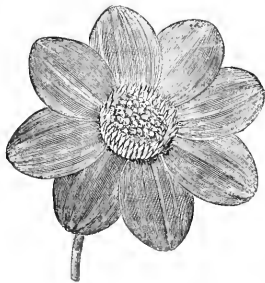
GENUINE SEEDS.



JAMES VEITCH & SONS, ROYAL EXOTIC NURSERY, CHELSEA, LONDON, S.W.

DAHIA, SINGLE.

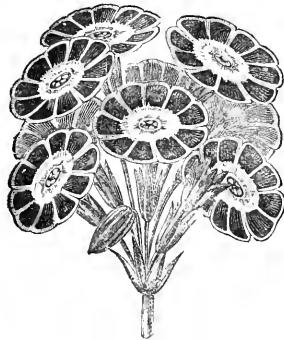
Saved from the new, distinct, and improved hybrids raised by Thomas Moore, Esq., of the Chelsea Botanic Gardens figured and described in the *Gardeners' Chronicle*, Octo. 22, 1881, and illustrated in the *Florist and Poinsettia*, July, 1880. They comprise the *Gracilis* and *Coccinea* types of this most beautiful border plant, the flowers being of long duration in bloom and extremely valuable for cutting. For descriptions see SEED CATALOGUE for 1882.



- DAHIA GRACILIS, finest new hybrids .. per pkt. 3. 6
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James Veitch & Sons have given very particular attention to the hybridising of the new Tuberos-rooted Begonias. The seed now offered is the produce of the very finest kinds. The colours of the flowers are very brilliant, and comprise many beautiful shades of scarlet, crimson, orange, rose, &c. In habit the plants are dwarf, compact, and very free blooming, the individual flowers being of large size and good substance, and this strain is undoubtedly the finest that has yet been offered to the public. Per packet, 1s. 6d. and 2s. 6d.

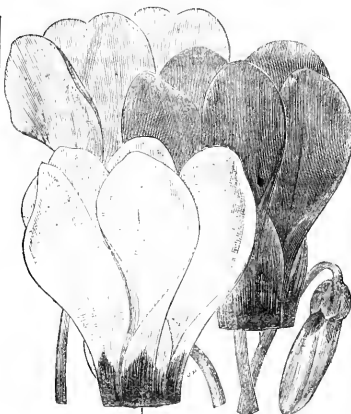


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Saved from our magnificent collection grown at our Chelsea Nursery, from which so many exceedingly beautiful varieties of rich colour and improved shape have been selected by the Royal Horticultural Society for First-class Certificates. Per pkt., 2s. 6d.



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Saved from the finest varieties, and cannot fail to produce flowers of the finest substance and of the most charming and diversified shades of colour. Per packet, 2s. 6d.

CYCLAMEN PERSICUM GRANDIFLORUM, a very large and greatly improved variety. The flowers measure 2 to 2½ inches in length, and are of fine form, with very broad massive petals. First-class Certificate. Per packet, 2s. 6d.

Our *Cyclamens* were awarded a SPECIAL CERTIFICATE by the ROYAL HORTICULTURAL SOCIETY.

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Our magnificent collection of this lovely decorative plant is well known. The seed now offered has been saved from the finest varieties, specially selected for that purpose, and will produce flowers of the finest quality, embracing all the fine tints of colour usually found in the genus. Per packet, 2s. 6d.



CELOSLIA PYRAMIDALIS.

- CELOSLIA PYRAMIDALIS AUREA .. Per packet—s. d.
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This fine strain has been specially selected by us while in bloom, and cannot be surpassed in doubleness, variety, and brilliancy of colour, form of flower, or habit of growth. Finest mixed colours. Per packet, 2s. 6d.

PRIMULA, VEITCH'S SCARLET GEM.

This beautiful variety cannot be too highly recommended, the brilliancy of colouring, and form and quality of the flowers placing it on an equality with our superb strains of Red and White Primulas, which are acknowledged to be the finest in cultivation. The flowers are of a charming shade of scarlet, of fine substance, and beautifully fringed, and the plant is of fine habit, the flowers being thrown well above the foliage.

Per packet, 2s. 6d.



PRIMULA SINENSIS FIMBRIATA RUBRA, Veitch's superb fringed, red. Per packet, 2s. 6d.

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Saved from plants which have carried off the leading prizes at the chief Metropolitan Exhibitions, remarkable for its free flowering qualities, and the compact habit of its growth. The flowers are exceedingly rich and varied in colour, beautifully spotted and blotched, and of remarkably fine form and substance. Per packet, 2s. 6d.

PETUNIA VEITCH'S SUPERB STRIPED.

Selected for many years with great care; very constant, and produces beautifully striped and spotted flowers. Per packet, 1s.



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A fine selected strain of this favourite flower. Per pkt. 1s. 6d.

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A very dwarf variety, of compact habit, admirably adapted for spring bedding. The flowers are of medium size, long duration, and good substance, and are produced in great profusion. The plant is perfectly hardy, and comes into bloom very early in spring, its snow-white flowers making a fine display during the spring and summer months. Per packet, 1s.

WALLFLOWER, Veitch's Dwarf Dark Red.

A new and very superior selection, of rich dark colour, dwarf growth and bushy habit, fine for spring gardening. Per pkt., 1s.

Seed CATALOGUE for 1882, Post-free on application.

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

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important additions to their
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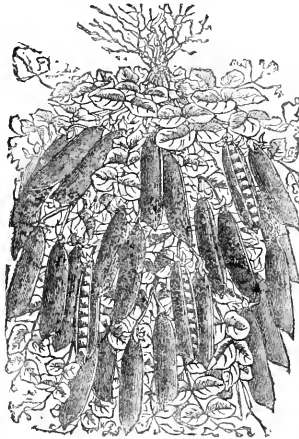
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SUTTONS' NOVELTIES.

THE BEST OF THE SEASON.

NOTICE.
Messrs. Suttons' Novelties are subjected to
careful test trials, and all those offered this sea-
son are of sterling merit and perfectly distinct.

The Best New Pea of the Season.



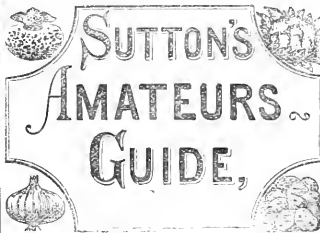
AMERICAN WONDER PEA.

This valuable new early dwarf Wrinkled Pea was introduced by us last season. It is as early as our Kingleader, which is still the foremost Round White Pea. The haulm is thickly covered with fine pods, each containing from seven to ten Peas of delicious flavour. Height 10 to 12 inches. It is specially suited for large gardens, because it is unrivalled for forcing, and is far in advance of any previous introduction for a very early crop. Also unsurpassed for the Amateur's Garden because of its remarkable earliness, and the fact that, although it occupies only half the space of some other varieties, it produces double the crop.
Price, 6s. per quart, 2s. 6d. per pint.

From Mr. T. LOCKE, Gardener to the Right Hon. Lord O. FitzGerald.

"American Wonder" is exceedingly useful for forcing; only 10 inches high, producing a good crop of fine large Peas, of excellent flavour. Sown in a cold frame March 10, was ready for use May 10. For forcing it is far superior to "Little Gem" or "Tom Thumb."

For full particulars of the above and other Choice Varieties, see



The most Practical Work on Gardening yet published.

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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 28, 1882.

THE NEW FRUITS OF 1881.

IN respect of new fruits the past year, like many of its immediate predecessors, was not remarkable for any very marked or great addition to our stock. It may be described as, on the whole, a fruitful year, although, singularly enough, the greatest fruit-growing districts were the worst favoured. Apples were by far the most abundant, the crops generally being good and the individual fruits especially so. As a consequence, many of the shy-bearing, although old and recognised sorts, were brought very prominently under notice. These, however, can scarcely be deemed novelties—or, at all events, new fruits. There is one Apple, however, which stands prominently to the front, and as a new fruit, too, although it has been in cultivation in certain districts for a good many years, and its merits have been well known—we allude to Lane's Prince Albert, which during the past year has received the approbation of the Royal Horticultural Society as being one of the largest, most handsome, and best kitchen Apples yet introduced; and having noted its extraordinary cropping qualities at Derkhamstead we can most thoroughly recommend it. We would like also to speak favourably of Landsberger Reimette, a German variety, somewhat after the nature of Mank's Codlin, but extremely handsome, and of a wondrous freshness and richness of flesh when gathered fresh from the tree Kirke's Schöne Rambour, another German fruit, having a strong resemblance to Cox's Pomona, but even more handsome than that popular variety, the skin being more golden and keeping longer in good condition, deserves mention. A few very promising seedlings came under notice, but none of any very decided merit.

Of Pears the number of new aspirants was not nearly so numerous as usual, and it may be remarked that in general they were not very good. The only noticeable really new Pear was a seedling raised by Col. Trevor Clarke, from Marie Louise, and named Welton Hall Baurré. The fruit is of medium size, of greenish colour, and of very fair quality for a Pear grown in that somewhat cold locality. It is to be hoped that it may prove valuable for northern latitudes. We note also as one of the largest and most handsome Pears in cultivation a comparatively new variety named Marie Benoist, brought under notice by Mr. Haycock during the past season. It is wital of good quality, and will, we have no doubt, become a great favourite, especially for the exhibition table.

Of Cherries, Mr. Rivers gives us Guigne d'Annonay, a remarkably early variety, greatly resembling in appearance the Black Circassian. Of Plums there was no actual novelty, but Grand Duke—the latest novelty, it may be remarked—proved especially good. Amongst black Currants we have a great addition in the Black Champion of Mr. Dunnett, the berries of which are not only very large, but of extra quality, and hang well; and from America we hear of an extraordinary new red Currant, named Fay's New Prolific, with which we hope

to become better acquainted. Amongst Melons there is always a full supply of new names and never-ending variety, if there is little permanent improvement. At the present time we need only allude to High Cross Hybrid, from Mr. Hopkins, a handsome netted variety, with deep green flesh, and of excellent quality. The Newton Count, of Carmichael, may be named as very promising.

Grapes do not furnish anything remarkable as regards novelty this season, almost the only aspirant being Ollerheid's White. This is a large-bunched white Grape, intermediate in character between Trebbiano and Foster's White Seedling. If it should prove as early and as good a quality as the latter, and producing the big bunches and keeping as well as the former, it will prove an acquisition.



New Garden Plants.

PIPER BORNEENSE, *N. E. Brown.*

This is a new Pepper, that was introduced into Messrs. Veitch & Sons' nursery last year by Mr. Curtis, who discovered it in Western Borneo. It is not a plant that has any very special attractions to recommend it to the notice of horticulturalists generally, though it might find favour with some. The plant is of dwarf habit, with a thick hairy stem (made up of short internodes), well furnished with good-sized leaves, wrinkled and glabrous on the upper surface, hairy-pubescent beneath, 11-nerved, of a rich dark green, with broad but faint silvery-grey stripes between the principal nerves. If these stripes were more distinct and brighter, which it is possible they may become under the influence of more sunlight in summer, the plant would then be very ornamental and useful for decorative purposes.

Specifically Piper borneense is nearly related to the Javanese Piper muricatum, Bl., from which species it may readily be distinguished by its stouter stem with very much shorter internodes, rather differently shaped leaves, and axillary peduncles. The following is a description of Mr. Veitch's plant:—

Plant 9–12 inches high. **Dioecious.** Stem stout, terete, 4–6 lines thick, herbaceous, green, densely hairy, with rather long soft hairs, internodes $\frac{1}{2}$ –1 inch long. Leaves alternate, petioles stout, 1 inch long, green, densely hairy like the stem, vaginate nearly to the apex, vagina of a paler green, soon turning black, pubescent on the outside. Lamina elliptic or oblong-elliptic, acute, auriculate-cordate at the somewhat narrowed base, auricles rounded, upper surface glabrous, bullate-rugose, of a very dark green, with a somewhat indistinct, broad, silvery-grey stripe between each pair of lateral nerves, under-surface pale green, softly hairy, pubescent. Midrib slightly prominent above, hairy towards the base, very prominent beneath, as are all the other nerves and veins, primary lateral nerves five on each side of the midrib (the lowest one in the auricle on each side very small) opposite, all arising from the midrib below the middle of the leaf, most of them at an acute angle, they are curved and disappear in the margin in the upper part of the leaf, except the innermost pair which run into the apex; secondary veins transverse. Peduncles axillary, stout, 1–1 $\frac{1}{2}$ inch long, pale green, hairy. Spike cylindrical, $\frac{2}{3}$ – $\frac{3}{4}$ inches long, $\frac{1}{2}$ lines thick; bracts few, petalate, subsessile, glabrous; ovary sessile, glabrous; style obsolete, stigma 3–5. The rachis beneath the bracts is pubescent.

I have only seen the female plant, and the flower-spikes in this are at first green, soon changing to whitish; but this change of colour may not be the normal condition, but is perhaps accounted for by the abortion of the ovaries for want of the male plant, as the whole inflorescence appears rather soon to disarticulate at the base of the peduncle. If this species could be successfully hybridized by a variegated

Peperomia, such as P. Saundersii, a very interesting hybrid might result. Perhaps Messrs. Veitch will take the hint here given. *N. E. Brown.*

CHLOROPHYTUM KIRKII, *Baker, n. sp.**

This is a new species of the Antheroid genus, Chlorophytum, sent by Sir John Kirk from East Tropical Africa, which flowered for the first time at Kew this winter. It is nearly allied to the Cape C. elatum, K. Br., of which a form with variegated leaves is now often to be seen in gardens labelled Anthericum, or Phalangium variegatum, under which former name it is figured at tab. 152 of the new series of the *Floral Magazine*.

Description.—Root of long cylindrical fleshy fibres. Prostrate leaves 8–12 to a stem, subultrioribus, lanceolate, sessile, bright green, $\frac{1}{2}$ –2 feet long, 1– $\frac{1}{4}$ inch broad, with 12–14 hyaline chlorenchlorens on each side of the distinct midrib. Peduncle 1 foot long, simple, lorate, furnished with three or four erect much reduced leaves. Flowers in a moderately dense erect subcylindrical raceme, 3–4 inches long; pedicels mostly in pairs, $\frac{1}{4}$ inch long, jointed at the tip; bracts lanceolate, scarious. Perianth white, $\frac{1}{4}$ inch long; segments oblong, the three outer tinted green outside. Stamens as long as the perianth; ovary green, globose; style white, filiform, $\frac{1}{4}$ inch long. *J. G. Baker.*

BROADLANDS.

THE Hampshire residence of Lord Mount-Temple, and formerly that of his illustrious step-father, the late Lord Palmerston, who, in its improvement and management showed that vigorous energy which distinguished him in public life. It is situate on the sloping banks of the clear-running Test within a mile south-west of the lussy semi-agricultural and semi-manufacturing town of Romsey.

The park, of an irregular shape, extends about $\frac{1}{4}$ mile to the River Test, which here unites its various branches into a single channel, and spreads out into a broad expanse of ornamental water. This park exhibits many noble trees of various kinds scattered singly or in groups, arranged with exquisite taste and effect; especially noticeable being several fine specimens of the Cedar of Lebanon. On the side that abuts on Romsey it is about half a mile in length. The width of the valley of the Test is here almost three-quarters of a mile, if measured from the commencement of the rise on either side. Above Romsey it extends westward into a sort of basin, and again widens in the same direction opposite the middle of the entire length of Broadlands. Between these points it is narrowed by hills that jut out in gentle swellings, one of which slopes, lawn-like, towards the meadows, while the other stands out like a fortress made by Nature, and indeed bears the marks of having been once artificially fortified upon all except its steepest (west) side. The summit is remarkably flat, and covered with a green turf as soft to the tread as velvet. Mingled with the grass is an abundance of wild Thyme and other aromatic herbage, so that on a fine summer's day the whole place glitters with the glance of tiny wings, and the air is alive with the busy hum of bees, attracted thither by the fragrance. From the top of this eminence the views are exceedingly beautiful, and their effect is not a little heightened by being broken and separated by clumps of trees that are variously dispersed upon the crown and margin of the hill. These views are principally four, though, of course, they may yet be diversified if the spectators take up other positions. First, upon the right hand is a prospect down the valley and across Southampton Water to the New Forest; perhaps it may even extend, as the peasants of the neighbourhood say it does, to the Isle of Wight; but for this the day must be fine, and the atmosphere remarkably free from vapour; it may be doubted, too, whether much would be gained to the spectator by this extension of prospect, for nothing can be well imagined more beautiful than the nearer landscape, when the clouds, under the influence of a gentle west wind, are flinging their light shadows upon it, and for a moment interrupting the sunshine. Secondly, to the left of the scene just mentioned, is

the view of Broadlands, forming, with its home park, a graceful contrast to the beauties of Nature. Thirdly, comes the view of Romsey (on the Salisbury and Southampton line of railway), the only objection to which is the too great remoteness of the Abley church, the most interesting feature that the town presents—a fine specimen of Norman taste and Norman skill, carefully restored a few years since. Lastly, there is the view up the valley of the Test, which here assumes the appearance of an amphitheatre, with lined wooded margins, the bright streams glittering among the fields of the freest verdure, while here and there some bright trunk of a tree stands out amongst all this life and youth like a churchyard in some crowded city, as if to remind us that the scene, after all, is fleeting.

The kitchen garden, which is situate at the east side of the mansion, is enclosed and divided into four compartments by substantially brick-built walls 10 feet high, which are covered with fruit trees of the most approved kinds, all of which—especially the Peaches and Apricots—bear ample evidence of skillful management and congenial soil. Pyramids, too, of Peas—Tilmaston Duchess and Marie Louise—are also in a flourishing state on either side of some of the walks in these well-managed gardens, and were at the time of my visit (the end of September) carrying, like most of the other fruit trees, nice crops of fine fruit. *En passant*, I may remark that Mr. Thirly (Lord Mount-Temple's gardener) uses soap-suds as an insecticide, to the efficacy of which the healthy and luxuriant foliage of the Peach and other wall trees appear testified. This is applied to the trees late in the afternoon with the syringe or garden engine, and washed off the following morning with clear water. The walks which intersect these gardens, which were judiciously cropped with vegetables, bush fruit, and Strawberries, all in a high state of cultivation, are edged with ornamental tiles, alongside which was a good well grown batch of the Vicomtesse Hellecart de Thury Strawberries in pots. In addition to the kitchen garden, which covers an area of 3 acres, there is a 3-acre orchard a short distance from the former, which is also cropped with vegetables.

The fruit and plant-houses, excepting the orangery, are located in the kitchen garden, and are some sixteen or seventeen in number, besides pits and frames, which are necessary adjuncts to all garden establishments. There is no occasion for me to particularise the houses and their occupants here further than remarking that within the last three or four years Mr. Thirly has destroyed some of the old exhausted Vines, made new borders, and planted young Vines, and in some cases renovated the old ones. Some of the former—Muscat of Alexandria—planted in 1878, were carrying big bunches to each rod, which would average 2 $\frac{1}{2}$ lb. each. In the Lady Downe's house the Vines were bearing heavy crops of good-sized, well-finished bunches; the same may be said of many of the other vineries. The condition of the trees in the Peach and Fig-houses, as also those under the new Peach-case by Mr. Messenger, of Longborough, and to which Mr. Thirly laid on hot water last autumn, augur well for this year's crops. In the plant-houses, one of which (a nice span) has been recently erected, is a general collection of clean, nicely-grown plants, principally of a decorative character, noticeable amongst which were a few downy good plants of Calanthe Veitchii, a nice piece of Peristeria elata, a grand plant of Bougainvillea glabra planted against the back wall of the furnishing-house, where it forms an arch over a recessed water tank, then it is trained partly over the roof, whilst upon a shelf in one of these houses were a few dozen pots of splendid bulbs of Anaryllis aulica being rested, and in a hot-water pit hard by a fine lot of Cyclamens, which will now, together with the numerous other winter-flowering plants which are grown at Broadlands, be making a lively display in the houses there. A fine plant of Inantophyllum minimum, just going out of flower, and 4 feet through, deserves passing notice.

Mr. Thirly speaks very highly of a small free-setting variety of Melon named Orion; it is of good flavour, and is grown largely and well at Broadlands. Before leaving the well-appointed kitchen garden, I would like to refer to a few noteworthy trees which are growing in a plot in front of the forcing-houses—I refer to the Maidenhead Tree (Salisburia adiantifolia), which at 3 feet from the ground is 7 feet in circumference, from 35 to 40 feet high, and having a spread of

* *Chlorophytum Kirkii*, Baker, n. sp.—Folius 6–10 sessilibus subultrioribus, latis 1 $\frac{1}{2}$ –2 pediculis lanceolatis; pediculis petala foliis 2–3 velle reductis erectis lanceolatis; floribus in summo hinc erectis subultrioribus dispositis; pediculis primis perianthio ovulogulis apice articulatis; bracteis lanceolatis scariosis; perianthii albi parvi segmentis oblongo-lanceolatis; perianthibus perianthio ovulogulis.

branches of 45 feet; *Magnolias* (standard) *grandiflora*, *purpurea*, and *glauca*, splendidly flowered and filling the air with their perfume.

The pleasure grounds, which are north, south, and west of the mansion, are, as already hinted, beautifully situated, and contain many interesting spots and choice trees, some of which latter are noticeable for their graceful habit of growth, and others are remarkable on account of their great size, vigour, and beauty combined. Amongst the latter are two large Elms, a well-balanced pair, growing within a few feet of each other, and which at 3 feet measured 17 feet 6 inches and 18 feet respectively, and a little way from these representatives of the forest a handsome tree of the deciduous Cypress, about 100 feet high, the trunk of which at 3 feet from the ground measured 8 feet 2 inches in circumference.

The flower garden, which is nicely laid out and enclosed by a neatly kept ornamental Yew hedge about 2 feet high, with pyramids taken up on either side the walks leading thereto, and at short intervals between, is situated immediately opposite the south front of the house, the design of which is in character with the latter. Dwarf pyramids of golden and variegated *Hollies* are planted here and there in the turf, while fine specimens of American Aloe (*Agave americana*) in square boxes, standard and pyramidally-trained *Portugal Laurels* and *Bays*—the latter fine specimens—in tubs occupied prominent positions on the walks. These, together with the masses and mixed beds of the most telling and pleasing colours, which Mr. Thibily had effectively and harmoniously arranged, and the silvery sprays from the ornamental fountain (which occupies a central position) playing in the sunshine, complete a superb picture when contrasted with the expanse of greenward and the purring waters of the Test in the foreground, the picturesque mansion, Cedars and other stately trees in the background, and the New Forest away in the distance—south. I must not omit mentioning two oblong beds, one on either side the portico at the west front of the house, from whence they had a delightful effect, and which were really good examples of carpet bedding.

The orangery, a fine structure, also in the Italian style, with a portico and circular columns at the west end, abutting on the "New Forest Vista," is a short distance south of the flower garden, 40 yards long, 22 feet wide, and during the summer and autumn months is used as a conference hall (in which conferences Lord Mount-Temple takes part) by friendly societies and working-men's institutes, to whom, upon application, the use of this "hall," together with permission to roam *ad libitum* through the picturesque and well-kept grounds, are granted. And for the special enjoyment of the younger members of society who frequent Broadlands on such occasions, swings, &c., are suspended from lofty trees with leaves—

"Speckled with crimson, spotted with green,
And shaded with hues of Paradise."

The many thousands of people who from Southampton, Portsmouth, Salisbury, and intervening districts avail themselves annually of this privilege, show by their orderly conduct and hearty enjoyment of the beauties of Broadlands how thoroughly grateful and appreciative they are of Lord and Lady Mount-Temple's kindness and liberality in placing such enjoyment within their reach. In conclusion, I may be allowed to state that upon such occasions as those referred to, Lord and Lady Mount-Temple enter into the enjoyments of those assembled, towards which, by their presence and otherwise, they have contributed so much, and to whom the lines of the poet Cowper may not inaptly be applied—

"Tis to the virtues of such men man owes
His portion in the good that Heaven bestows."

Tourist.

BEGONIA SOCOTRANA.—This pretty winter-flowering species is still producing its blossoms in abundance at Messrs. Veitch's; even very small plants flower freely as soon as they are established. There are two varieties, differing slightly in the formation of the flowers, and more so in their colour, one being of a much deeper rosy-pink colour than the other. The very distinct orbiculate leaves, and the free, dwarf habit mark this plant as a valuable acquisition. The flowers would be most useful for cutting to put in vases.

THE KINGSTON-ON-THAMES NURSERY.

This extensive and well known nursery, having several branch departments in the neighbourhood of Kingston, the property of Messrs. Thomas Jackson & Son, is advantageously situated for business, being but a few minutes' walk or drive from the principal railway station, which is in direct communication with the metropolis and but a short distance from the junction of the South-Western Railway at Surbiton. The healthy, bracing climate of a district which has grown such a popular resort for pleasure seekers need hardly be mentioned as proof that plants and trees of all kinds are in the best possible condition that a favourable soil, climate, and a strict system of cultivation can establish.

The nursery is entered from Clarence Street, or, as it is often familiarly called, the old road to London. Upon the right of the entrance gate the show-house is gay with winter flowers, *Chrysanthemums*, *Mignonette*, *Heaths*, *Epacris*, *Primulas*, and *Cyclamens*, the *Chrysanthemums* when I saw them early in December being a show in themselves, comprising every variety in cultivation that has any reputation of merit. Before proceeding to describe the occupants of the houses, which are numerous and well adapted to their work, I may remark that hard-wooded *Heaths*, *Azaleas*, and New Holland plants are a speciality of the indoor stock, the *Heaths* alone being well worth a visit to the nursery. Messrs. Jackson's successes as exhibitors at all the leading shows entitle them to a foremost place among the names of the great plant growers of the kingdom, and their manager, Mr. Puttock, who has grown most of the plants from cuttings, may well be proud of the specimens he has nursed from their infancy.

In a long lean-to house with a north aspect are some grand specimens of *Rhododendrons* Countess of Haddington, *Princess Alice*, *Dalhoussiana*, well set with buds. What ornaments such plants would make for a show-house when in bloom? Other notable plants in the same structure are choice named *Camellias* in pots, and grand specimens of *Imantophyllum* miniature. In a division set apart for propagating there is a fine display of winter flowering *Begonias*, *Euphorbia jacquiniiflora* with from three to four plants in a pot, dwarf and healthy, and showing well for flowers. These plants are found to be very useful grown in 3-inch pots. The visitor who has time for a general look round will in the ordinary course find much to interest him in the different department—now trained specimens, from the handsome pyramid to the natural bush form—now of rare and fancy *Orchid*, then of florists' flowers, as the *Cyclamen*, *Primula*, *Pelargonium*, and *Bouvardia*.

There is such a thing as making a nursery interesting by arrangement, and this is exactly what Messrs. Jackson have done—all the gaiety is not squeezed into one house, while the rest contain monotonous-looking groups of flowerless plants. There is no confused mixing of plants, but flowering, foliage, and new and rare plants are so arranged in their respective houses as to afford agreeable variety to the ordinary visitor who is not an authority on plants. As bearing out these remarks, it will be observed that the next block of three span-roofed houses, 130 feet long each, is filled with a variety of plants that may be called gay at this season. These houses are conveniently arranged with side stages and a path up the centre. No. 1 is filled with seedling and other *Pelargoniums*. No. 2 contains stocks of silver tricolor *Pelargoniums*, *Cyclamens*, decorative *Pelargoniums*, including *Miss May Gill*, *Rosy Morn* (both raised and sent out by Messrs. Jackson), *Madame Thibaut* (double pink), *Bouvardias* in full flower; *White Vesuvius* *Pelargonium*, a mass of bloom; seedlings of *Aralia Sieboldi*, *Begonia insignis*, *Heliotropes* in full bloom; *Begonia Schmidtii*, a new white Continental variety; double *Primulas*, *Abutilons*, *Cyperus alternifolius*, and *Eschynanthus splendens*, a capital plant for basket-work in winter. The third house of the block contains among others a collection of succulents, of which there is rather a large stock of the old favourite *Koehia falcata*, *Cytisus*, *Salvias*, *Habrothamum aurantiacum*, sweet-scented *Pelargoniums*, *Chrysanthemum frutescens* and *Etoile d'Or*, *Cianthus*, *Cape Geraniums*, *Anemone Honorine Jobert*.

Of new plants, the Myrtle, *Jenny Reichenbach*, flowers freely in company with the above, the plants being no larger than ordinary grown *Lobelias* as seen in the flower garden in summer. The large *Camellia*

house contains a fine stock of *Camellias*, specimen *Azaleas*, of which *Duc de Nassau* is a noble plant, *Tree Ferns*, and other plants requiring a greenhouse temperature. Next to the latter structure the large *Heath-house* is reached, which is adorned with some of the finest-green specimens in the kingdom. One sample of *mutabilis* is in flower, and a grand example of *Erica kingstomensis*, which comes into flower about June, is in fine exhibition form. Other popular varieties among an extensive collection are *Erica ampullacea obtusa*, *aristata major*, *canadensis*, *Caevendishiana elegans*, *eximia*, *compacta*, *Irbiana*, *McNabiana*, *vestita*, *coccinea*, *veritellata*, *ventricosa*, *Bothwelliana*, *coccinea minor*, and many unnamed seedlings equal in quality to some of the named varieties. The plants are all kept close to the glass upon large inverted pots, and their general condition is excellent; in a word, they are show specimens ready grown.

Connected with the latter structure is a lean-to house facing the west, also containing an interesting collection of miscellaneous plants, including *Palms*, *Ferns*—among them good *Gleichenias*—in better health than they are usually seen in warm houses; *Orchids* in variety; *Kondeletia speciosa*, and a nice piece of *Microlepia lirta cristata*, a lovely Fern for furnishing. The collection of mixed hard-wooded plants is of equal merit with the *Ericas*, and quite as extensive. They occupy a large span structure, and consist of fine plants of *Stactes*, *Apulexis*, *Dracophyllum*, *Pimeleas*, *Chorozomas*, *Hederaomas*, *Boronia*, *Acrophyllum venosum* (which used to be very common at exhibitions), *Asclepias*, *Phenacommas*, and *Kalanthes*. I noticed a nice *Erica* (*Victoria Regina*) still out-of-doors for a special purpose, probably to retard the season of blooming.

There is a good collection of cool *Orchids* in a house by themselves, and a nice batch of *Diss grandiflora superba*, one of the loveliest of cool *Orchids*. The collection of stove plants embraces all the latest novelties, and the large span-roof structure in which they are arranged is a very interesting sight to lovers of fine-foliaged plants. *Ferns* and flowering plants are introduced by way of giving variety, and a very charming effect they have when tastefully arranged with foliage plants. There is a large assortment of *Anthuriums* of different varieties, fine *Aralias*, *Campylobotrys pyrrophylla*, *Crotons* in variety, *Dracenas*, *Cyanophyllum magnificum*, *Dieffenbachias*, *Maranthas*, choice *Palms*; and of flowering plants *Ixoras*, *Dipladenias*, *Franciscea*, *Euchoris*, *Clerodendrons*, *Catalpas*, *Hibiscus*, *Eranthemums*, and a good plant of *Gloriosa Plantii* trained upon the roof. A seedling Fern of Messrs. Jackson's, named *Pteris serrulata magnifica*, is a choice addition to our stock for cutting. In this house also there is a stock of *Asparagus plumosus*, and the fine specimen *Azalea* (*Jackson's crimson*) that was in the large collection exhibited at South Kensington in June of last year. The plant is being forced for a display of early flowers.

In smaller structures, span-roofed and well ventilated, there is a very fine collection of soft-wooded *Heaths*, *Hyemalis*, *Wilmoriana*, *gracilis*, and a group of North American *Pitcher-plants*. Next to this an *Orchid-house*, with *Anthuriums* (variety *Scherzeriana*) 3 to 4 feet across, and a general collection of free-flowering *Orchids*, as *Dendrobiums*, *Catleyas*, and *Oncidiums*, also quantities of *Ferns* for cutting and furnishing. *Adiantum Bausei* is largely grown for the latter purpose on account of the dark green colour of its fronds, which yield a very desirable effect in a sitting-room during the winter months, and also *Nephrolepis Duffii* and *N. davallodes furcans*. Still another *Orchid-house* filled with *Vandas* in fine condition, *Phalenopsis amabilis*, *Schilleriana*, and *grandiflora*, with splendid leaves 13 to 14 inches long and 6 inches in width, and with three to four breaks on each flower-spike, which will make a fine show when the plants are in bloom. I should mention specially a capital plant of *Vanda oerelia*, and a large plant of *Vanda teres*, *Saccolabium*, *Aerides*, and other species are numerous and well grown, and a variety of other plants, of which *Platycentrum alcei-rose*, *Braimea insignis* (a very scarce species of Tree Fern), *Palms*, *Marantas*, and a very fine specimen of *Phyllitenum Lindenii* are the chief and most noteworthy objects. The *Phyllitenum* is probably the largest plant in the country.

Pits and frames are filled with *Heaths*, *Daphne indica*, *Azalea mollis*, *Charles the Tenth Lilacs*, *Rhododendrons* and *Deutzias* for forcing. All these plants

are laden with flower-buds, and only require a gentle warmth to insure an early display of flowers at the turn of the year. The stock of pot Vines grown from eyes of the celebrated Hampton Court Vine are quite up to the usual standard of Vine growing in these nurseries. Messrs. Jackson have exceptionally good facilities for growing pot Vines in the Royal Gardens at Hampton Court, and the result is Vines of the best quality, well ripened and brown as Hazel. The first structure of importance that I have to notice contains valuable specimens of Camellias and Tree Ferns in pots, and specimen Azaleas in splendid order. The Azaleas are stood in a single row along the front stage close to the glass, and they are certainly a creditable exhibition in themselves, whether as regards cultivation or training. They are trained but not smoothed down with that degree of flatness which is fatal to anything like a free or natural appearance. Other plants of particular merit are *Eperis bellis*, *Chorozema Lowei*, *Rhododendron Comtesse de Derby*, *Edgworthii*, and *Comtesse of Haddington*. *H. Z.*

(To be continued.)

JOTTINGS ROUND ESHER.

WOLSEY GRANGE.—Whether for good or evil hereafter, the extraordinary mildness of the season has already produced a state of revolution in gardening. Go where one will there is fresh evidence of the advent of spring a full month earlier than usual. Plants under glass are making rapid progress, and many a greenhouse can boast of a better floral display during the first month of the year than has ever before been seen by the present generation of gardeners. The show house at Wolsey Grange, Esher, the residence of R. Few, Esq., is at present gay with plants of a very choice character—choice not so much because of the variety of the plants as because of their high cultivation and quality. Here are Camellias, red and white; *Deutzias*, *Platanus grandiflora*, pyramid-trained *Deutzias*, *Polygala Dulcamaria*, *Statice profusa*, *Azalea amena*, very neatly trained; grand plants of *Lobelia floribunda*, *Tetralinea verticillata*, *Cinerarias*, *Primulas*, *Cyclamens*, *Eperis*, and *Azaleas*. The house is kept at a greenhouse temperature. Roses in pots are fast swelling their buds, and in the plant-stove I noticed fine orange plants in fine condition, especially plants for furnishing which are highly coloured, chief of which are *Croton Lord Derby* and *C. albicans*, which is a favourite and is very prettily grown, and the surface of the pots covered with growing moss—a very good way of preparing plants for the dinner-table, or for vases in rooms. Mr. King is a very successful grower of soft-wooded plants, as the prize lists of various horticultural exhibitions abundantly testify.

ESHER LODGE is the seat of J. L. Eastwood, Esq., and stands on a sloping position, which commands a good view of the surrounding district, which in this part of Surrey is particularly interesting, owing to the immediate vicinity of one of the Royal residences, Claremont House, now in process of being put in order for Prince Leopold. It is a well authenticated fact, that most gardens of moderate size usually contain something interesting in the plant line, and the subject of this notice is no exception to the rule. The plant-houses are very gay just now with seasonable flowers, some of them indeed rather before their time. The stove plants, both flowering and foliage, are of rather exceptional merit, as for example, *Euphorbia jacquiniiflora*, *Lamotus rosea*, several varieties of *Cattleyas*, *Dendrobium densiflorum* and *D. crystallinum*, beautifully flowered upon a block; the flowers of this variety are very delicate, the upper petals shading to blue, and the lip a delicate pale yellow. In the insect-foliage division the finest plants are *Croton majusculus*, splendidly coloured; *C. Disraeli*, *C. intermixtus*, *C. undulatus*, and *Draecena amabilis*. Flowering plants include *Vincetoxicum*, which flowers all the year round; grand pots of *Eucharis*, *Platanus grandiflora*, *Imantophyllum nimbicum*, throwing up magnificent flower-spikes; and *Poinsettias pulcherrima* and *pulcherrima alba*, the latter showing some very fine bracts. The greenhouse is gay with *Primulas*, *Cinerarias*, *Chrysanthemum frutescens*, *Pelargoniums*, and a few New Holland plants showing bud; *Pinelæa spectabilis* almost in open bud—a rather unusual occurrence in January. The conservatory is filled with *Palms* and very fine Ferns, early *Deutzias*, flowering *Begonias*, and other seasonable flowers. There are some very fine examples of *Goniophlebium aureum appendiculatum* in this

house, which remain as permanent objects, and a very fine effect they produce all the year round, their drooping fronds being always so graceful in appearance.

SANDOWN HOUSE.—This compact and beautiful country seat, the residence of J. V. Currie, Esq., can boast of a garden that is both orderly managed, and is in a state of the very highest cultivation. Not only are walks and lawns in first-rate order, but fruit trees and vegetable quarters are quite a pleasure to look at. In a word, whatever is supposed to be under garden cultivation is looked after, whether it is within the walls or outside of them. But the houses naturally attract the eye of the horticultural visitor at this dull season. The greenhouse is doing duty as a show-house, and the front stage is very prettily arranged with *Solanums* in berry, *Hyacinths*, *Tulips*, *Cinerarias*, and *Mignonette* in flower, which imparts a welcome fragrance at this season. The large plants in the body of the house consist of good specimens of *Chorozema rotundifolia*, *Cytisus racemosus*, *Richardias* in flower, *Polygala Dulcamaria*, with its Pea-like flowers, and trained in a natural fashion to a trellis; several early *Azaleas* are also in flower, and many other plants in forward bud. The plant stove is gay with *Poinsettias*, flowering *Begonias*, *Euphorbia jacquiniiflora*, very finely grown in 48-sized pots, and tied loosely to a trellis-work upon the roof. There are several species of *Orchids*, including *Cyclopogon cristata*, *Oncidium sphecatatum*, *Dendrobium* of sorts, and a very fine form of *Anthurium Schzerianum*. In addition to the fine-foliaged plants and *Palms* are well grown for table, notably *Aralias*, *Crotons*, *Draecenas*, and *Pandanus Veitchii*. Mr. Beckett has distinguished himself as a cultivator and exhibitor of plants, both in plant groups, and trained specimens, having won His Royal Highness Prince Leopold's prize for a group of plants at the summer show of the Kingston-on-Thames Society in 1850. Mr. Beckett is also a successful exhibitor of *Chrysanthemum* cut blooms, his favourites being the Japanese section, and few people will differ with him in his taste. I noticed a fine stock of *Cinerarias*, *Calceolarias*, and stage *Pelargoniums* in frames, grown half-specimen fashion, which promise to make a good display later in the season. Plant growing is evidently an important feature in this well-managed garden. *Visitor.*

DRINKSTONE PARK.

THE seat of S. N. Powell, Esq., near Bury St. Edmunds, has long been famed for the Roses and the excellence of its general collection of plants. Mr. Nichol, the late gardener, and Mr. Palmer, his able successor, have carried off many provincial and not a few metropolitan prizes for Roses. The soil is a heavy loam, the site somewhat sheltered, and these favoured conditions helped by skill led to success. The Grapes on young Vines have also been very fine. But of late years Drinkstone is acquiring a new fame, that is, for its *Orchids*. The proprietor takes a lively interest in horticulture, and without losing his love for Roses, has taken to *Orchids*, with exemplary energy and success. Being fond of mechanism as well as practical science, he varies his chemical and other experiments with basket-making for his *Orchids*, and in this and other ways combines utility with recreation. He has, in a word, made *Orchid* growing one of his chief hobbies, and, ably seconded by Mr. Palmer, the result is a great success. Having the courage to abolish bedding-out, Mr. Powell has also dared to select specialties among *Orchids*; and instead of a general collection, including all the classes, has chiefly concentrated his strength on *Phalænopsis* and *Ophrysoglossum*. Hence, while a great many *Dendrobiums*, *Oncidiums*, *Cypripediums*, *Lælias*, *Macdowellias*, &c., are well grown at Drinkstone, the two first genera are grown in quantity and in first-rate style.

Of *Phalænopsis* over sixty plants are grown. These consist of five varieties of *amabilis grandiflora*, and *Schilleriana*, with a few plants of *rosea* and *Luddeemanniana*. They are now (the middle of January) a sight to see, most of the *amabilis* and several fine spikes of *Schilleriana* being in full flower, and the latter one showing very fine spikes. The plants are in robust health, the leaves, that add so much to the interest and beauty of such plants, being without speck or flaw. Most of the plants are set on the top of latticed cylinders, 18 inches or more in height, designed and made by Mr. Powell, which brings

them near to the glass. The base of these acts as a sort of shallow trough or shelf filled with broken coke. The whole of the bed of the houses is also furnished with this. It is frequently sprinkled with water, which is quickly absorbed, and gives out vapour when the dryness of the atmosphere requires it—the coke thus acting as a regulating vapouriser; it also has a unique and cleanly appearance. Great care is taken to prevent the roots from grasping the bottom shelf and coke, though they are encouraged to lay hold of the sides of the upright cylinders as freely as possible. These arrangements seem to suit the plants admirably, as they were in the most robust health. Several of the *amabilis*, however, had their roots in the free atmosphere, and looked as healthy as those mounted on the latticed cylinders. Next to the *Phalænopsis* the grandest feature at Drinkstone was without doubt the *Odontoglossum*. The house was a perfect blaze with *O. crispum* (Alexander), and others. Some of these had had, or had still, from twenty to twenty-four flowers to a spike, and the plants were in the most robust health, and many of them the finest varieties of this charming *Orchid*, which is almost a collection in itself. Among other fine *Odontoglossum* in flower were *Pescatorei*, *cirrosium*, *roseum*, *tripudians*, *Illwili*, *Rossii*, *Rossii majus*, and the chaste and fragrant *paluchellum*.

There was a specially fine lot of *Calanthe Veitchii*, *vestita*, *vestita rubra*, and *oculata*, or *latea*, in full and fine bloom; these were grown in pots, and not in pans as so frequently practised and advised. A few large pots of the old *Bletia hyacinthina* were also remarkably strong. Among other *Orchids* in flower were *Mastveillia Veitchii*, and some fine pans of the delicate and useful *M. tovarensis*, the latter showing to striking advantage in contrast with the vivid *Sophronitis grandiflora*, *Lælia anceps*, *albida*, and *autumnalis*; *Vanda gigantea*, *Phaus grandiflora*, *Saccolabium giganteum*, *Lycaste Skinneri*, *Maxillaria grandiflora*, *Platanus fragrans*, *Cymbidium eburneum*, *C. Lowii*, *Pleione humilis*, and *Mesospidium sanguineum*, and *M. vulcanicum*. Amongst *Dendrobiums* and *Oncids* the following were either in, or just coming into, bloom:—*D. Wardianum* (several fine plants), *D. heterocarpum*, *Oncidium cucullatum*, *O. cheiroporum*, *O. ornithorhynchum*. *Cypripediums* were well represented by *barbatum*, *villosum*, *insigne*, *insigne Maulei*, and *venustum*. The striking *Angreecum sesquipedale* was represented by two nice specimens; *A. citratum* was also in bloom, as was the rare, choice, and seldom met with *Trichosma saxiviv*. Other things, such as *Roses*, *Vines*, *Peaches*, *Lagararias*, *greenhouse* and *stove* plants, *Ferns*, &c., are remarkably well done at Drinkstone, and a house is devoted to fruiting the *Passiflora quadrangularis*, which is much prized for dessert; but my object now is merely to note the *Orchids* in bloom in the middle of January, and it must be admitted that for a new collection and a private place I have been able to chronicle such a bouquet of sweetness and beauty as must afford much satisfaction to the proprietor, and reflect well-merited credit on Mr. Palmer, his able and zealous gardener. *Quærens.*

The Nursery.

ROSES ON THEIR OWN ROOTS.—I have read with much interest the communications of your correspondents, "Wild Rose," and the Rev. E. Fellows, on the much debated subject of *Roses* raised from cuttings. Quantities of trimmings are annually thrown away which would yield serviceable plants for general garden embellishment, if removed at a proper time, and duly inserted before the least exhaustion is occasioned by the drying of the tissues by exposure after separation from the parent stock. I have not at any time struck very large quantities of *Rose* cuttings, but annually insert a few, which prove most successful when taken with a heel during August, or early in September. At this time much of the wood that has bloomed may be cut away to encourage the thorough maturing of the young strong shoots from near the base of the plants; and thus much of the best ripened and most suitable growths can be procured with heels for propagation, without injury, and, in fact, with advantage to the future welfare of the bushes operated upon. The majority of own-root *Roses* are prone to exhibit a somewhat thinner arrangement of petals

than those of the same variety worked on vigorous stocks, at least for some years, and until they become very strongly established. One point to be observed, whether with Teas under glass or hybrid peonials inserted in the open ground, is to prevent rapid evaporation by reducing the shade and burying the greatest portion of the canes underneath the soil. Tea Roses when once established do even better on their own roots than when worked, but they are very liable to lose their roots during the first season after striking if at once planted out, and are consequently in some instances considered shy growers under such conditions of cultivation, and further effort to establish them on their own roots is from this cause abandoned. A stock of them is most readily got up by putting in during summer the half-tipped shoots, which are kept quite close until struck, then gradually ventilated before being potted off into small pots for the winter, from which they must be shifted into larger ones in the spring and kept potted on for one year. Strongly established plants of a year old will have developed their tough woody roots, which will resist the destructive effect that cold and wet soil has on the immature roots of recently struck Teas, which of all Roses seem the most liable in this respect. I have not observed that any varieties resist to root, but it is evidently scarcely worth while trying the weaker growing sorts of hybrid perennials when there are so many strong growers manifestly suited to be self-supporting. Mr. Fellowes may await with confidence the result of his experiment with the Baroness, as it will form roots in this country, however peculiar it may be in that respect in America. Some five years ago cuttings of it and the other exceptionally difficult one to root quoted by "Wild Rose," Madame Lacharme, were inserted on a north border in common with other varieties, and there are now in vigorous health plants of both varieties in the rosery resulting from that hatch; but, if my memory serves me correctly, they yielded a lower average result of rooted plants than other sorts.

Amongst the freest of Roses to root may be mentioned Duke of Teck, every cutting of which speedily becomes a rooted plant. Propagation by cuttings will not, however, take the place of budding, but can only be viewed as a supplementary mode of supply; for it will always be necessary to increase new varieties more quickly than can be done by cuttings, and even the private grower who buys in a new Rose of the current year must be content to bud up a stock of it before any quantity of cuttings will be available for the increase of the variety. Roses on their own roots for old places, such as mixed flower borders, shrubberies, &c., and for distribution in cottage gardens in country villages, cannot be too highly recommended. *R. Crossing.*

ROSES AT THE OAK HILL NURSERY.—To have cut Roses all through the winter months is an object which has been accomplished by few, although attempted by many. Reference is not particularly made to the occasional good luck of producing a stray bloom or two, but to the constant production of cut Roses throughout the entire winter, when Rose-bushes are in great demand for buttonholes and ball bouquets, and bring the cultivator a highly remunerative price. Mr. Rose, of the Oak Hill Nursery, Surbiton, has a capital show of Roses at the present time, and the same plants have been in flower for some time past. Only one variety is grown by Mr. Rose for this purpose, which very much resembles the Duchess of Edinburgh in colour, and has small leaves not unlike the common monthly Rose of gardens. This variety is grown by hundreds, indeed one house alone contains 500 plants in 8 inch pots, clearly showing in what high estimation the plant is held for winter flowering. The plants are remarkable for their sturdy habit and general appearance of good health. The buds are produced in great profusion, and vary in colour from light red to a delicate lilac shade, which is the result of a rather warm temperature and insufficient light. *H.*

FRUIT NOTES.

Cherries.—Several kinds of fruit have had some notice of late, but little has been said about Cherries, which are as important as any, and as the time for planting, though late, has not yet passed by, a few notes respecting them may yet be of use to those not well acquainted with the different sorts. The one I would first call attention to is Governor Wood, an American kind, sent out some twenty years ago, which besides being a prodigious bearer, ripens very early, and is a valuable sort for dessert. The fruit is large, obtuse, heart-shaped, and has a pale yellow skin, which becomes mottled and rosy-coloured on the sunny side, thus giving it a rich-looking tempting appearance. When quite ripe it is nearly transparent, full of sweet refreshing juice, delicious in flavour. The next in

point of earliness, and one equally desirable, is Fingermore Bigarreau, the fruit of which, if the trees are in a warm sunny aspect, ripens about the middle of July, and is most luscious. In size and shape it is like the old Bigarreau, but has more colour, and is a valuable kind for an orchard-house, although it does not bear so freely as Governor Wood. Take it all in all the finest Cherry as a mid-season variety is the Elton, which is very large, exquisitely flavoured, and one that makes a remarkably telling dish amongst a dessert. The Bigarreau is an old favourite, greatly resembling the last-named, as it bears large heart-shaped fruit of a pale whitish-yellow colour on the shady side, streaked with red next the sun, and if allowed to hang till quite ripe is most luscious. Many others as there are these are all amongst the white class that are worth growing for dessert, unless later sorts be desired, when Belle Agathe and Late Duke should be chosen. Among the blackes the earliest and best is Black Eagle, which ripens in July; and though not large is a handsome looking Cherry, very firm, sweet, and nice eating. The next in point of merit and earliness is Knight's Early Black, which is a fine noble-looking fruit, larger than Black Eagle, but not quite so good in quality. As a show kind none surpass the Black Circassian, which bears very large heart-shaped fruit of a deep bluish-black colour, but not first-class in flavour. The foregoing and Verdel's Early Black are about the only ones worth growing for dessert, the best situation for them being an east or west wall, where they ripen well and come of good quality. For culinary purposes during the summer there are none to rival the May Duke, which is a fine sub-acid kind and a prodigious cropper, as when the trees are closely spaced and well managed the fruit hangs in thick bunchy clusters. Another very useful Cherry for cooking is the Kentish, the stone of which is so tightly attached to the stalk that it may be drawn out with it, and this is generally done before making use of it in tarts. The most valuable Cherry for kitchen purposes after the May Duke is the Morello, which succeeds well on a north wall, where, if protected, it will hang till very late in the season. The best way to cultivate this valuable Cherry to obtain heavy crops is to support the main branches against the wall, and allow the young shoots to grow somewhat freely, as on these the Cherries are borne. Any thinning that is requisite can be done in the winter, when the finest and most healthy of the shoots should be left. Morellos also do remarkably well grown as bushes, pyramids, or standards, or they may be trained to wires, as espaliers, which is a very good way of managing them, as they can be more easily moved than the average of kinds. Dessert kinds, such as those mentioned, may likewise be grown in the same manner, or as closely spiced bushes, when, if planted together, they may easily be wired round and netted in over the tops. *J. S.*

Very Late Pears.—A correspondent lately asked a question very much to the point concerning Knight's Monarch. In the East of England, speaking from personal experience, the fruit always drops prematurely, shrivels, and never ripens properly. In Somersetshire and Scotland I have had the Monarch very good, the fruit ripening in a long succession. As every pomologist knows, the tree is a most abundant bearer, but I am afraid cursed with the dire habit of shedding its fruit prematurely in nearly every locality. Mr. Rust laments the scarcity of good late Pears—a glance through Leroy's *Dormitive* opens up a whole galaxy of late Pears. I have heard of an *Index expurgatorius*, but surely there must be a number of them really distinct and good. There seems to be no enterprise in the trade to import and try thoroughly, or perhaps the fault is with us—we feebly complain, but do not set to work to remedy. There are many Pears ripening from January onwards well worthy of being grown, such as Bonneserre de Saint-Denis, General Duvivier, Maréchal Vaillant, Marquette de Milleville, Octave Lachambre, Olivier de Serres, Fiance Napoleon, and Beurré de Bolwiler. Others that have been recommended to me are Doyenné d'Alençon, Lydia Thiercelin, Masqué d'Espéran, Bourré van Dreissche, Belle Moulinoise. With a little care Alexandre Lamure, my pet of all Pears, Duchesse de Bordeaux, Marie Benoist, Louis-Victorin, and others will keep till near the end of January. I have before recommended Fiance Napoleon and Marquette de Milleville: the latter is truly an *arbre expurgé*, but the fruit is large, melting, and juicy, not unlike Bergamotte d'Espéran (which cannot be planted too largely) in appearance; it ripens when all other sorts are done, and for the season is really good. Josephine de Malines is very variable in quality, and Jean de Witte I have never had good. Has any correspondent ever ripened a fruit of Beurré de Mal? My best Pear this year has been Doyenné Robin. *H. Carnahan.*

The Arboretum.

HARDY TREES AND SHRUBS.—A committee of the Massachusetts Horticultural Society has been discussing a list of the best twenty deciduous shrubs and a similar number of evergreens for Massachusetts. Two lists are given, one for small places, the other for plantations of larger extent. It will be remembered that the winter climate of Massachusetts is in general much more severe than our own, though the summer is hotter and the atmosphere clearer. The following are the lists in question:—

- Deciduous Trees.*
 Golden Locust
 Variegated Maple
 Weeping Cypress
 Weeping Bird Cherry
 Variegated Dogwood
 Virginia (Yellow-wood)
 Magnolia cordata
 " Soulangiana
 " conspicua
 " glauca-longifolia
 " Lenoxii
 Camperdown Weeping Elm
- Shrubs.*
 Dwarf Horse Chestnut
 Oak-leaved Hydrangea
 Hydrangea paniculata grandiflora
 Vitivornum plicatum
 Berberis Beala
 " japonica
 Scarlet Dogwood
 New-Weeping Scarlet Thorn
 New White Double Thorn
 New Double Scarlet Thorn
- Evergreens.*
 George Peabody Arbor-vitæ
 Veronese's Arbor-vitæ
 Senner aenea Arbor-vitæ
 The Retino pines
 Cephalis, Lawsonii
 " duplex
 American Holly
 Virginia Spruce
 Thuopsis dolabrata
 " betulifolia
 Pinus Cedrus

The next list, by H. H. Hunnewell, is intended for a much more extensive place than the above.

- Deciduous Trees.*
 Tulare
 Magnolia acuminata
 Magnolia Lenoxii
 Linden American
 " American
 Virginia white (Yellow wood)
 Sassafras (Ginkgo)
 Dogwood
 Cedrus
 Flowering Cherry
 Birch American
 Liquidambar
 Weeping Willow
- Conifers.*
 Abies alba (White Spruce)
 " canadensis (Hemlock)
 " Spruce
 " Spruce (Norway)
 " orientalis (Oriental)
 " Menziesii
 " Aleutica
 " Douglasii
 " Nordmanniana (Nordmann's Fir)
 " cephalonica
- Maple, Rettenbach's purple*
 " Scarlet
 " Schwedler's
 " Sugar
 " Weir's Weeping
 Magnolia acuminata
 " japonica
 Tulare-tree
 Virginia, or Yellow-wood
 Walnut, Black

The following list was selected by William C. Strong:—

- Deciduous Trees.*
 Acaea, Three-thorned
 Beech, American
 " Purple
 " Weeping
 Birch, cut-leaved Weeping
 Cherry, Myrtle-leaved
 " Weeping
 Elm, American
 " Camperdown Weeping
 Golden (Saxifraga)
 Maple, Norway
- Shrubs.*
 Almond, Double White
 Ardisia, China
 Clethra aliflora
 Cornus sanguinea
 " japonica
 Deutzia crenata flore pleno
 Fuchsia grandiflora
 Forsythia viridiflora
 " longicaule, White
 Hydrangea paniculata grandiflora
- Evergreen Trees.*
 Pinus White
 Retinospora filifera
 " pinus
 " pinus strobus
 " quadrifida
 " Virginica
 Spruce, Hemlock
 " Norway
 " New-Weeping
 " Oriental
 " White
- Maple, Rettenbach's purple
 " Scarlet
 " Schwedler's
 " Sugar
 " Weir's Weeping
 Magnolia acuminata
 " japonica
 Tulare-tree
 Virginia, or Yellow-wood
 Walnut, Black

PROLIFEROUS CONES.

It is not necessary to enter very deeply into the history of plant construction to see the contrast between vegetative growth and reproductive growth, shoot production and leaf formation, let us say. In the one the tendency is towards contraction, concentration, accumulation and concentration of food, and change in structure; in the other towards extension and repetition of similar parts and diffusion of food supply.

The distinction is so obvious and so important that many of our cultural practices are based upon it. By transplanting, re-training, girdling, withholding water, and a score of such means, we check growth in one direction in order to facilitate the production of flower buds, fruits, or seeds. Nevertheless, though once established, the contrast is great, there can be no sort of doubt that the two tendencies have had one common starting point whence divergence has gradually taken place in this direction, or in that, according to circumstances and the needs and pliability of the plant. In the lowest plants or animals the contrast between the two tendencies is not always manifest, and where it is so it is reduced to its simplest expression. In one "cell," or in one bit of protoplasm, take place all the processes of life. Then, as we mount higher in the scale, one bit

office. If we see one machine doing the same sort of work as another, we naturally draw the inference that, despite any superficial or accidental difference in appearance, the nature of the machinery in the two cases is substantially identical; and so, if we find in a plant a scale doing duty for a leaf, or a leaf fulfil-

have not yet explained, to the general satisfaction of all concerned, the exact nature of the Fir cone, but that is no matter for our present purpose. All that we set out to do is to illustrate our previous statements, and to indicate certain appearances easily observable, and concerning which, if we do not plunge too deeply into theoretical explanations, there is no controversy.

Any ordinary Fir cone will show the tendency to arrest in growth and coincident change in appearance and structure which have been spoken of as characterising reproduction rather than growth, and, if the cone be examined while still growing on the tree, it is in general not difficult to satisfy one's self that the cone is no new structure stuck on or developed from the end of the shoot, but is only the end of that shoot itself which has undergone sundry modifications.

The Larch cone, fig. 16, shows a not unfrequent condition where the branch has, as is said in common parlance, grown through—the cone; really the tip of the cone, from some cause or another, has lengthened into a leaf-shoot. This condition is so common in *Cryptomeria* in our experience as to be nearly as frequently met with as the more normal state. It may be that our summers are not hot enough to cause that arrest of growth which occurs under other circum-

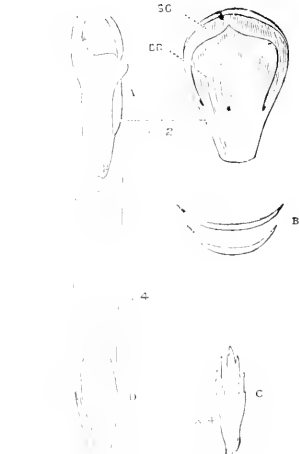


FIG. 17.—THE DOUGLAS FIR.
A, Normal bract; B, the same seen from the side attached to the scale at the base; C, Bract and seed-scale from the outside; D, Bract from a proliferous cone passing into leafy condition, in E, F the bract is completely leafy—E seen from the outside, F from the inside.

FIG. 15.—DETAILS FROM CONE SIMILAR TO THAT SHOWN AT FIG. 18.
A, Bract and scale from the side and from the back respectively; B, Section of A, to show detachment of scale and bract; C, Bract; D, Bract and portion of "needle" from proliferous cone, seen from the back.

FIG. 16.—PROLIFEROUS CONE OF SCIAPODITYS.
A, Proliferous cone of Sciadopitys; B, Leafy bract and seed-scale; C, Leafy bract, the seed rudimentary; D, E, Abnormal scales with trace of scales.

of protoplasm becomes set apart to do certain work—another bit to do something else. Primal simplicity gives place to division of labour. Changing conditions and altered circumstances demand corresponding pliability on the part of the organism, and so in the higher plants we find the well-marked distinctions we have been alluding to. But even in those higher plants, if we study their individual life-history, we shall find in the course of the career of each one of them precisely the same sort of evidence as to the common origin in what we may term structureless simplicity of organisation, of the complexity and contrasted structures of the adult individual plant as we have done in the case of the group. In other words the life-history of the individual plant and the life-history of the entire vegetable world may broadly be told in the same words, because, in principle, they are the same. And so, when we trace any one individual plant from its earliest condition as a mere speck of protoplasm, through all its gradually increasing stages of complexity to its final condition, or whether we investigate the lower organisms, as we call them for convenience sake, and compare them one with another in their stages of progression, the course is the same—from simplicity and uniformity to diversity and contrast.

There are also occasionally to be met with other indications of the original oneness of composition and

ling the office of a scale, we take it as pretty good evidence that leaf and scale, scale and leaf, despite their obvious superficial differences, are fundamentally one and the same; and if the testimony so afforded be substantiated by evidence derived from other sources, the case becomes then established.

The accompanying illustrations will afford further exemplification of our meaning. The morphologists

stances, but that is a mere surmise. Our purpose is simply to exemplify the propositions previously laid down, and we think these Fir cones do so satisfactorily. But there are other points to which we can make only passing allusion: they are of very great interest to the botanist, but at present they do not throw much light on points of practical horticulture. In some cones, as in that of the Cypress, the seed-scales are simple, with these we have nothing to do; in others outside the woody seed-scale is a bract or leaf-scale. It is this latter which is so prominent in the cones of the Douglas Fir (fig. 17) and which adds such beauty to the cones of *Abies nobilis* or *bracteata*. A glance at the cone when growing will usually suffice to show that the bract just mentioned is, what we have termed it, a leaf-scale, for it is continuous with and in a direct sequence with the leaves though itself usually a mere brown scale. In the out-growing cones just mentioned the nature of the bract becomes still more evident, as in them it generally shows itself what it really is, a leaf. The illustrations at fig. 17 will show this. Within this bract is the more or less woody seed-scale, an aggregation of which forms the mass of the cone, and upon the upper surface of which lie the seeds. Now, as to the true nature of this seed-scale, the conflict of opinion still wages. We have no inten-

tion of taking sides in this conflict, for it would lead to too long, and perhaps in this place not very entertaining, discussion. The botanist, however, will see in the details of the Larch cone (fig. 16, c, d, E), evidence in support of the opinion adopted by Caspary and others, that the seed-scale is composed of a shoot and two side leaves, all usually arrested in growth and forming one woody mass. Be that as it may, there is in these cones a bract which no doubt is a leaf, and there is a seed-scale upon which nothing more need be said here.

Now, let us turn to the cone of *Sciadopitys* figured at fig. 18. Knowing the difference of opinion that pertains as to the real nature of the so-called leaves of the plant, as well as to the nature of the cone, the sight of the figure in Messrs. Veitch's *Manual of Conifers* inspired us with a curiosity which none but a botanist could appreciate.

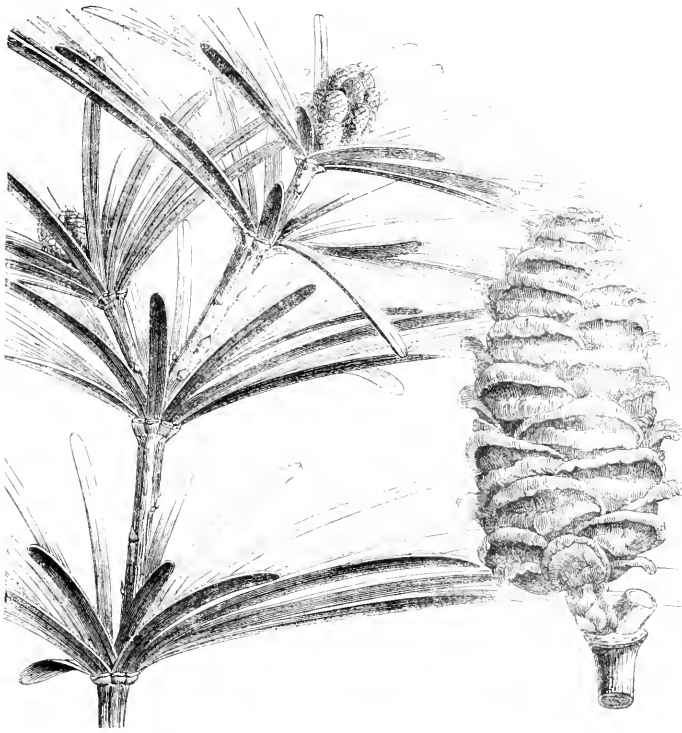


FIG. 20.—BRANCH AND CONE OF *SCIADOPITYS*: NORMAL.

Messrs. Veitch have kindly lent us the woodcut (fig. 18), and, better still, they have allowed us to examine a cone similar to the one figured, but less perfect. From that examination we are enabled to say that the state of things is very different from what obtains in the outgoing cones of Larch or *Cryptomeria*; the bract-scale (see fig. 19) remains as a scale like that surrounding the base of the tufts of leaves, and which does not become leafy; while the seed-scale, in normal cones blended with the bract (fig. 20), first becomes separated from it, and then gradually assumes the appearance of a leaf, or of a leafy shoot, if we adopt the latter view of its nature (fig. 19, D). It would seem to follow from this, that whatever be the nature of the so-called leaf of *Sciadopitys* it must be essentially the same as that of the seed-scale of the *Abietineæ*, and if so, it contributes a remarkably interesting item in the discussion of a problem of which, in this case, we can indicate the general nature only. *M. T. M.*

THE GENUS *FREESIA*.

The bloom of *Freesia refracta* which I send with this is not much to boast of in itself, being small, with only two flowers on the spike, and one of those deformed, but is of interest inasmuch as it was borne by a plant which less than twelvemonths ago was an unimpregnated ovule. A pot of *Freesia* came into bloom in my greenhouse on Feb. 2, 1881, and continued to flower for some time. Several flowers were artificially impregnated (the stigma is raised so high above the anthers that self-fertilization is almost impossible) and went to seed. Some of the seed as soon as ripe was sown in a 48-pot some time in the summer; of the exact date I have no memorandum. In the course of the autumn the seed germinated, and from the number of seedlings which appeared I think hardly a seed can have failed. Kept in a cool green-

separate names. I possess at present three forms. The first of these (A) grows freely, and bears large flowers of a pale yellow, with a slight tinge of green, the paleness or deficient saturation of the yellow varying somewhat in the different flowers. The form of the flower is characteristic: the perianth tube towards its lower part suddenly narrows, and the perianth segments spread out, but not so as to become horizontal, since they do not pass through more than about 45° or 60°. The second (B) is of a dead white with a tube relatively longer and more slender than that of A, and narrowing below much more gradually; the perianth segments spread out nearly horizontally, and the throat of the tube is smaller than in A. Moreover, the style projects more above the perianth than in A, and the ovary seems less distinctly trigonal; but these latter characters are possibly not constant. The form of the perianth gives the flower quite a distinct aspect. The third form (C) is in colour of a deeper, more saturated yellow than A, but with a more obvious tinge of green, and with obscure purple stripes on the inside of the tube. The perianth tube segments spread out so slightly that their curves form simply a continuation of that of the perianth tube, which, like A, narrows suddenly below, and the whole plant is less vigorous. In all three forms, even in the white one, the orange blotches on the perianth segments below the anthers are well marked. These blotches appear to serve as "insect signals," like the corresponding marks on other liliæ.

The form A, which I had under the name of *F. refracta alba*, seems to deserve the name *F. refracta grandiflora*; it corresponds closely to the specimens in Kew Herbarium bearing that name. The seedling and seed come from this form; it exactly resembles its parent save that it is small and pale.

The forms B and C both come from three bulbs which I bought as *F. Leichlinii*; C corresponds very truly to *F. Leichlinii*, but it seems obviously to be *F. refracta alba* (there had evidently been a mixture of bulbs in the sample which I purchased).

All these three forms differ clearly from what may be considered as the typical *refracta*, the *F. refracta* of Klatt, and the *Gladia refracta* of Rebutin, in which the flowers are of a greenish-yellow, largely marked with purple or violet streaks and blotches, and in which the spathe-valves are wholly membranous—not merely green, with membranous edges, as in the three above forms.

Whether the *F. odorata* of Klatt, characterised by intensely yellow flowers and narrow leaves, is as distinct does not seem so clear; and the same may be said of the *F. xanthopala* of Klatt, the anthers of which are marked with purple.

There is nothing very extraordinary in even a bulbous liliæ flowering the first year from seed, since *Turkella* will do the same; but the fact seems worth knowing, since these *Freesias* are not only charming flowers to look at, but have a delicate, delicious fragrance, and last a long time as cut blooms. If any that any practical gardener who took them in hand, for the purpose of furnishing cut flowers at this season of the year, would find them pny.

It is true I have heard complaints of their being difficult to bloom, but I have not experienced any trouble with them except at the beginning. I believe that the cardinal points in their culture are—1st, give them plenty of water while they are growing, but ripen the bulbs by roasting the plants as soon as they have done growing and the leaves begin to wither; 2d, do not let the bulbs be out of the soil a moment longer than you can possibly help. Keep them dry in the old pots until you are ready to repot them; and, provided the soil is not overwatered, they will do all the better if they are kept a second year in the same pot, with a super added refuse-ling just as they start into growth; 3d, ripen them at a low temperature, avoiding frost of course, until they are nearly ready to bloom, and then a gentle heat will help to expand them, and, besides, is necessary for the due development of their fragrance.

The soil I use is loam, with nearly an equal amount of peat, and a liberal addition of sand. By repotting at different times the season of their bloom may be prolonged, and the *New Plant and Bulb Company* say they may be planted out in the open, like *Gladia*, to flower in the summer or autumn. *M. T.*

house since the beginning of winter, the little plants grew apace; a little while ago several threw up bloom-stalks, and yesterday (Jan. 27, 1882) the flowers which I send you opened. The blooms coming on appear to be larger and fuller than the one I send, and all would probably have done better if they had not been over-crowded in the pot.

The nomenclature of *Freesia* bids fair to lead to some confusion. Mr. Baker, who in his *Synopsis* admitted two species, *refracta* and *Leichlinii*, now allows only one, and defends his position by referring to the collection in the Kew Herbarium, where may be seen a large number of specimens differing widely in the size of the plant, in the width of the leaves, in the colour, in the size and form of the flower; but, nevertheless, as far as can be judged from the dried plants, passing almost insensibly one into another. When, however, we come to deal with the living plants we shall find, I imagine, several distinct forms which for garden purposes will have to be distinguished by

CYCLAMEN COMPLANATUM.—The rich purplish-crimson blossoms of this little harbinger of spring form a striking and pleasing feature on the rock-work in the nurseries of Messrs. J. Backhouse & Son, York. It is by no means difficult to grow, as it thrives in any well-drained garden soil in a lightly shaded position.

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—The season has nearly arrived when many insect pests that have remained in abeyance during the winter will begin to show signs of greater vitality, and as cleanliness and freedom from these pests are necessary conditions in growing Orchids successfully, I would urge that the plants be gone over and cleaned without delay. We are now going over our East Indian-house, as the greater heat in this division generally brings insect life into existence earlier than in the cooler houses. Every plant will be carefully sponged over, and a soft brush will be necessary to get into the axils of the leaves. We have no liking for any kind of insecticide in the water when cleaning Orchids, but rely on pure soft water slightly warmed. At the same time the house will be thoroughly cleaned down, and the beds of cocoa-fibre which we always keep in the house for giving off a regular supply of moisture will be turned and replenished, adding a surfacing of fresh fibre before re-arranging the plants. Where ants and cockroaches abound efforts should be made when cleaning the house to reduce their number. As soon as the earliest *Phalenopsis* in this house are cut it will benefit the plants to keep them slightly drier at the roots; this will tend to give greater firmness to the foliage, and will keep the plants from making growth too early, as in my experience I have never found foliage made on these plants during early spring or late autumn ever stand like that made under a mid-summer sky. In the Mexican-house the most useful plants at present are *Lelia anceps* and *L. anceps Dawsoni*. Other *Lelias* in this house that will now be fit for repotting are *L. allida*, *L. harpophylla*, *L. autumnalis*, and *L. autumnalis atrovirens*. These we grow in pots in preference to blocks, but are careful not to use too much material about their roots, as few Orchids are more impatient than these in having their roots smothered up with compost. As soon as growth commences they should have a light position accorded them with a fairly moist atmosphere, watering them sparingly for the present. *Plumna fragrans*, now flowering, is a useful plant at this season, and as soon as the flowers are cut it should be potted. We use a mixture of fibry peat and sphagnum in equal parts when putting it, and keep the roots moist at all times. During summer the cool-house will suit this plant best. *Cattleya Warneri* and *C. maxima* are now in a fit state for repotting or top-dressing, and should be seen to early, before the growths get much advanced. *Cattleya Mossii*, *C. Mendelli*, and some others will need to be kept dry at present, both at the root and atmospherically, otherwise they are apt to start into growth, which would prevent them flowering at their proper season. *Cattleya chrysensis*, *C. Warszewiczii delicata*, and *C. Trinoe*, are pushing up their flowers, and are kept moderately moist at the root. There will not be much growth going on at present among the *Dendrobies*. Where there is a good stock of *D. nobile*, *D. Wardianum*, and other early bloomers, the object now should be to treat them so as to get a long succession of flowers. In the cool-house *Odontoglossum Rossi majus* and *O. bicolorense* need potting, also *Masdevallia Daviesii* and *M. tovarensis*: the latter we have kept in the cool-house this winter, and the plants are in better health than we have ever had them when kept in the Cattleya-house. Where the *Calanthes* have been scattered through the warm houses during their flowering season, which will now be nearly over, they should all be got together and put into a temperature of about 65°, and be kept dry for about six weeks or two months. *J. Roberts, Gunnesbury.*

EFFECTS OF LONDON FOG ON ORCHIDS.—Those who happen to have resided in any part of the kingdom much subject to fogs, need not be told that these visitations are by no means desirable, even in localities where there is nothing in the atmosphere that is of an objectionable nature; but where, as in the neighbourhood of London, the thick vapour is charged to the full with sulphurous exhalations from hundreds of thousands of chimneys large and small, the injurious effects on both animal and vegetable life are easily seen. Amongst plants that invariably show by the flowers the presence of fogs are some Orchids, which, even with tightly closed

ventilators and a genial atmosphere kept up by the presence of artificial warmth, seldom fail to show when a visitation of fog has occurred. Such species as possess flowers of a soft fleshy texture suffer much more than others, amongst these *Phalenopsis*, *Calanthes* of the *vestita* section, and *Angreecum sesquipedale* are particularly liable to injury from it; the partially developed flowers of *Phalenopsis* and *Angreecum* turn yellow and advance no further; whilst the open blooms, as well as those that are advancing in the *Calanthes*, die. The way in which it kills a portion of the unexpanded flowers of the *Angreecum* is singular and unaccountable; in some cases all on one spike which a plant bears will be destroyed, another spike on the same plant wholly escaping; in other instances a single flower will be killed, whilst another on the same spike will be uninjured. A recent opportunity of seeing the plants in one of our nurseries verified this. Amongst some three dozen examples of this fine winter-flowering Orchid, having from two to three spikes each, some of them being unusually fine varieties, some had altogether escaped, but the majority had partially suffered, and a few had all the flowers killed. Not so with *Phalenopsis*; in the long house, where quantities of beautiful plants in splendid health are located, bristling with their arched spikes, many had all the flowers killed that were advanced further than the bud state. On the *Calanthes* the open flowers hung soft and flacid, just as if they had been subject to frost; difference in position near or further from the roof appears to make no difference; but with *Phalenopsis* the buds that are only just formed suffer comparatively little and go on. There is a grain of consolation however in the loss, for it is well known to cultivators that there are few Orchids whose strength is so much taxed by blooming as *Phalenopsis*, and when the immature flowers are thus stricken before they have drawn to the full from the plants, the latter are so much less weakened. It would be interesting to know how the flowers of Orchids, particularly the species here noticed, are affected by fog in localities where it is not charged with smoky vapours, to the presence of which the destructive effects are generally supposed to be due.

THE PHALENOPSIS AT HENHAM HALL.—These are now (the middle of January) in full bloom. They consist of about fifty plants of *P. anabilis*, *P. grandiflora*, and *P. Schilleriana*. They are suspended from the roof of a small house, and almost fill the front of it. On the front shelf there is a row of *Calanthe Veitchii*, also in full flower; the spikes of the latter reach up to within a short distance of the drooping spikes of the *Phalenopsis*. The varieties of the latter being also mixed together, the effect of the whole is rich and chaste beyond compare, and must be seen to be thoroughly appreciated. The *P. anabilis* and *P. grandiflora* were in full bloom at the time of my visit, while several of the *P. Schilleriana*, which is later, were also in flower, the whole furnishing a feast of beauty and fragrance such as is seldom met with. Lady Stralbrooke is justly proud of her *Phalenopsis*, in which she takes a very lively personal interest. Mr. Eden, her ladyship's gardener, pointed out to me a fine healthy plant with two fine leaves, which was obtained from surrounding a bud on a last year's flower-stem with damp moss; shoots were developed, and this fine plant was the result. It must, however, be added, that other buds treated in the same way refused to form plants. But as success is now proved to be possible, every promising bud on the strong flowering shoots are to be enticed by every available means to follow the example set them by this young plant, which promises soon to equal the finest specimens in the house. There are many other plants and features of interest at Henham, but the Orchids are so far superior to all else at present that it may suffice to chronicle such a feat of *Phalenopsis* as is seldom or never seen in the provinces. *D. T. F.*

CATTELEYA CRINA.—This charming Mexican Orchid is rarely seen in better order than it is in the hands of Mr. Hinnell, at Anglesea House, Surliton, where it is suspended from a wire in a house kept at a temperature higher than Mexican Orchids appear to like generally. The plant has made fine buds, and is showing flower-spikes accordingly. All who grow Orchids, and who value their rarity, should possess this beautiful yellow-scented variety, if for its fragrance alone. *W. B.*

The Hardy Fruit Garden.

MANURING OF BORDERS and quarters devoted to the cultivation of fruits must not longer be delayed, and if much of such work yet remains to be done it will be well to set about it at once, rather than to wait for the uncertain chances of severe weather setting in. To prevent injury to walks, the surface of which is soft from continued damp weather, it may be necessary to use planks to wheel upon, which will be the means of saving much labour in putting the paths right again. For passing over loose ground, and for protecting the roots of shallow-planted fruit trees, a like resource must be adopted. Use manure of as short and thoroughly decomposed a nature as possible for fruit trees, both as being more speedily useable by the roots, and as being more easily worked in where the roots approach near the surface of the ground. Any droppings that have been accumulated in excess of the requirements of the Mushroom-beds will be amongst the best of materials. The product of the waste vegetable heap when thoroughly rotten, the cleanings from poultry-houses, and any wood-ashes that can be produced by the burning of prunings, weeds, and rubbish of all descriptions, may all be used with good results and comparative ease in application.

TANKS for the reception of liquid-manure from the stables or cow-houses and for house sewage are useful adjuncts to the garden; especially is this the case where the supply of ordinary farmyard manure is limited in quantity, and for use on fruit borders, where it is considered unadvisable to fork in much manure, because of the number of surface roots, and where continued surface-dressings may be raising the borders higher than is desirable. Large quantities of such liquid manure may be put upon fruit quarters at this season, as it is generally much diluted from the rainfall where the water from buildings and the rain running from the surface of yards, &c., is permitted to mingle with the other drainage. Heaps of loam or compost in stock may be thoroughly enriched by being frequently favoured with a supply when available, which is seldom the case after the growing crops in other departments make heavy demands upon this stimulating food. Where no such tank accommodation exists—or where it is not adequate for the storage of the supply available, and to the demands upon it, it may be well to see if tanks cannot be had by trying to spare a little labour from the garden for excavation, cutting drains, &c., which will greatly reduce the direct outlay incurred in their formation. Where the subsoil is a retentive clay tanks may be constructed at a trifling expense, as a 4-inch brick wall, set in cement, will generally be found sufficient for the sides, provided they are well puddled around; but on light soils and on stony ground two such walls may require to be built with a half-inch cavity between, which can be filled with cement.

ARRANGERS OF WORK should now be looked to, and brought up as soon as possible. Where, from pressure of work in other departments, or interruption of any description, any necessary planting of fresh trees, root-pruning of those requiring this assistance, removal of useless specimens, and trenching and enrichment of stations remain undone, use the utmost expedition to recover lost ground. Also where the needed staking and mulching of newly planted trees has been suffered to remain unattended to, and where any pruning, tying, or nailing, is further behind than is advisable with lengthening days and increased work at hand, it will be well to push on such operations at once. Trees that have yet to be lifted in order to check excessive root-action must now be raised with even greater care than was necessary in the autumn, avoiding all unnecessary mutilation, carefully preserving all the smaller roots, and duly trimming with a clean cut any root that is found necessary to remove in lifting the tree. Careful lifting is usually all that is necessary to insure fruitful growth by preventing roots from descending into unsuitable subsoil, or by raising the roots nearer the surface, and more within the sun's influence, on cold soil while root-pruning as sometimes performed is rather a barbarous process, which frequently gives too great a check to the trees operated upon—especially to old ones, and

which it requires great strength of constitution to withstand.

CUTTINGS of bush fruits may yet be put in, choosing straight vigorous growths, which may be cut to a foot in length, removing all but the selected number of buds at the top—except in black Currants, and insert deeply and firmly, working in a little sand and leaf-soil where the ground is heavy. *Ralph Crossling, Castle Gardens, St. Fagan's.*

APPLE ARCADES.—There are so many ways of improving gardens and of making them remunerative as well as attractive, that it is by no means certain whether those who complain of circumscribed space make the most of what they possess. One way of utilising space would be to erect an arcade for training fruit trees upon, over the main walks of our gardens. At Esler Lodge, Surrey, the seat of J. F. Eastwood, Esq., there is one of these arcades thrown over the main walk of the kitchen and fruit garden, which is as profitable as it is ornamental. Apart altogether from the beauty of the arcade when the trees are in flower, or the refreshing shelter it provides from the scorching sun of summer when it is thickly covered with leaves, it produces a never-failing supply of Apples without encroaching upon the space of the garden. In autumn, too, the rosy-cheeked fruits peeping out from among the green leaves form a very pretty sight. The arcade is made of strong iron wire, and is from 9 to 10 feet in height, covering a walk from 8 to 10 feet wide. A strong iron arch is thrown over the walk at either end, into which wires 1½ inch in circumference are fastened and run lengthwise at 2 feet apart. Wires of the same strength are then shaped arch-fashion and placed under these at 12 inches apart, and fastened to them by smaller wires. The arcade has been erected over fourteen years, and the trees, which are very healthy, are swarming with fruiting-spurs. The varieties are Ribston Pippin, Emperor Alexander, Waltham Abbey Seedling, Lemon Pippin, Duke of Devonshire, Hanwell Souring, Farleigh Pippin, Newtown Pippin, Bedfordshire Foundling, Northern Greening, Hubbard's Pearmain, Rosemary Russet, Boston Russet, Keswick Codlin, Blenheim Orange, London Pippin, Kerry Pippin, Wellington, Cornish Aromatic, Easter Pippin, and Pennington Seedling. *W. H.*

MORELLO CHERRIES ON BOARD WALLS.—The Morello Cherry is probably the most productive fruit grown in British gardens. It is a never-failing cropper, and fruits so freely upon north walls that there is hardly one in the kingdom that is not stocked in greater part with them. Owners of small gardens who have no brick walls perhaps never think that what the rich landed proprietor obtains from the face of a pile of bricks they may as readily obtain from a "board wall." A board fence 6 to 8 feet high is not an expensive method of enclosing a plot of ground, and if the boards are utilised as a wall upon which to train fruit trees the proprietor will find by-and-bye that he not only has his boards for nothing but a stock of fruit to the bargain. *H.*

BELLE DE SEPTEMBRE PLUM.—This is one of the best varieties to plant as an orchard tree, and has the merit of being an annual bearer. The fruits are egg-shaped and the colour a reddish-purple when nearly ripe. It is a free cropper and an admirable kitchen Plum in its season. *W. H.*

Grapes and Vineries.

THE Vines in the earliest house will now be in bloom or ready for thinning, according to the freedom with which they broke. Where ready for thinning be careful not to commence before the berries have been set a few days, so that those which have taken the lead can be left, and the smaller ones be taken out. Be careful not to touch the bunches in the operation, and go over them a second time after a few days to take out any small or deformed berries. After the thinning is completed, give the border a thorough soaking with tepid manure-water, at a temperature of 85°; also fill the evaporating troughs with weak manure-water. Still keep the night temperature at 65°, with a rise of 10° by day. Admit air early on all favourable occasions, gradually increasing it as the temperature rises. Close early in the afternoon, and damp the paths and borders with tepid water several times daily, according to the state of the weather

outside. Keep those that are in bloom in a drier atmosphere until they are set, tapping the rods several times daily to disperse the pollen. Where fermenting material is used on outside borders, add fresh dung and leaves as the heat declines, to keep the temperature at 75° to 80°. Succession-houses of Hamburghs started early in the month will now be breaking, and can have a night temperature of 55°, with a rise of 10° by day, steadily increasing the temperature as the growth advances. Keep the fermenting material as advised in previous Calendars, and let the rods be well syringed until the bunches can be seen, when it may be discontinued. Muscats started early in the month will now be on the move, and when they commence breaking they should be kept at a night temperature of 60°, with a rise of 10° by day, increasing the temperature as growth advances about 5° in the next two weeks. If the Vines were tied down in a horizontal position to induce them to break regularly they had better be tied up as soon as they break, as sometimes the shoots snap off in the operation. Any rods that are not breaking well must be kept suspended in a horizontal position over the fermenting materials until they do break. Keep the rods well syringed with tepid water as given when the temperature reaches 70° on the back ventilators, and close early in the afternoon. The present is a good time to start Golden Queen, if it is grown along with Black Hamburghs, and is wanted for exhibition in the early part of August, as it takes a long time to finish off a rich golden colour. I find it succeeds well in the same temperature as Black Hamburgh if started now, but if started along with late Hamburghs it does not finish, and is not nearly so fine in the berry. It does better here grafted on Foster's Seedling than on its own roots. All late Grapes if not already cut from the Vines must be removed at once, for not only will the Grapes keep better bottled in the fruit-room, but it is of the utmost importance to give the Vines all the rest possible if they are to be started early in March, and all late Grapes should be started by that time. Ours have all been cut and bottled since January 7, and are keeping well. As soon as possible after the Grapes are cut frame the houses and dress the cuts with styptic. If there is any chance of bleeding throw the house open a few days before pruning. Pot Vines as soon as they are thinned must have liberal supplies of tepid manure-water a few degrees warmer than the roots, and top-dress them as the roots appear on the surface. Cut-back Vines intended for fruiters next year can be put in heat, and when they have made a few inches of growth shake them out and report them in rich rough compost, and put 9 inches in diameter, plunge in a gentle bottom-heat, and keep them near the glass. Keep the Grape-room as near 45° as possible, and the atmosphere dry: fill the bottles with pure soft water when necessary. *Joshua Atkins, Looking's Garden, Hants.*

The Pine Stove.

THE time for spring potting is fast approaching, so that those preparations which can be made, may now be done with advantage. Examine carefully all the plants that are to be shifted next month and give all water that require it so that when they are shaken out the balls will not be too dry. Any that are under a drip should be moved, and if any have got too wet from any cause they should be allowed to get dry by the time they are shifted. The pots that will be required should be looked out, and those that are cracked may be put on one side for plunging, but they should be precisely the same size as the pots used for fruiting plants. Break up the loam in pieces about the size of hen's eggs, and where time allows it, it is best done by hand, as the spade or any other sharp instrument is apt to cut and damage the fibre. In making a deal of waste, as the small portions have to be thrown on one side. Put the loam in a dry warm shed, and mix the bones and charcoal with it when the potting is done. Where good charcoal is not available it is better to get a sack or two from places where it is thoroughly prepared. Good bones must also be in readiness; those that have been stored a little time are preferable to new bones, as they are apt to ferment or breed maggots. A quantity of dry fresh soil should be kept in reserve for putting over the cracks, and if any wireworms are observed in the loam throw a little soil over it as it is turned over. The materials for forming new beds should also be got in readiness, such as Oak leaves and tan; the latter is best used for two or three weeks in a dry shed before using, so the germs of fungus will exhaust themselves, and the danger may be anticipated from that cause. A good sawdust is an excellent material for plunging plants into, and may be used over leaves or other fermenting materials. Also those plants starting a little lignum-mansure, also those in various stages of swelling. Do not apply it too strong, but a little may be given every time they are watered. *D. Wilson, Carr Hill, South Milton, Devon.*

The Flower Garden.

GRASS LAWNS are in very fine condition this season—if anything rather too luxuriant, but this is a very good fault, and will be corrected by-and-bye. In the meantime, as worm-casts are abundant, they should be frequently distributed over the surface with a long flexible pole, where, if left to the influence of the weather, they will act as a fertiliser, and strengthen the sward. To help this the roller should be occasionally passed over the surface when the soil so distributed does not cling to the roller. Gravel walks, will require frequent attention as to rolling, not only to consolidate them after heavy rains and frosts, to ensure comfort in walking, but to give the lawns a well-kept appearance. For a like purpose sweeping over the surface may be occasionally resorted to when the untidiness is so apparent as to render it absolutely necessary, but I am no advocate for frequently sweeping over grass lawns during the winter months, as by the influence of the weather and various other causes much vegetable *effluvia*, becomes distributed over the surface, which if rolled in instead of being swept off helps to strengthen the grass, and helps it to sustain the exhaustive process attendant upon the frequent mowings in the summer. This is also an excellent time to apply good dressings of wood-ashes to any weak places on the lawns, as it is also for removing all inequalities in the surface through sinking, which cannot be remedied too soon now, so that the turf may become re-established before the drying winds of spring set in. Attention to these matters now will probably save much labour when the season is more advanced.

PLANTING.—As long as the weather continues open this operation may be carried on with success, although as a rule the latter end of October and the month of November is by far the most eligible time for the purpose. We are, however, so frequently the slaves of circumstances as to be compelled to resort to spring planting to save time, and must be willing to take the chance of obtaining less growth, so that the trees and shrubs may become established in the present year. The season has been eminently a favourable one for all who have had extensive works of the kind in hand, and there has been no particular need to hurry over the necessary ground-work too fast. A thorough drainage is the first great requisite to ensure success, and the next that the whole of the ground intended to be planted should be thoroughly trenched to the depth of 2 feet; with such good preparation the chances of failure are reduced to a minimum, and the after-progress of the trees and shrubs will amply compensate for the extra labour of preparation. The same remarks will apply with even greater force to the planting of Roses, which should be brought to a close as soon as possible, and here also the work of preparation is most important; the ground should be thoroughly broken up over 2 feet deep, and whatever manure is used should be well decomposed and thoroughly mixed up within about a foot of the surface. A mere mulching and digging in is not sufficient for such borders; the manure should be well incorporated with the soil, not turned in in lumps. The planting of deciduous trees should be completed as soon as possible. As a rule, these are not so freely used in conjunction with evergreens as they should be. No place of any pretension should be without a selection of the best sorts, as they possess sufficient character in themselves to render them desirable in the summer, but in the autumn they greatly enhance the beauty of the plantations by their varied and striking colours. Among them may be specified Virginia Larch, the Broad-leaved American Oak, Fraxinus pedunculata, the Tulip-tree, Mountain Ash, the Catalpa, the White Bean, or Ficus Arta, very striking in combination; the Acer Negundo variegatum, crimson Thorns, and the Red-leaved American Maple.

ROCKERY.—There is not much moving in this department at present. Some dark violet ones of Heliolepis or Chinensis Rose have been in flower lately for some time. All extraneous matter must be constantly removed so that the beds may show evidences of care—always a pleasing feature, nowhere more desirable than in this department. The regularity and reducing the plants may be left for a time, until vegetation is more advanced, but the foundation of new work must be vigorously prosecuted so that the beds at present may be ready for early spring planting. *John Cox, Redleaf.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan 19	Scale of Lily Bulbs, Tulips, and Calliots from Sec'd of the Auction Mart, by Prothon & Morris, 10, Abchurch Lane, London, E.C. 4.
WEDNESDAY,	1-19-2	Scale of Improved Orchid, at Stevens' Rooms.
THURSDAY,	1-19-2	Meeting of Junior Society, at 8 1/2 W. Scale of Potted-orchids, at Stevens' Rooms.
SATURDAY,	1-19-1	Scale of Hardy Plants and Bulbs, at Stevens' Rooms.

LILIES OF THE VALLEY, Spineas, bulbs, and other plants are now forced on such an extensive scale that the best and simplest modes of urging them into bloom become matters of pressing importance. It is well at the outset to distinguish between plants grown for their flowers only, and those in which the present beauty and future health of the entire plant are involved. It may be wise to adopt express modes of forwarding the former classes of plants, that it would be the height of imprudence to apply to the latter. For example, where the welfare of the whole plant is concerned, it should be more or less fully exposed to the light during its entire period of growth. But with plants merely or chiefly grown for their flowers only, clear light may hinder rather than help their speedy development. It is found in practice that most bulbs and such plants as Lilies of the Valley make most progress in the dark. The absence of light during their earlier stages neither unduly weakens the flower stems nor diminishes the size of flowers; the gentle drawing which it affords, on the contrary, improves the style and character of the flowers. In the case of Lilies of the Valley and Hyacinths, for example, considerable length of stem improves the character of the spikes and affords the individual flowers more room for their fuller and more perfect development. It is no uncommon thing to see Hyacinths in glasses often grown in the light from the first with such stumps—on crowded spikes—as to resemble pyramidal Cockscombs rather than perfect Hyacinths. The same dwarfed characters are often seen among Lilies of the Valley. The surest remedy against such stunted deformities is to grow them a fortnight or so in the dark after the plants are introduced into heat.

This is quite a different matter to the plunging of bulbs and other plants in cinder-ashes, &c., after potting. Thus treated and placed in a cool spot a crop of roots is pretty certain. This is of the utmost importance to the future well-doing of the plants. But a crop of roots and a fat crown may often be found in unison without resulting in stately stems and perfect flowers. In this may be said to be the germ of perfection; but supposing these germs to be suddenly exposed to the light, as they often are, the chances are that the horizontal may outvie the vertical growth, to the spoiling of the size and symmetry of the spike. By keeping them in total or semi-darkness for a fortnight or so after their introduction into heat, the stems or spikes are sent upwards with sufficient force to afford space for the full development of all the flowers. Not only this, Lilies of the Valley are doubly graceful when a considerable space intervenes between each two of their bells. It also makes all the difference for bouquets and other decorative purposes, whether the stems measure 4 inches, 9 inches, or over a foot in length. With the stalks of the plant as with those of Violets, it may almost be said the longer the better within certain limit.

This system of partially growing such plants in the dark not only improves, but saves more than half the time usually bestowed on the forcing of them. Where the flowers alone are valued, even the previous rooting of Lilies of the Valley may be safely dispensed with. The embryo flowers are already in the crowns, and

only need the sharp stimulus of heat and moisture to be developed. Strong crowns do not seem to suffer by being placed in a temperature of 70° to 80° at once. This, with a fair amount of humidity, wakens up the crowns at once, and within a few weeks they are fit to gather.

They may also be kept in darkness, as the French do their Lilies, till they are in full flower. The chief differences between these and Lilies of the Valley wholly or partially grown in the light is that the entire stem is almost as white as the flowers. They seem almost equally fragrant, however, and for wedding bouquets these ivory-looking Lilies are admirable. But they are less durable and more easily tarnished than those inured to light for a few days after reaching nearly their full height. The latter soon gather strength, and hardly differ excepting in greater elegance and longer stems than those grown in the ordinary manner. Of course the darkness blanches the leaves somewhat. But when it is needful thus to hurry on Lilies of the Valley in the dark, it is easy to place a few pots or boxes of smaller crowns in the light to furnish verdure for the forced flowers. Another advantage of this semi-dark method of treating such plants is, that it enables many to force them that could not otherwise do so—in warm cellars, in hot corners or cupboards in the kitchen, or in a close stable or cow-house where a heap of manure may thus be impressed into the production of some of the sweetest bulbs and other flowers.

Labour may also thus be saved, as well as space economised. Bulbs grown in the dark may be plunged in hot moist manure, and need no water or other attention for several weeks. The rate of growth is also more rapid. Lilies of the Valley may thus be rushed into flower in a fortnight or three weeks. This shortening of the period of production is a matter of the greatest commercial importance; for in these days of keen competition the race is to the swift and the battle to the strong; and those who can produce the most and best flowers, fruit, and vegetables, in the least time, and at the least cost, are those who win fame or fortune. Anything here advanced must not be understood as in any way underrating the superlative importance of light to the well-being of plants. On the contrary, the very possibility of forcing such plants in the dark arises from the potency of the light of the previous summer, which did its work so thoroughly as to leave the flowers so perfect in crown or bulb that heat and moisture, either with or without more light, sufficed to develop them sufficiently for our purposes.

— **TRICHOCHERUM PFAVIL**.—This pretty little Orchid was exhibited at the last meeting of the Floral Committee by Messrs. SANDER & Co., of St. Alban's, who kindly placed the plant in our artist's hands for illustration, and the result of his work is seen in fig. 21, on the opposite page. Prof. REICHENBACH described it, at p. 70 of our last volume, as a new species discovered in Central America, by a new Swiss collector, Herr PFAVIL. "The sepals and petals are spatulate, blunt, half brown, half white. The lip is cuneate, flabellate, bilobed, crisp, white with a red blotch on the middle of the stalk, which gives it a very elegant appearance. There are two acuminate spreading teeth on the stalk. The rounded oblong wings of the column have a border of brown spots."

— **THE FEMALE FLOWERS OF THE CONIFERÆ**. Dr. A. W. EICHLER is the latest contributor to the copious literature on this subject, already enriched by him on previous occasions. He finds that the Cycadææ, Conifereæ, and Gnetaeæ are true gymnosperms. In his concluding paragraph the author states that the principal results of his investigations are not new, but their value lies in the fact that they are confirmatory of a great deal that is merely

shadowed forth in SACH'S *Lehrbuch*. The paper is illustrated.

— **CENSUS OF THE FLORA OF PRUSSIA**.—Students of the vegetation of the flora of Prussia in the *Königsberger Gartenschau Zeitung* for October, 1881, by Dr. C. SAINE. It is in substance a criticism of KLINGGRÄF'S figures that appeared in the *Botanisches Centralblatt*. SAINE gives the following statistics:—Flowering plants, 1189 species; Ferns, 23 species; mosses, 293 species; Liverworts, 71 species, &c.

— **FLORISTS' SOCIETIES**.—The annual general meeting of the members of the National Auricula (Northern Section), Royal National Tulip, and National Carnation and Picotee (Northern Section) Societies, will be held at the "Old Bull's Head" (off the Market Place), Manchester, on Wednesday, February 1, at 3 o'clock P.M., to arrange the dates of this year's exhibitions, to decide upon the schedule of prizes, the plan of judging, and any other matter and work connected with the management of these societies.

— **THE OLD DOUBLE WHITE CAMELLIA**.—A fine specimen of this in the Camellia-house at Somerley Park, Kingwood, is now furnishing blossoms of exquisite shape, while *Donkelaar* and *imbricata alba* are doing like good service. These are three good and useful Camellias for a gardener to grow for cutting from, and despite the many new varieties introduced, the former furnishes flowers of rare form and symmetry.

— **GLOXINIAS IN JANUARY**.—Much in the way of improvement has been accomplished by florists among Gloxinias of late years, and there is probably no more useful or attractive class of plants in cultivation that may be possessed by everybody who grows plants at all. Formerly one, or at most two batches of Gloxinias were considered ample to flower in one season, but now it is nothing uncommon to see them in flower from March to November. It is, however, a trifle out of the common to see Gloxinias in flower in January. Mr. BECKETT, gardener to F. H. BRYANT, Esq., Glencain, Subitton Hill, is the successful cultivator, and it is needless to say what a fine show they make at this season, their bright colours being most effective in forming front rows amongst green Ferns and mosses in the plant-stove. The plants were raised from seeds sown last March, and the portion now in flower were left in the seed-pan in a neglected state through the summer, and not potted up until late in the season. Of course the natural inference to be drawn from these facts is that by making two or three sowings in a season Gloxinias may be had in flower all the year round.

— **GRAND NATIONAL DAHLIA SHOW**.—It has now been definitively settled that this shall take place at the Crystal Palace, Sydenham, on September 8 and 9 next. The Directors of the Crystal Palace Company will give a handsome sum in aid of the prize fund, but to enable the committee to issue a really liberal schedule, such as will ensure a truly great show, by inviting Dahlias of every class, and by holding out proper encouragement to all growers, both those with limited and those with extended opportunities, a considerable sum will have to be raised; and it is hoped that all who favour the project will send their subscriptions in good time to the Hon. Secretary, Mr. G. SMITH, New Villa, Hedge Lane, Edmonton.

— **THE AMERICAN "GARDEN"**.—This journal, heretofore published quarterly, is to be issued in future monthly. Paper and typography are excellent, and the contents practical and diversified. A coloured plate, representing the Golden Pocklington Grape, is given with the present number.

— **STRANGE DWELLINGS**.—Messrs. LONGMAN have issued, in their sixpenny *Sunbeam* series, a popular edition of the Rev. J. G. Wood's *Strange Dwellings*, abridged from the larger work of the same author, entitled *Homes Without Hands*. It is an interesting book, and one that would be perused with interest in many a garden library. Its low price is also a great recommendation.

— **THE "ILLUSTRATED HORTICOLE"** for January contains coloured figures of a new Aroid, *Alocasia Putzeysii*, the Nectarine Peach, *Hibiscus*

rosa sinensis var. *Lucien Linden*, with the double flowers of a red colour banded and striped with white. We shall note these plants again under the heading of "Plant Portraits." The general editorship is confided to M. RODIGAS—a guarantee of accuracy.

much sooner than usual, unless some kind of rule regulates market procedure by which things put in appearance at certain dates. But if the mild weather has proved favourable to the development of market garden crops, it has also greatly encouraged the

spring, the moving influences of which will soon be felt.

— HAWTHORNS IN FLOWER.—Mr. COOLING, of Derby, sends us a spray of Hawthorn with the



FIG. 21.—TRICHOCENTRUM PEAVII.

— SPRING ONIONS.—It must be years since the large breadths of Spring Onions seen in the big market gardens about London looked so forward and well as they do at the present time. They have not ceased growing all the autumn and winter, and it would not be difficult to find many fit for market. Should the wintry weather that cannot be much longer delayed (if it is to come at all) not be too severe, the pulling of these Onions will commence

growth of weeds, and that without anything like a serious check. So luxuriantly have these flourished that hoeing has proved of but little value unless the weeds were afterwards picked up by hand. They are carted to the manure-heap, or at once buried in the ground where rough trenching is carried on. We may yet experience very severe weather, but present appearances point to the probability that there will be an abundance of market garden crops in the

flowers developed almost up to the opening stage, gathered from a tree wholly in this condition growing on cold clay!

— MANDRAGORA AUTUMNALIS.—Mr. ELLACOMBE sends us flowers of this curious and interesting plant which he says has been in flower in his garden for the last six weeks. Its dwarf habit, tufted foliage, and its groups of light violet funnel-shaped

flowers, each of which is more than an inch in diameter, and raised on a leafless hairy stalk, render it very attractive apart from the singular interest attaching to the plant. Unlike *M. vernalis*, this species does not usually produce fruit in this country.

— **LINNEAN SOCIETY.**—At the meeting to be held on Thursday, February 2, at 8 P.M., the following papers will be read:—1. "Note on the Medical Use of *Melicope uncinata*;" by OTTO TEPPER. 2. "Remarks on Elephant Flukes;" by Major-General BENSON. 3. "Botanical Sketch in Connection with the Geological Features of New South Wales;" by ROBERT D. FITZGERALD. 4. "Observations on Animal Intelligence;" by OTTO TEPPER.

— **FORESTRY BULLETIN.**—Under this title the American Census Department has published a series of maps of various States of the Union, coloured to show the distribution and extent of the principal timber trees, together with tables showing the estimated amount of "merchable" timber in each county at the end of May, 1831, and the quantity cut during the year. The maps are beautifully executed, and the "get up," as in so many of the American publications, remarkable for neatness and finish. Taking the sheets before us we find that in Texas the principal Pines are *Pinus australis*, *P. mitis*, and *P. taeda*; in Florida, *P. australis*; in Alabama and in Mississippi, *P. mitis* and *P. australis*; in Minnesota, *P. Strobus*.

— **FLOWERING OF THE HAZEL.**—Finding catkins and female flowers of the Hazel (*Corylus avellana*) fully open on the 20th inst., we were led to search for information as to the earliest date at which it had been recorded to flower. In the calendar given in WHITE'S *Scelera*, January 3 is given as the earliest date, March 11 as the latest, in the counties of Hampshire and Sussex respectively. The particular years are not mentioned, so that we cannot say anything about the character of the particular seasons, but in MISS MOLESWORTH'S *Cobham Journals*, edited by MISS ORMEROD, we find more precise indications, though still very few in number. From these data it appears that the average date of flowering of the Hazel for seven years, in the county of Surrey, was February 8. The earliest date recorded by MISS MOLESWORTH was January 30, 1832, the latest, February 28, 1830. The winter of 1831-32, we learn from the same record, was colder than the average; but what is more to the purpose is that the autumn of 1831 was specially warm, the temperature having been in excess of the average in July, August, October, and November. In 1830, on the other hand, the temperature of January and February was below the average. And still more markedly deficient was the temperature of the autumn of 1829—July, August, September, October, November, and December; so that the late-flowering of the Hazel in the succeeding spring appears to be well accounted for in that particular locality.

— **THE POTATO TRADE.**—The *Times* states that Potatoes are still being shipped from the Clyde and some other ports to New York. There must be a considerable dearth of Potatoes in the United States this season, as the following facts will show:—Scotch Regents are sold wholesale in our markets at from 70s. to 80s. a ton, and Champions at about 50s. per ton. They are thus delivered free on board ship. The freight and the ordinary charges amount to 25s. a ton; but the Customs' dues in landing at New York are nearly 25s. a ton. The prices of Champions in New York are thus double what they are in our markets.

— **LIBONIA FLORIBUNDA.**—The common practice of growing this plant in a small state is probably owing to the fact that many people are not aware that the older the plant is the better it flowers—at least, up to six or seven years old. Young plants grown from cuttings in one season, or two-year-old plants, require a lot of spiring, and unless they are in the hands of a practised plantsman seldom yield more than a few flowering points which hardly pay the cultivator for his labour. Young plants that are planted out in rich compost, or that are over-potted, are seldom satisfactory, because the shoots are not sufficiently matured to yield flowers unless in very favourable seasons. But plants from three to six years old, grown in pots the year through, will make handsome bushes, which will flower at this season and

onwards from the tip of the shoot down to the rim of the pot. It is, indeed, a wonder why plant exhibitors do not take to growing the plant for the spring exhibitions. It requires no staking, and a specimen from 4 to 5 feet through would be no mean object at an exhibition. Those, therefore, who have old plants should not throw them away after flowering, but cut them down at the proper time, and after they have started into growth shake them out, repot, and grow on for another season. During the summer and autumn the plants should be grown in the full blaze of the sun, in order to have the shoots nearly an amber colour in the autumn, which is a sure indication of subsequent success.

— **RETIREMENT OF MR. THOMAS MOORE.**—We have already alluded to this matter, and should hardly have done so again were it not for the receipt of a letter from Mr. STEVENS, of Trentham, in which he recalls the numerous claims which MR. MOORE has on the gratitude and respect of the gardening body—not so much for his official services, but for kindly disinterested work and generous help which cannot be measured by ordinary standards. Our motives in not printing MR. STEVENS' letter in full will readily be understood.

— **CROCUS BORYI ALBUS.**—How cheerful are these little Crocus flowers in mid-winter! A few days ago it was a welcome sight to us to meet with this rare and pretty species in the York Nurseries. The blossoms are creamy-white with an orange-yellow throat; very dwarf.

— **THE CORRIDOR AT SOUTH BANK, SURBITON.**—The corridor at South Bank, Surbiton, the residence of W. F. BRYANT, Esq., is now one of the most interesting and attractive departments of that neatly kept garden. The arched entrance to the corridor gives you the idea that you are approaching a grotto, so rustic-like is the workmanship and construction of the walls, which are all faced with cork, and planted with Ferns, Begonias, and other suitable plants. Projecting pockets with a plant of *Cuculigo recurvata* dropped in have a fine effect, as also Palms and other fine-foliage plants, which occupy prominent positions. There are creeping plants trailing over the surface of the cork, and *Cestrum* sorts intermixed with dots of the old *Begonia Rex*, which, together with the silver-marked Fern, *Pteris argyrea*, and several of the green *Pteris*, has a very pretty effect. In the centre of the corridor there is a nice group of plants, and the wings of the building on the ground floor are tastefully ornamented with groups of flowering plants, half-moon shape, which gives the interior of the structure a very cheery appearance. Taken altogether the enjoyment to be derived from such an arrangement is a long way in advance of that to be had in the ordinary conservatory, which, from the very nature of things, is formality itself from beginning to end.

— **GLAZING.**—Whilst the market growers, perhaps the most practical of all plant cultivators, have almost universally adopted the practice of glazing their houses without top putties, the nurserymen have been slower to follow their example. Still it is evident that the good results found by the one section of plant-growers is telling on the other; and evidence of this we saw but the other day in the nursery of Messrs. FROMOW & SONS, at Turnham Green, a large number of new span-houses devoted to the growth of Palms, foliage plants, and various things, being glazed entirely without top putties, and the houses are found to be most efficient. Small copper brads, as less subject to atmospheric action, are found very enduring, four being used to secure each of the large panes of glass, the upper two brads serving at once to fix firmly the glass beneath them and to be also a stay to the pane above. The great point in glazing, to get a good grip for the glass, and to prevent drip, is to be liberal in the use of putty in bedding the glass in. When this is well done, and the surplus putty is neatly cleaned out, the glass is securely fixed by means of the brads, and a couple of coats of paint given to the bars, and well worked into the edges of the glass, drip thus becomes almost an impossibility. When repairs are needed—and of course breakages will occur—there is little hacking to do. The brads are drawn, the broken glass taken out, and the bedded putty can soon be removed. The replacing the damaged with new glass is simple, and soon done. As one result of the non-use of top putties moisture does not

lie about the edges of the glass. On the other hand, when there are top putties the expansion of the glass, which is chiefly vertical, in time lifts the putty, and thus leaves a very trifling space into which water may get, and once there serves it to rot the wood; still worse, being there, when frost comes this is frozen, and, expanding, lifts the putty still more, so that it soon cracks in all directions, and finally shells off in lengths. Evils of this kind, and especially of the accumulation of dirt, is avoided where there are no loosened top putties to cause it to accumulate.

— **THE TRADE IN CUT FLOWERS OF HYACINTHS, &c.**—MR. J. H. KRELAG, of Haarlem writes:—"Serious complaints have been made by members of the English horticultural trade that last year, during the flowering period of Hyacinths, Tulips, and other Dutch bulbous and tuberous rooted plants, the English markets were glutted with numerous masses of cut flowers of these plants sent from Holland, whereby the price of English-grown flowers was in many cases so much depreciated that, instead of giving any profit, there was a great loss in this branch of cultivation. Under these circumstances the majority of the Dutch bulb growers and exporters have thought it necessary to interfere, and at a meeting of the General Association for the Promotion of Bulb Cultivation at Haarlem (a society which has nearly 500 members in twelve different sections) resolutions have been passed condemning this branch of trade, because it is considered to damage largely the trade in bulbs. The Society wishes to induce every bulb grower or exporter, member or not member of the Society, to sign a declaration, in which he undertakes:—1. To send out, neither in the interior nor abroad, any cut flowers of Hyacinths, Tulips, Narcissuses, Anemones, Ranunculuses, or Gladioli, except $\frac{1}{4}$, as samples, in cases under 5 kilogramms; and $\frac{1}{2}$ without charge, for exhibition purposes. 2. Neither to sell, nor to give to others, nor to abandon to their disposition any such cut flowers as an article of trade. The signatures to these declarations will be collected through the officers of the sections of the Society.

— **DACTYLIS GLOMERATA VARIEGATA AS AN EDGING.**—Those who have small gardens and desire to have a pretty edging for their walks and an inexpensive one, should use this beautiful variegated grass, which looks fresh at all times and is very ornamental. As an edging for small flower plots it should be popular with cottagers and amateurs who have the effect of their gardens much deteriorated by the use of bricks and the edgings out of all character with a clastic arrangement of flowers.

— **LIFE HISTORY OF A CROCUS AND GEOGRAPHICAL DISTRIBUTION OF THE GENUS.**—At the Linnean Society, Thursday, Jan. 19, MR. GEORGE MAW read a communication on the above subject. The author says that every living part of a Crocus is annually reproduced, and in one sense there is no continuity of life within each organ. The corn tunic is the only permanent record of perennial existence, and even this in the living state lasts but a year. Seated indiscriminately over the corn surface are minute papille, incipient buds on whose ultimate growth the future cycle of life depends. The abundance of roots is directly related to the floriferous character of each species. The new corm is as it were planted into the substance of its parent, which it absorbs. The tunics are homologous with the leaves, and their fibrous reticulations resemble the latter, only as it were, expanded laterally or with wider meshes. Moreover, their ornamental patterns are so varied yet withal well marked that a fragment is often sufficient to determine a species. The leaves of the majority appear with the flower, but in a few autumnal species they remain dormant until the ensuing spring. There appears to be two distinct sets of colour cells in the segments of the perianth, the inner never exactly corresponding with the outer. A few species are essentially various in their colouring; others are perfectly constant, and still others—for example *Crocus cancellatus*—change gradually in tint from east to west, namely, is purple in Asia Minor, lilac in Greece, and white in Ionian Islands. There are also cases of mimetic variation. The pollen grains, though chiefly spherical, nevertheless possess special specific characters—colour, size, and ornamentation distinguishing them. The stigmata are so wonderfully diverse that MR. MAW

cannot adopt Mr. BAKER's threefold classification based thereon, though he admits their characters are valuable in the determination of species. The seed of the vernal species is matured about midsummer, and that of the autumnal species in November, the vegetation of the former being delayed till the spring. Contemporaneously with the maturity of the seed the foliage and the roots attached to the last year's old corn die away, and the life cycle is completed with the new corn in the condition of rest. A difficulty presents itself in the natural grouping of the Crocuses, the specific characters interlacing and overlapping as to give false ideas of association; therefore any arrangement must necessarily be based on a combination of characters. Mr. MAW adopts a somewhat modified view of Dean HILBERT's classification in preference to that of HAWORTH and BAKER. The Crocuses, geographically speaking, are confined to the Old World and northern hemisphere, their chief area of distribution being around the Mediterranean and Black Seas, and where they form comparatively an important feature in the flora. Mr. MAW divides their region of occupation into nine somewhat arbitrary sub-districts, viz.—1, West European; 2, North Africa; 3, Swiss and French Alps; 4, Italy; 5, East European; 6, Asia Minor; 7, Caspian; 8, Syria and Palestine; 9, Central Asia. *C. biflorus* has the widest range, extending for 35°, from Italy into Georgia; *C. sativus* in its various forms follows, ranging through 30° of longitude—i.e., from Italy to Kurdistan. The islands of the Mediterranean offer curious examples of limited distribution; as *C. Cambessedesii* is found but in the Balearic Isles, and *C. cyprusus* and *C. venericus* in Cyprus and Crete. Mr. MAW's observations go to show there are no wild hybrid Crocuses, and he points out that there is a great tendency to morphosis in every part of the plant. Both to botanists and horticulturists the genus is of exceptional interest. Mr. MAW's paper, with many of the details of which our readers are familiar from his contributions to our columns, was illustrated by numerous illustrative specimens and drawings prepared with great skill and patience, and bore testimony to the thoroughness of the study made by Mr. MAW of the living plants under cultivation, as well as in their native habitats.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending January 23, issued by the Meteorological Office, London.—The weather has been very gloomy with a great deal of mist and fog. The temperature has been below the mean over the greater of England, but continued above it in Scotland and Ireland; in "Scotland, E." the excess was 7°, while in "England, S." the deficit was 4°. The highest temperature during the period (55°) was registered at Aberdeen on the 18th, while the lowest (25°) occurred at Colmington (Devon), on the 22d. The rainfall has been much less than the mean everywhere, and in the south-west and north-east of England the weather was quite dry. Bright sunshine was very little prevalent, the percentages varying from 4 in "England, E.," and 7 in "England, S.," to 26 in "England, N.E.," and 27 in "Scotland, E." Depressions observed:—During this period an extensive area of exceptionally high pressure has existed over England and France, while a few depressions have passed in an easterly or south-easterly direction over Scandinavia. The winds, which were light in force, blew chiefly from east in the south, from south in the west, and from the westward in all the more northern parts of the kingdom.

— GARDENING APPOINTMENTS.—Mr. CLARKE, late Gardener at Melton Constable, has been appointed Gardener to Lord Trevor, Dyrhynkall, North Wales.—Mr. JAMES DICKSON, Gardener at Arkelton, Langholm, N.E. (who was the first to introduce the very large bunches of Grapes at the International Flower Show at Edinburgh), has been appointed Head Gardener to ROBERT JARDINE, Esq., of Castle Milk, Lockerbie, Dumfriesshire.—Mr. ROBERT HENDERSON, from DOWNIE & LAIRD'S, Pinkhill Nursery, has been appointed Gardener to COL. ELLIOT, Hazel Bank, Murrayfield, Edinburgh.—Mr. H. R. HOIMES, Foreman to Mr. PHILLIPS, at Patshull, Wolverhampton, has been engaged as Gardener to the Hon. C. FINCH, Offchurch Bury, Leamington.—Mr. J. SLACK, for four years Foreman to Mr. GADD, at Wollaton Hall, Notts, has been appointed Gardener to T. MACGEORGE, Esq., Elston Hall, Newark.

HOME CORRESPONDENCE.

Teophiponia cyanocrocus.—With regard to this plant I may say a few words, as I have had it in flower every March for four or five years, and find no difficulty in growing it. It is not mistaken it is not an herb but an aberrant genus of the Amygdalaceae, but certainly has an inferior ovary. It is found in Chili, and I expect that the island of Juan Fernandez is an erroneous locality, though it may also occur there. I grow it planted out in a cold frame, with many bulbs of a similar character, and put a mat over the light in frosty weather. Max Lechlin, who grows it much better than I do, says, it is too beautiful to expose to the inclemency of an English March. That gentleman has also a fine variety of species, *T. Keqchi*, which, through his kindness, I hope to have in flower very shortly and will report upon, but it must be very good indeed to beat *T. cyanocrocus* when well grown. The plant ripened seed with the last season, and is likely to maintain itself in cultivation, I think, which is not the case with *Nemastylis* Herbott and other Texan bulbs, which, though very beautiful, are too short-lived and too delicate in constitution for the climate. *H. J. Eboes.*

Mice in Gardens.—There are four kinds of mice likely to do more or less mischief in gardens. The omnivorous and ubiquitous house-mouse (*Mus musculus*), which generally confines itself to the garden-houses and greenhouses, and the long-tailed field-mouse (*Mus sylvaticus*), which generally proclaims its presence in winter by digging for Crocus bulbs; both these kinds are easily cleared off by traps. Far more troublesome, however, are the short-tailed mice or voles, which seem sometimes to come in swarms, and are not easily got rid of. The field vole (*Arvicola agrestis*) is troublesome on damp lawns, making his burrows all over the tennis grounds, but feeding in open weather chiefly on the grasses and clover he finds there. In snow, however, he takes to barking shrubs, dwarf Roses, young Hollies, climbing for this purpose quite into the summer sky. The best remedy for his misdeeds is to encourage weasels in proportion to his numbers, as he will not be enticed into a trap by any bait. The greatest pest of all, however, in a garden is the bank vole (*Arvicola riparia*) which has invaded my garden in great numbers during the past year. These feed principally upon the young growth of herbaceous plants, selecting the choicest. They appear particularly fond of Columbinas and Hellebores, some of which I have been obliged to protect by wire gauze. Lately a bunch of Hellebores damaged in flower was eaten down to the ground in a night, and it would be interesting to know whether the mice were poisoned by it. A friend, writing from Devonshire lately, told me that his Hellebores were eaten by water-rats, but he afterwards discovered the culprits to be bank voles. The bank vole is readily distinguished from the field vole by the bright chestnut-red of the back. Unlike the field vole it is easily caught in traps baited with cheese. I have also seen it in quantities by burying to the rim against walls flower-pots with greased rims half filled with water; but for all I can do the plague still goes on, and I look upon the weasels which have come to my aid as useful servants. *C. Wolley Dod, Edg. Hall, Malpas, Jan. 16.*

Escallonia rubra var. punctata.—This pretty shrub, which Mr. Moore at p. 76 accords a place in the Hardy section of the *Best Novels* of 1881, is not really an introduction of that year. The first record of this fine tree is in the *Botanical Magazine*, tab. 6590, was drawn, was presented to the Royal Gardens some time ago by Messrs. E. G. Henderon under the name of *E. sanguinea*. In the interests of garden synonymy it seems desirable to put this on record. *Geo. Nicholson.*

Satyrium nepalense.—This interesting and rather pretty terrestrial Orchid is now flowering in one of the cool compartments of the T range at Kew. It has a spike of pretty rose-pink-colored blossoms, which, like those of *S. sp.* (of the genus, are two-lipped, the connate sepals and petals being directed downwards, and forming the lower lip, whilst the upper is represented by the erect, saccate labellum, with its peculiar double spur. A figure is being prepared for the *Botanical Magazine*. *Geo. Nicholson.*

Strawberries for Market.—Thanks for Mr. W. Hind's reply to my inquiries. Vicomtesse Hericard de Thury I grow, but it is too small for the general public here. President I grow too, and in splendid variety it is as a second early. And Sir Charles Napier and Sir Joseph Paxton one and the same? [No. 10.] I grow the last-named, and it is all that I could wish for as a late kind, but my principal object is to get a very early variety with the

qualities of President and Sir Joseph Paxton. *Market Gardener, Daxington.*

The Vicomtesse Hericard de Thury Strawberry.—This is the best early Strawberry that I am acquainted with, and should find a foremost place in every collection, whether in private or public establishments, where an early supply of this delicious fruit is aimed at. The plant is a good gazer, and when well done throws up its flower-spikes freely—even in the absence of sunshine, as evinced during the last few months. When touched over with the camel's-hair pencil about mid-day for a few days to distribute the pollen, the fruit attains a good size, and is of excellent flavour and colour. In short, it is a Strawberry that should be kept well before the public by those who have grown and fairly tested it alongside other recognised early varieties, so that it may become as well known as its good qualities unquestionably entitle it to be. And by way of supplementing these remarks, I would add, that at the present time (Jan. 23), we have several plants of the Vicomtesse averaging about seven fruits each, approaching maturity and good in size and colour. *H. H. Ward.*

Genista radiata.—What a charming and interesting leguminous flowering hardy evergreen shrub this is, and yet how seldom it is that we meet with it in private gardens. Introduced from Italy in the year 1758, and with a constitution sufficiently hardy to enable it to withstand and bid defiance to our severest winters, it seems almost a matter for surprise that it is not more frequently seen in our shrubbery borders than it is. When aglow with its bright yellow flowers in July it is exceedingly pretty and very useful for cutting; this it will bear with impunity, as it is very floriferous. Owing to its dwarf and sturdy habit, which seldom exceeds 18 inches in height, it is consequently suited for planting, and as an edging to banks, mounds, or clumps of Rhododendrons, hardy Azaleas, &c., indeed for this purpose it may almost be said to be unique. It is of easy culture and propagation, and would doubtless grow in any ordinary garden soil, even though it be of a poor and hungry nature, but like all other things which are worth growing it is worth growing well and will pay for liberal and kindly treatment. It may be increased either by seed or cuttings, the latter to be taken off towards the end of April or after flowering, with a heel, to be put in under a handlight in a shady place, using a compost consisting of soil, leaf-mould and sand, two parts of the first to one of each of the two latter. *J. Dowdall, Heysham.*

Euonymus latifolius, or the broad-leaved Spindle-tree, is the best of the deciduous species of the *Euonymus*. It is indigenous to the south of Europe, and unlike its evergreen congeners from China and Japan is perfectly hardy. It has been introduced to this country for more than a century, but is possibly less planted than (from its great beauty) it might be expected to be. The great attraction, however, of this shrub, or small tree (for it attains to a height of at least 20 feet), is its singularly pretty and curious looking fruit. And it has possibly been more than usually fruitful, and consequently more attractive and ornamental, during the present season, as it is usually so scarce. It seldom fails, however, to produce in abundance its numerous racemes of bright red fruit, which are loosely suspended by thin thread-like stalks, and as soon as the fruit has attained to a certain degree of ripeness the capsules fly open, and disclose the persistent orange-coloured seeds, which greatly enhance the beauty of the plant, which taken altogether, forms an exceedingly attractive object when seen as a standard or single specimen upon a lawn. Although deciduous the plant is nevertheless ornamental at all seasons of the year, but it is during the months of August and September that its beauty is most conspicuous. When planted, as it mostly is, in mixed plantations of trees and shrubs, its ornamental character is likely to be to a great extent concealed by other objects; but as a standard upon the lawn, or in that form planted among low-growing shrubs, so that its drooping branches and depending racemes of bright coloured fruit are seen gracefully over the top of lower growth, the effect produced is remarkably pleasing. It is easily produced from seed, which during most seasons is sufficiently abundant. *P. Griese.*

Agathæa cœlestis.—Now that this has come to be designated the "Blue Marguerite," it is probably destined to become one of the "fashionable flowers" of the future. It certainly is a most lovely flower and quite a gem in its way, and would look just as well woven on the Lyons shawl as the white Marguerite does on the French silks and stims. Our æsthetic friend with her Bradford gown and "Tam o' Shanter" hat bedecked with this blue Marguerite would look altogether "intense," and not at all "too utterly too." It may not be generally known that it is admirably adapted for sub-tropical bedding, when

planted out as a ground-work to such things as *Grevillea robusta* and *Acacia lophantha*; it has when in flower a most charming effect. Small plants in 4-inch pots are also at this time very useful for decorative purposes, and have, when used in conjunction with Maidenhair Fern, and seen by gas or candle light, a very chaste and lovely appearance. It grows well in loam, a little peat, leaf-mould and silver-sand, and is easily propagated by cuttings. *J. H.*

Double White-flowered Auricula.—Can any of your readers state that they have seen this plant? I have seen it regularly quoted in the catalogue of a celebrated Belgian firm, but have never been able to obtain a plant. I possess three distinct varieties of the double yellow, double black, or dark purple, and a confused variety of green-edged. The double white I believe to be a myth, *Alpha*.

Concerning Winter Bouquets and Flowers.

At a time when the old-fashioned Christmas Roses that have so long graced the glasses of boudoir and drawing-room are fast going to be inappropriate to remind our fellow-readers of a few flowers that may take their place with good effect in the vases. The dark Hellebores, though not nearly so lovely in themselves as the white Roses, still have an interest of their own. *H. atrorubens*, with its clustered heads of a colour between maroon and purple, but softer than either, forms a charming combination with *Hedera aurea*, the arborescent variety (with nice little sprigs), and the broad-leaved marbled Ivy (*H. marmorata*), the dead gold of the former and neutral grey of the latter complete a very choice harmony of subdued colours—the large marbled leaves placed round the edge of a wide and rather flat glass,—the erect golden sprigs and maroon Roses forming the centre of the group. The latter should have the clusters divided to make them last longer: if the room is cool they will do so for a long time, but not if the thermometer is at 60°. In the library at a temperature of 57° they last for weeks in water. The white leaved *Aucuba* forms a pretty foliage for the white Christmas Roses, as it simulates their own greenery, which is not durable in water. Another charming bouquet may be formed of the winter Honey-suckle (*L. fragrantissima*) mixed with sprigs of *Pernettya angustifolia*, with its bright coral berries. This was most successful and as sweet as it is pretty. A few bits of *Chimonanthus fragrans* were added, which has the scent of "glorified" pomatum (as Charles Lamb would say), and finished off with two *Triteleias* which came unexpectedly, as a foretaste of the spring. The above-named *Pernettya* is much more inclined to berry than the other sorts; indeed it always does, and is so neat in its habit. There have been incessant sheets of winter Jasmine this year—quite a golden fleece—and this looks best with green only, such as narrow-leaved Myrtle, or, if large branches are cut, the *Grevillea* *Hilli* furnishes an elegant foliage, and lasts well in water. The addition of white Christmas Roses is also pretty, white and gold being always as harmonious as orange and grey; without any green they are so especially. Orange *Nasturtiums* and grey streamers of *Cerastium* give a never-to-be-forgotten bit of colour, the glass being hidden by the hoary locks of the alpine. We have never been without winter *Heliotrope* (*Tussilago fragrans*) this season; and, as Miss Hope justly remarked, it looks best in its own broad leaves. Another pretty hardy gem is "Winterberry" (*Prinos glabra*): its light colour gives a lively effect with dark Myrtle and deep green Holly. An ivory-tinted *Hel-lebore* is just coming out; it is marked "orientalis," but perhaps fits only a variety of *H. olympicus*. The little Scotch kind is very nice and prolific, tinted with pink sometimes, like a cameo-shell (but why called grandiflorus?). We met with a quantity of *H. viridifolius* in the mountains of Auvergne this summer, or rather about the foot of the hills, in the valleys near Volvic, especially in that lava district. It is always satisfactory to avoid cutting in the houses. Every *Cyclamen*, Roman *Hyacinth*, rosy *Euphyllium*, or pale *Primula* seems to be missed by the eye that glazes over these passing treasures, when one is gone from its place. Many months has the worthy gardener spent in raising up this monument of perishable beauty in the conservatory: he has been piling up, little by little, the elements of floral colour and grace, day by day, as he prays; he has even been thinking of them for more than a year; at once the study and the product of his life to be marred in a moment, perhaps by a lady, with a pair of scissors, ruthless as the shears of Atropos, who wishes for a bouquet or a wreath to wear in the evening! Let the eye feast while it may on the rich orange of the well-berried *Solanum*, under which massive *Hyacinths* nestle—well-grown bulbs. Look! there is dark Uncle Tom's Root, like *Chionodoxa*, and under the green Myrtles and *Grevillea* white spikes of *La Tour d'Auvergne*, pink *Circe*, and the rich rose of *La Reine des Jacinthes*, which beats the Enchantress, fair though she be; over them arch sprays of snowy *Deutzia*, and the richly-painted leaves

of *Eurya latifolia*—all too good to cut, and far too beautiful; and again, there are scarlet *Van Thols* peeping through a *Pteris tremula*, the primitive red of the Tulip so happily broken and fringed by the soft Fern; and there beyond is the *Scaphoaria elegans*, now a large tree, on its carpet of purple *Oxalis*, and another smaller Palm, with its garland of softly tinted *Primulas*; the poor *Oleander* in the corner, but cold and green after those bowers of rosy bloom above us, or snow-white flowers that fell at our feet in the hot summer evenings in France, when those exquisite blossoms were perfect and prolific the very dry season that is gone. No!—

"Let the dainty Rose awhile
Her bashful fragrance hide;
Rend not her silken veil too soon,
But leave her in her own soft nook
To flourish and salute."

H. M. E., Jan. 22.

Labels of Glass.—I send herewith a suggestion for plant labels of glass, written on with an ordinary writing diamond, such as is in common use amongst microscopists for writing on glass slides, price 7s. Perhaps others may have tried this plan, but I have not seen it mentioned anywhere. Glass of the kind sent is very cheap, and the labels would be little, if any, dearer than wood, and the writing is indelible. Their fragility is a slight objection; but wood soon rots, and is easily broken with the rake or other garden tools. *J. C. J.* [The obvious objections to glass labels are such that we cannot recommend them for general use. *Ed.*]

Hellebore fetidus.—Mr. C. Wolley Dod was fortunate in not having an abrasion of the skin of his fingers when engaged in opening the seed-pods of the above plants. In the Midland Counties most farmers grow a few plants of the above, as it is used for producing suppurations in setons or rowels in calves as a preventive of blackleg. The tape used is rubbed with the acid juice of the plant, which produces suppurations in a few hours. *Alpha*.

Echeveria retusa.—This is a grand plant for decorative purposes at this season of the year; in Mr. Moore's nursery at Chichester it is grown very extensively. Some plants in 48-pots are very splendidly grown, producing as many as from six to eight well-branched sizes of its deep orange-coloured flowers. They last a long time, and are exceedingly attractive and useful. *A. O.*

Flowering Shrubs.—Two old favourites in this class have bloomed profusely this season, and are even at this date (Jan. 23) loaded with blossoms—*Chimonanthus fragrans* on a south wall, and *Garrya elliptica* planted among other shrubs, both south and north aspects, the catkins being much longer and finer at the south aspect. On the other hand *Viburnum Tinus* are completely without flowers, when at other seasons they bloom very freely; the two former shrubs deserve to be more extensively grown. *W. Pever,* *The Gardens, Walton House, Malton.*

KIMBOLTON CASTLE.

THE ancient seat of the Duke of Manchester, is well situated in a finely wooded park at an elevation which commands an extensive view of the surrounding country. The Castle is a nice drive distant from St. Neot's station on the Great Northern Railway, but perhaps the shortest and most accommodating route is from Huntingdon to Kimbolton station, from which the Castle is distant some 3 miles.

The drive from St. Neot's is on the west side, the trees, shrubs, and scenery of the park generally being of the most elegant and attractive description. The fine corridor is on the north-east front of the Castle, and a magnificent lawn, flanked by noble trees, is in complete harmony with the Castle, its balconies, terraces, and other external embellishments of architectural skill. The north front is beautifully undulating, and there are some fine groups of trees and rows of Lines of handsome proportions and in fine health. The Conifers and other trees and shrubs bordering the sides of the main drive are very effectively grouped or otherwise arranged, and are flanked by dense masses of Spruce and other trees for protection. Spruce, Pines, Oaks, and even *Wellingtonias* are rapid growers at Kimbolton. Perhaps the fine specimen Oaks in conspicuous situations, the grand "peeps," and lovely views of distant objects, a church spire, or the tower of a neighbouring mansion, or maybe the first tinge of autumn lit up in the leafy landscape by a passing shadow of radiance from the setting sun are among the most charming sights to be seen from the chief positions in front of the Castle.

The herd of deer skipping about or browsing on the face of yonder hill, or a distant head of cattle from his Grace's famous stock of shortborns, are seen enjoying the sweet herbage, and leisurely moving about under the shadow of huge Oaks, whose age or history no one remembers, but which all who love rural life can enjoy.

The gardens proper, or rather the portion that is known to horticulturists as the kitchen and fruit gardens, are but ten minutes' walk from the Castle. The hothouses, too, are within the precincts of the walled-in garden, which is a five-sided figure, and is abundantly stocked with vegetables of good quality, and fruit trees very prolific in their respective kinds.

The hothouses occupy the south and south-east walls, and comprise the ordinary stock usually found in such houses. The large greenhouse contains some good specimen and other Ferns for cutting, *Plumbago*, good *Camellias*, a fine specimen of *Trachelosperma jasminoides*, a useful collection of *Azaleas*, and *Orange* trees, a nice collection of New Holland plants, *Yucca purpurea* showing numerous flowers, a well-flowered sample of *Polygala Dalmaniana* creepers of different sorts, and a general assortment of other useful plants. In a fernery which divides the greenhouse from a range of vineries there is a noble Tree Fern (*Dicksonia antarctica*), and several stumps draped or planted with small Ferns and mosses for furnishing purposes.

How useful these old stumps are, when they are intelligently used, and the purpose for which they are required has received that care and thought which always anticipates the wants of an establishment months beforehand. The back wall of the house is also planted with Ferns for cutting—a good way of saving the pot-plants from being rendered unsightly by severe cutting in winter, which is the cruel fashion now-a-days. Every nook and corner that Mr. Kennedy can use is economically turned to good account, so that things that will succeed in the position, and by this means a good supply of cut flowers and Ferns is kept up in a simple but efficient way, which is proof that a cultivator possessing resources of his own can grow a great many things—and well, too—in structures of all kinds, and in situations which a great many never think of utilising for practical purposes. The foliage plants consist of the ordinary type of decorative subjects, useful in their way to associate with Palms, and to give colour and brightness to groups in winter. In a long lean-to vineyard a good crop of *Hamburg Grapes* was hanging at the time of my visit, of fair size and good quality useful table bunches, and numerous as they are good. The second vineyard is a mixed house of several well-known black and white kinds, ripe or ripening, and also a very good crop. The plant stove is very economically fitted with a miscellaneous collection of useful subjects. The back wall is neatly clad with *Ficus repens*. The roof is furnished with *Staphylea trifolia* ever stove creepers, and there are many handsome foliage plants and Palms of different sizes for furnishing. Several *Dracaenas*, Ferns, *Cyrtopodiums*, and other *Orchids*, I noticed in capital condition, the latter promising to flower well.

In a large range of pits, a very interesting collection of Australian plants was shown to me, many of which appeared to possess considerable merit for many practical purposes of decorating and furnishing. The plants have been raised from seed at Kimbolton, and include many varieties of *Acacia*, *Azaleas*, I noticed, were in good trim out-of-doors, and were being well prepared for early forcing. A batch of *Strawberries* for forcing were also making fine plump crowns, and were both vigorous and healthy.

In the Cucumber-pits good crops were growing, as also many plants that enjoy the same atmospheric conditions, and temporary winter gardening is carried on in the well-known summer style. A number of beds in the front of the hothouses minus carpet-bedding, which is not attempted. Centres of some of the figures were very gay with *Zinnias*, which seem to stand wet weather well, and no more showy plants can be grown in a garden.

The hardy fruits, Apples, Pears and Peaches, especially the former, were fine crops, and in a sheltered division of the garden of the lower gardening is carried on with Peach trees bearing heavy crops of good fruit, and the trees are in a healthy and prosperous state—the shelter evidently being advantageous to the health and fertility of the trees. The *Apocyns* were doing better here than elsewhere, and I saw more than an average crop upon the walls and standard trees in the open garden. Borders of *Violets*, hardy flower-borders, and collections of herbs, were healthy, and kept very neat and tidy, as, indeed, were all the other departments of the garden. The quarters of vegetables are well grown—winter crops, *Celery* especially, being very fine; and, taken as a whole, the management of the garden is conducted by Mr. Kennedy with success and judgment. *W. Hinds.*

Florists' Flowers.

AMARYLLIS.—How very speedily this beautiful spring-flowering plant has taken its position as one of the most beautiful of the section to which it belongs, and it will no doubt increase in popularity. Now is the time to repot the bulbs, but in doing this care must be taken not to over-pot them. When one has a few extra large and well ripened bulbs the temptation is great to give them a little extra pot-room, and an 8-inch pot may be selected to pot the bulb in when it would probably have done better in a 6-inch

show-house, or greenhouse, as soon as the first few flowers open. The greenhouse ought also to be kept rather warmer for a few days, and in this way the remaining flowers will open of a firm texture, and at this season they remain long in beauty. The plants intended to flower late—say in June—ought now to be in a cool-house where they are well exposed to the light and air. There is no need to give artificial heat to them if the frosts are not going to be more severe than any we have yet had. Fumigate with tobacco-smoke to destroy thrips, and if there are none, fumigate all the same to prevent their appearance.

CALCEOLARIAS.—These will now require more attention than they have had hitherto. The plants must frequently be looked over, and as they are often

tance from the stem. Sometimes, though not often, these are not to be had, and cuttings from the stem have to be used instead; but these latter have a greater tendency to rush into flower about May. The earliest struck cuttings of the Pompon section form good specimens for exhibition next season, but old stools of the large-flowering section are the best. These should be selected from the plants that have been grown to produce a few large blooms the preceding season. It is usually stipulated that the plants should be on one stem; those, therefore, must be chosen that have a few shoots coming out of the main stem a few inches above the surface.

CHINESE FRIMULAS.—During the late autumn, winter, and early spring, the greenhouse or con-



FIG. 22.—KIMBOLTON CASTLE, THE SEAT OF THE DUKE OF MANCHESTER. (SEE P. 120.)

AZALEAS.—Forcing Azaleas, or any other flowers, requires some care at this early season. If the flowers are hurried out in a high moist atmosphere they will not last long after they are removed to the greenhouse. If it is necessary to hurry them the temperature should be lowered—say to 55°—a day or two before the first flowers open, and more air ought to be admitted. The plants should be taken to the

grown in low lean-to pits which do not admit of a person getting in amongst the plants, in that case each plant must be taken out separately by the hand and examined underneath. Remove any dead or decaying leaves, and if one greenfly is found fumigate at once, as the Calceolaria suffers more from the attacks of this pest than almost any other plant, the Cineraria not excepted. Still repot later flowering plants as they require it—that is, as soon as the pots they are growing in are moderately filled with roots.

CHRYSANTHEMUMS.—If the cuttings for next season's flowering have not yet been put in, see to it at once. Perhaps the best way is to put each cutting separately into a small pot. Let the pots be placed in a cold frame for a week or more, and then they may be plunged in a very mild hotbed. Take root-cuttings—that is, those that come up at a little dis-

servatory is kept gay with these charming flowers; and since Mr. Barron introduced Wilmore's brilliant-coloured strain the improvement has been very rapid in quality and in colour. The deep red, or reddish-crimson varieties are very perfect in form, and the flowers are of large size; if to that could be added the large masses of flowers such as Mr. Cannell has produced in his pale pink variety, Princess of Wales, it would be a great point gained. If it is not intended to save seed, the seed-pods should be removed with the decaying flowers, which will considerably prolong the bloom. If the double varieties have gone out of bloom the plants should be placed in a position near the glass, and they should not receive much water, for after a little time the cuttings should be put in to produce the earliest flowering plants.

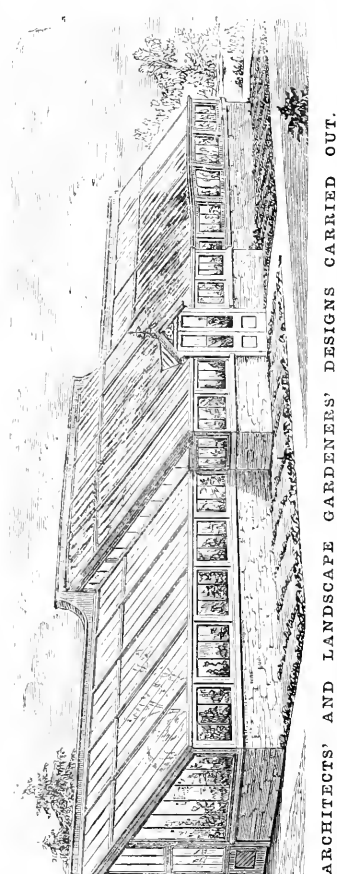
CINERARIAS.—These are now flowering well in the

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4. A. formosum; 5. A. macrophyllum; 6. A. hispidulum; 7. Ficus tremula; 8. Adiantum assimile; 9. Adiantum... apparently a scarce growth of gracilimum; 10. Adiantum formosum.

ORANGES. Middlesex. Your statement in no way invalidates the remarks made by Mr. Douglas at p. 51, which refer to the systematic production of crops of oranges for the soil, and not to the occasional ripening of a few fruits. The fruit, as ripened under the circumstances you describe we do not doubt, but that is not the most profitable way of growing them.

PAXTON'S "BOTANICAL DICTIONARY" J. T. B. 1868 is the date of the last edition.

READING CASES: N. M., York. No. FANONIA OR SASSIFLORA: E. J. Perkins. We have no exact information as to the poisonous or non-poisonous properties of this tree, but should imagine that, like the Yew, it is poisonous to cattle.

WORMS: H. Ker & Co. Messrs. Rutley & Silverlock, of the Strand, sell a worm-scoop which we have found very effective. Your customer might also use lime-water, or try the following plan—Dissolve 1 oz. of corrosive sublimate (poison) in a pint of hot water, adding two large handfuls of salt; and when dissolved, add a gallon of cold water, and apply it to the grass. You must be careful not to let ducks get to the dead-worms.

COMMUNICATIONS RECEIVED.—C. T.—W. H.—VIRIS.—R. D.—W. E. H.—J. D.—H. W. W.—R. C.—H. C.—J. P.—C. S. E.—A. T.—E. J.—ROSE.—A. P.—W. J.—K. & Co.—R. L.—E. J.—Gardener.—G. P.—E. H.—J. E.—E. A.—D. T. F.—E. C.—S. H.—A. Van Geert.—B. W.—W. G. H.—C. R.—B. R.—G. N.—W. E.—G. K.—Bredon.—W. H. (with thanks).

Markets.

COVENT GARDEN, January 26.

Good samples of late Grapes are now falling off, and prices have considerably improved, the supply being much below the average. Apples well maintain their values. Kent Cobs are in better demand. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Fruit name and price. Includes Apples, Grapes, Kent Cobs, Pines, etc.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with 2 columns: Vegetable name and price. Includes Artichokes, Horse Radish, Lettuces, French Cobs, Mint, Mushrooms, Onions, Beans, Parsley, Peas, Carrots, Cauliflowers, Asparagus, Celery, Celeriac, Cucumbers, Endive, Garlic, Kent Grapes, etc.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Plant name and price. Includes Aralia Sieboldii, Arbor vite, Azalea, Begonia, Bouvardia, Cyclamen, Cyperus, Dracena terminalis, Ficus elastica, etc.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Flower name and price. Includes Abutilon, Azalea, Bouvardia, Camellia, Caratons, Cyclamen, Epiphyllum, Eucharis, Gardenias, Gloxinias, Hyacinths, etc.

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NEW PEA—Culverwell's Telegraph.—Awarded 13 Prizes, 1881. Price, in sealed packets, 25 6d. per pint.

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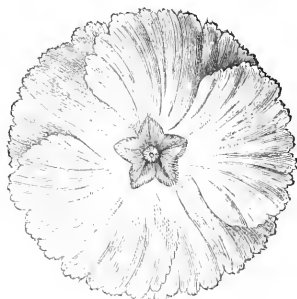
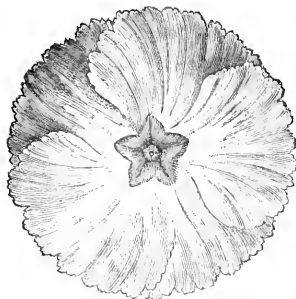
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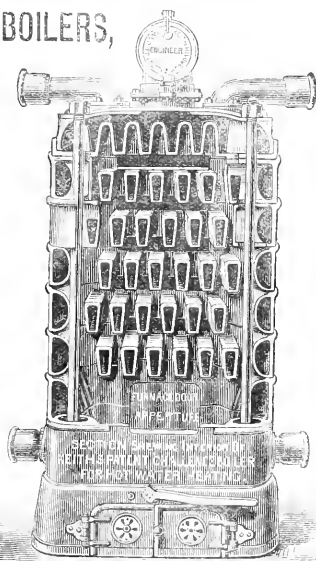
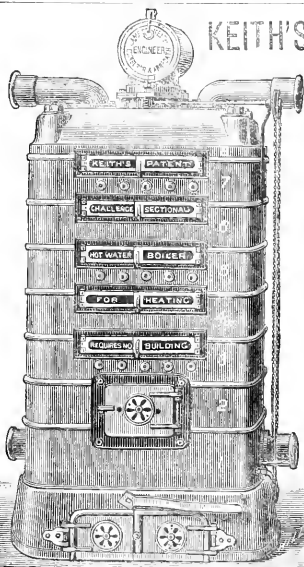
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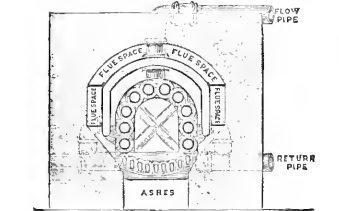
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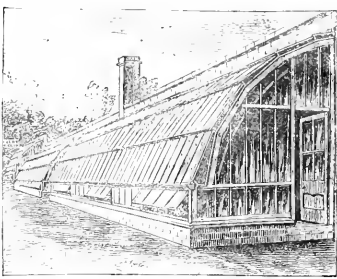
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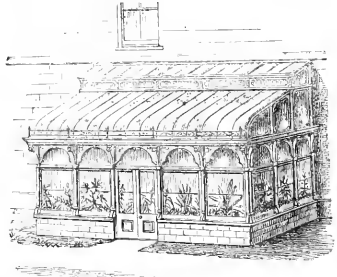
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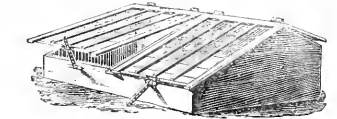
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ADVANTAGES.
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LAIN'S CHOICE HYBRIDISED SEED, superior to all others...

DOWNIE and LAIRD, having now posted Customers, will be glad to send a Copy to any one who may have been overlooked.

DOWNIE and LAIRD, Seedsmen, 17, Frederick Street, Edinburgh, January, 1882.

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STRONG QUICK, for Hedging; extra strong Dutch, for Gapping. Prices on application to RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Largest Cultivated Stock in the World. 100,000 Flowering Bulbs ready for Immediate Supply.

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BLACK and RED CURRANTS.—Strong 2 1/2 year transplanted, 80s. per 1000.

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STOCK PLANTS OF VERBENAS.—We have ready at the present time a large stock of the above, which for vigour and freedom from disease cannot be surpassed.

Buy your Potatoes Now, while they are Cheap. S. BIDE has to offer a fine Stock of MAGNUM BONUM and SNOWFLAKE, a special price for which will be given for large quantities.

FOREST TREES and THORN QUICKS. LARCH, 2 1/2 to 3 feet, 25s. per 1000; 2 to 2 1/2 feet, 22s. per 1000.

LIST OF EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names.

SINGLE DAHLIAS. YELLOW DWARF, 12. 6d. each, 15s. per dozen. SCARLET GEM, 12. 6d. each, 15s. per dozen.

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STRONG PLANTING CANES OF BLACK HAMBURGH and MUSCAT of ALEXANDRIA, 3/6s. per dozen.

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STRONG PLANTING CANES OF BLACK HAMBURGH and MUSCAT of ALEXANDRIA, 3/6s. per dozen.

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NEW DWARF BEAN, NE PLUS ULTRA. Quite distinct; its fine setting qualities and immense productiveness render it far superior to any other Variety in cultivation for Earliest and Early Beans, awarded the only First-class Certificate at the Chiswick Trials, when nearly 200 varieties of Beans were grown.

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NEW ONION CRANSTON'S "EXCELSIOR."

This grand new variety has in every way fully realised our expectations. It has already gained a popularity both for general crop and as a prizetaker, which few recent introductions can claim to. From all parts of the country we continue to receive eulogistic testimonials, thus proving it to be a desired acquisition. It has a very handsome globe-shaped bulb, with exceedingly small neck, and of a beautiful pale straw colour; it possesses mild flavour and excellent keeping qualities. The "Excelsior" has been grown alongside the most popular varieties of Spring and Winter Onions, and proved superior in every respect, many specimens weighing over 2 lbs. For exhibition purposes it will undoubtedly supersede all others.

First-class Certificate of Merit, November 16, 1880. Price per packet, 1s. 6d. Seed supplied Direct, or from the following:—BROWN & CO., Dundee Street, Glasgow. T. BLACK, Jedburgh. T. BURY, Oswaldtwistle, Blackburn. Mc. CUTBERT, Clifton Square, Liverpool. CONNOR & REID, Aberdeen. DICKSON, JAS., & SONS, Newton, Chester. DICKSON & KIRKINSON, Manchester. DICKSON & TURNBULL, Perth. DICKSON, BROWN & TAIT, Manchester. DANIELS BROS., Norwich. DENNISON & SONS, Dublin and Stirling. DOWNIE & LAIRD, Edinburgh. HUBBARD & CO., Inverness. HARRISON & SONS, Leicester. LITTLE & SONS, Ayr. KER & SON, Liverpool. LAIRD & SINCLAIR, Dundee. McHATTER, J. & G., Chester. PERRY, Executor of late Mr., Banbury. READ, A., 28, Kirkgate, Newark. REID & CO., Aberdeen. RUSH, Mr., Chester. SMITH & SON, Aberdeen. THOMSON, F. B., High Street, Birmingham. TURNER, CHAS., Slough. WILLIAMS, B. S., Upper Holloway, London.

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- BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
VEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Vews in this Nursery are quite unequalled, and highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
Waterers, as Standards and Pyramids, the finest plants in the Trade.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, 10 and 12 feet high.
LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS, and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
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Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high.
Silver, in variety, 4, 5, 6, to 10 feet high.
Waters, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high; hundreds.
PICEA PINSAPPO, 6, 7, 8, to 10 feet high; hundreds.
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CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
GHACIUS, 4 and 5 feet high.
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LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIPOCIEDUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUOPSIS BOREALIS, 2, 4, 5, and 6 feet high.
DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high; splendid specimens.
THUYA WEAKEANA, an immense quantity of fine specimens, no 10 to 16 feet.
AUREA, 2, 3, and 4 feet high.
SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted. Knapp Hill Nursery, Woking, Surrey.

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Special Trade only—Cash. EPPS'S PEAT, 30 sacks, 4 bush. each, £3. Sacks, 15s., on Rail, Ringwood Station. Chief Depot and Office.

PEAS, NEWEST and BEST IN CULTIVATION.—Carter's Telephone, Stratagema, Pride of the Market, Omega, G. F. Wilson, half-pint each; Epps's Lead Raglan, Veitch's Perfection, Sureness, one pint each. The collection 7s. 6d. POTATOS—Magonum Bonum, 6s. per cwt., 4s. per ton; Schoolmaster, 6s. 6d. per cwt. True and free from disease. Horticultural Depot, Vauxhall Station, S.E.

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Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

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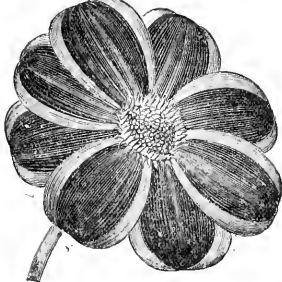
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Begonia, Tuberos-rooted, finest mixed	12. and 2 6
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Cineraria, choice mixed Double	2 6
Cockscomb, Williams' Prize Strain	2 6

Awarded a First Prize at the Grand International Exhibition held in the Royal Botanic Gardens, Manchester, autumn, 1851.



- DAHLIA, single choice mixed 1 6
- The seed I offer of this popular plant has been saved by one of the oldest and most renowned Dahlia growers in the United Kingdom. It is the result of careful and judicious hybridisation of his Prize Plants—from which new varieties may therefore be expected. Sown in heat, in February, they will be freely in autumn if subjected to the usual treatment requisite for their cultivation.
- Edelweiss (Leontopodium alpinum) 1 0
- A beautiful little alpine plant, easily cultivated
- Musk, Williams' New Giant 1 6
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SEED MERCHANTS and NURSERYMEN, WORCESTER.

CATTLEYA MENDELII, &c.;

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THE NEW PLANT & BULB COMPANY

Beg to announce the arrival of the finest Consignments of the above they have ever received. A sight of the extraordinary masses of ODONTOGLOSSUM PESCATOREI, ALEXANDRÆ (broad-petalled forms), TRIUMPHANS (large bulbed), PHALENOPSIS, and the plump-bulbed pieces of the true CATTLEYA MENDELII, will well repay a visit to Colchester.

The extremely fine Collection of JAPANESE MAPLES contains many varieties which are New or Rare, but all the most beautiful. A SPECIAL LIST will be ready in a few days.

LION WALK, COLCHESTER.

TO THE TRADE. SEED POTATOS.

ALL THE BEST KINDS AT THE LOWEST PRICES.

H. & F. SHARPE,

SEED GROWERS, WISBECH.

CATTLEYA LABIATA PERCIVALIANA

(Rehb. f.)

TRUE AUTUMN-FLOWERING LABIATA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by Order of Mr. F. SANDER, on THURSDAY, February 23, a wonderful Importation of this magnificent CATTLEYA. It is well known there are numerous varieties among the old Cattleya labiata, such as PESCATOREI, PICTA, &c., and the varied Bulbs show that many varieties are among the lots offered. It is true Autumn-flowering. Flowers will be on view of this the finest Brazilian CATTLEYA: sepals and petals broad, deep rose or light purple; lip broad, large, splendidly fringed, lower part deep velvety-purple: in some varieties quite one half of the lip is dark; throat golden-yellow. We have never previously seen imported a Cattleya so floriferous: there is hardly a Bulb which has not flowered, and whose spike does not show three and four flower seats. Mr. Seidl, the lucky discoverer, states that one mass alone had 350 flowers fully expanded when collected, and many others had faded. This piece had to be cut into four, to facilitate its transport to the far distant coast. We are extremely pleased at being able to offer it to the public, having looked for it without success for many years. The green and red-leaved varieties are among the importations which is altogether in simply superb condition. The whole will be given into Mr. Stevens' hands and comprise all that could be found, and none sold privately; but Mr. Sander earnestly invites prior inspection at the St. Alban's Nurseries, which are easily reached by the Midland, London and North-Western, or Great Northern Railways, from any of the Metropolitan Stations, Liverpool Street, King's Cross, or from St. Pancras, by fast train in half an hour.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CATTLEYA MENDELII.

MR. J. C. STEVENS will SELL by AUCTION, by order of THE NEW PLANT AND BULB COMPANY, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, February 10, at half-past 12 o'Clock precisely, a grand consignment of CATTLEYA MENDELII, in superb condition; ODONTOGLOSSUM PESCATOREI, probably the finest ever imported; O. TRIUMPHANS, O. PHALENOPSIS, &c.

On view the morning of Sale, and Catalogues had.

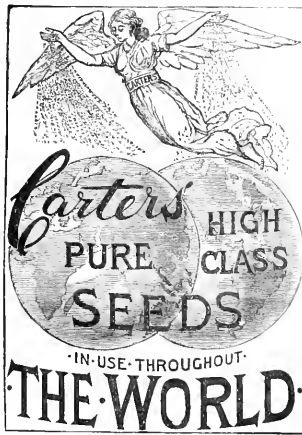
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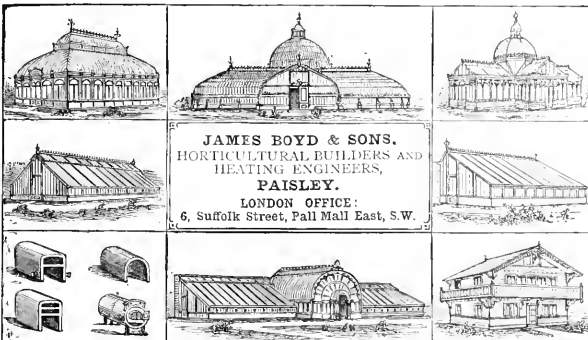
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HOT-WATER APPARATUS FOR WARMING CHURCHES, SCHOOLS, PUBLIC BUILDINGS, MANSIONS, HARNESS ROOMS, DRYING ROOMS, HOTHOUSES, and BUILDINGS OF EVERY DESCRIPTION.

IMPORTED ORCHIDS.

Messrs. SHUTTLEWORTH, CORDER AND CO. have great pleasure to announce they have received, per s.s. *Pava*, a grand importation of *CATTELEYA AUREA*, *C. GIGAS*, *MASDEVALLIA CHIMERA*, *M. SHUTTLEWORTHII*, *M. TROCHILUS*, *M. HARRYANA*, and *M. HOUTTEANA*; *ODONTOGLOSSUM VEXILLARIUM*, the dark varieties, in splendid condition; *O. CRISPUM* (*ALEXANDRÆ*), in fine masses, and the best varieties; *O. PESCATOREI*, *ANGULOVA RUCKERI*, *UROPEDIUM LINDENI*, &c. — all in the best possible condition.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 13, at half-past 12 o'clock precisely.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

GEE'S SUPERIOR BEDFORDSHIRE GROWN SEED.—Choice Seed POTATOS, CABBAGE, CAULIFLOWER, and other plants; QUICKS, ASPARAGUS, SEAKALE, and RHUBARB ROOTS; WALL-FLOWERS, DAISIES, and other SPRING FLOWERING ROOTS, cheap and good. Also every requisite for the Garden or Farm for the coming season, all at the most reasonable prices, and of best quality.

F. GEE is prepared to supply the above in any quantities. Large buyers stating their requirements treated with on the most liberal and advantageous terms for cash. Special offers to the Trade. Select General Retail Catalogue may be had on application to
FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Beds.

GARDEN SEEDS.

OUR ANNUAL DESCRIPTIVE CATALOGUE of the above is published; it contains select lists of Kitchen Garden and Flower Seeds, besides all the leading "Novelties" for 1882. Post-free on application.
OSBORN AND SONS, The Fulham Nurseries, London, S.W.

ONION SEED.—Bedfordshire Champion, very fine; and Intermediate and White Spanish; all at 5s. per pound, which you may depend on to be all new and genuine. Good 1 1/2 yr. old QUICKS, 5s. per 1000; large SAGE ROOTS, 4s. per 100. Terms cash.
RICHARD WALKER, Market Garden, Biggleswade, Beds.

WANTED, OFFERS for 15,000 BERBERIS AQUIFOLIA, 2 yr., well rooted; 1500 Common LAUREL, 7000 Whitesmith GOOSEBERRIES, 250 Red Ashes, 200 mixed sorts, 4500 BLACK CURRANTS, 2 yr. fine; 1600 WHITE DUTCH CURRANTS, 500 LABURNUMS, 3 to 3 1/2 feet.
F. H. WITTY, Seedsman, 7, Junction Street, Hull.

SEAKALE.—A quantity of extra strong forcing Roots of Seakale. Price on application.
D. S. THOMSON, The Nurseries, Wimbledon, Surrey.

Twenty Thousand GOLDEN EUONYMUS (*Euonymus japonicus foliis aureis*), healthy, well-rooted plants, 6 to 12 inches, 1s. per 100; 1 to 1 1/2 feet, 2s. per 100.
CHARLES E. SAUNDERS, Nurseryman, Jersey.

New Dutch Double-flowering Tuberous-rooted BEGONIA.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Harlem, Holland, beg to offer a few collections of the following splendid new Dutch Hybrids of BEGONIA RUBRA and BEGONIA SIBIRICA, all with very double flowers of 8 to 10 centimetres in diameter, viz. —
MONSIEUR DULVENE DE WIT, orange-red, with large white centre 1 1/2 0
WILLEM III, bright orange 1 1/2 0
KONINGIN EMMA, rose, very fine egg form 1 1/2 0
PRINS HENDRIK, violet-red, with white shadings 1 1/2 0
MONSIEUR W. A. VIRVULY VERBRUGGE, violet-red, with white 1 1/2 0
PROFESSOR OULEMANS, bright red 1 1/2 0
LINNÆUS, orange-red and white 1 1/2 0
BURGEMEESTER PELS RIJCKEN, bright salmon, with white 1 1/2 0
DR. L. MULDER, dark red 1 1/2 0
ALEXANDER VON HUMBOLDT, violet-red, with goose 1 1/2 0

The set of ten varieties, one tuber of each, 16 6d.
As the stock is limited early orders are solicited.
Best double-flowering BEGONIAS, mixed seedlings, per dozen, 30s.; per 100, £4 to 5.
Discount to the Trade.

New Potato.
F. AND C. MYATT are now sending out their
NEW POTATO, ALBERT EDWARD, which was awarded a First-class Certificate at the International Potato Exhibition. It is a First Early White Round Potato, raised from the Fluke, very prolific, and described by the judges as "Soft, mealy, and of the finest flavour."
Price 5s. per peck, 18s. per bushel, free on rail.
F. AND C. MYATT, Offenham, Evesham.

To the Trade.
R. AND A. MORRISON, The Nurseries, Egham, beg to offer the following Seedling and Transplanted Forest Trees:—
LARCH, true native. Price on application.
.. Tyroler, £4 10s. per 100, 2000.
.. Transplanted, 12 to 18 inches, 12s. 6d. per 100; 18 to 24 inches, 15s. per 100; 2 to 3 feet, 17s. 6d. per 100.
SCOTCH FIR, true native Highland Pine, 1-yr. Seedlings, £7 10s. per 100, 2000; 1-yr. 2-yr. Transplanted, 17s. 6d. per 100; 12 to 18 inches, 10s. 6d. per 1000.
PINUS AUSTRIACA, P. LARICIO, P. MARITIMA, and MONTANA, 1-yr. Seedlings, 2s. 6d. per 100; 2-yr. 2-yr. Transplanted, 10s. 6d. per 1000.
OAKS, ENGLISH, 1-yr. 2s. 6d. per 1000.
Trade CATALOGUE may be had on application.

1882 ILLUSTRATED HARDY PERENNIALS. 1882

I have pleasure in announcing that this Catalogue is ready, and may be obtained gratis and post-free upon application. It contains many CHOICE NEW and RARE HARDY PERENNIALS, including *Clintonia Andrewsii*, *Platycodon grandiflorum pumilum*, *Delphinium cardinale*, *Clematis racemosa*, *Heptacris yuccifolium*, *Eriogonum aurantiacum*, *Mertensia sibirica*, *Allia*, and numerous others. In addition to which are selections of Alpine Phloxes, Iris Kompanii, *Cyclamen-Aucuas*, Single Roses, Asters, Single Sunflowers, Lilacs in pots, Hardy Orchids, Bamboos, and Grasses, and many other groups of Hardy Plants.

THOMAS S. WARE,
HALE FARM NURSERIES, TOTENHAM, LONDON.

THURSDAY NEXT.

CATTLEYA TRIANÆ, MEXICAN ORCHIDS, BURMESE ORCHIDS.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 9, at half-past 12 o'Clock precisely:—

A GRAND IMPORTATION OF

CATTLEYA TRIANÆ.

Collected by Mr. Schmidtschen in the same locality whence our last importation came. Some of these have flowered and are magnificent varieties. The plants are in grand condition, full of green, sound leaves and unbroken eyes.

ODONTOGLOSSUM ALEXANDRÆ.

From the best locality. The masses are grand in the extreme, and in wonderful condition.

DENDROBIUM WARDIANUM.

DENDROBIUM CRASSINODE BARBERIANUM.

DENDROBIUM FALCONERI.

Just home from Burmah—in grand condition.

LÆLIA ALBIDA.

Many amateurs consider this the most lovely Orchid grown. Its easy culture, great floriferousness, and its coming into bloom, as a rule, about Christmas, add greatly to its merit. The consignment is unusually splendid, consisting of masses of largest size.

LÆLIA ANCEPS.

Immense and distinct-looking masses of this magnificent Orchid.

CATTLEYA CITRINA.

Unusually fine importation of this splendid, short-bulbed, large, and dark-flowered variety.

CATTLEYA AUCKLANDIÆ.

Fine importation.

CHYSIS AUREA, a magnificent lot of this lovely Orchid; ODONTOGLOSSUM CORDATUM, large masses of LÆLIA ANCEPS ROSEA, EPIDENDRUM DICHROMUM (AMABILE) lovely free-flowering species, flowers rose, 2 inches in diameter, lip rich crimson; and other ORCHIDS.

May be viewed morning of Sale, and Catalogues had.

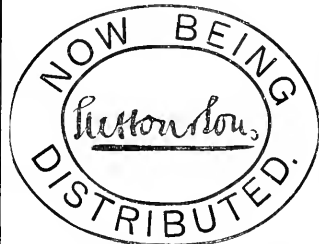
WEBBS'

THE MOST

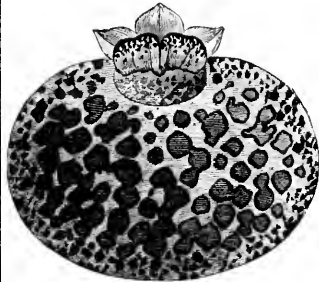
RELIABLE

VEGETABLES

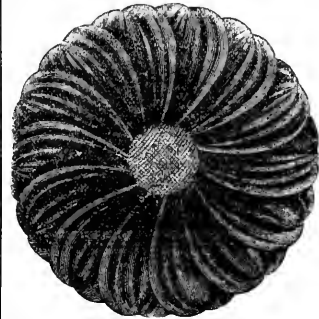
BEAN (Broad), Webbs' Kinver Mammoth	1 9	pint
BEAN (French), Webbs' Victoria	2 0	qrt.
BEEF, Webbs' Dark Red	0 9	pkt.
BROCCOLI, Webbs' Perfection	1 0	..
BRUSSELS SPROUTS, Webbs' Matchless	0 6	..
CABBAGE, Webbs' Emperor	0 6	..
CARROT, Webbs' Scarlet Horn	0 8	oz.
CAULIFLOWER, Webbs' Early Mammoth	1 6	pkt.
CELERY, Webbs' Mammoth Red	0 6	..
CUCUMBER, Webbs' Perpetual Bearer	1 6	..
LETTUCE (Cos), Webbs' Monstrous	0 6	..
LETTUCE (Cabbage), Webbs' Summerhill	0 6	..
ONION, Webbs' Banbury	0 6	..
PEA (Early), Webbs' Kinver Gem	3 0	pint
PEA (Early), Webbs' Perfection	1 6	qrt.
PEA (2d Early), Webbs' Kinver Marrow	1 9	..
PEA (Main Crop), Webbs' Electric Light	3 0	pint
RADISH, Webbs' Early Frame	0 4	oz.
TURNP. Webbs' Early Purple-top	1 0	pkt.



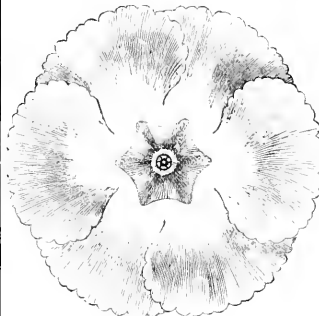
NEW STRAINS OF



CALCEOLARIA.



CINERARIA.



PRIMULA.

PRICES AND FULL PARTICULARS
GRATIS AND POST-FREE.

THE QUEEN'S SEEDSMEN
READING, BERKS.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 4, 1882.

NEW VEGETABLES OF 1881.

IN the vegetable department the race after novelty, and the search for new and improved varieties, are still as brisk as ever. New vegetables, are, however, scarce, although new names are over-abundant. As we have before remarked, the improvement amongst vegetables is more due to careful selection than to the raising or introducing of new varieties. The term "improved," so much hackneyed of late, is justified whenever by careful selection the stock is rendered superior to that ordinarily to be met with.

Potatoes—to which we first direct attention—form an important exception to the general rule. For here we have decided novelty—decidedly new and improved varieties, produced, moreover, in no haphazard manner, but with considerable skill and definite purpose. There can be no question that if the numbers of varieties of the Potato have increased during the past few years, they have become improved also in appearance, and much more so in quality. The high quality of the new Potatoes submitted during the past year, and their fine appearance, were particularly noticeable. Mr. Fenn, the most successful raiser of new varieties, is to be congratulated on the success of his efforts. Our thanks are due to him especially, and to Mr. Alexander Dean, who is a very worthy disciple. Of Mr. Fenn's seedlings Standard is a very excellent round white. Fenn's No. 29, a very handsome pale red kidney, is a most extraordinary cropper, and one of the finest Potatoes as regards quality. Mr. Dean's Lord Mayor is a rough-skinned round white. Early Cluster, a very early half-round white, with a remarkably short top, will prove extremely valuable for forcing. Cosmopolitan, the produce of a cross between the American Success and Woodstock Kidney, is early, large, handsome, a great cropper, and of good quality. Garnett's Seedling, from Mr. Garnett, is a fine large white kidney. Foster's Seedling, a beautiful round, pale yellow-fleshed variety, is also to be noted. Victoria Kidney (Edwards), a wonderfully flattened and very distinct form of Paterson's Victoria, is another fine variety; and Fortyfold White (Farquhar), very much after the Schoolmaster type, is also deserving of notice. Defiance (C. Lee & Son) is a large purple kidney, handsome, and stated to be an extraordinary cropper.

Of American Potatoes the number of new aspirants is still as great, and the advance in point of quality equally, if not more, decided. The newer seedlings raised by Messrs. Brownell and Messrs. Rand, and about to be sent out by Messrs. Bliss & Sons, of New York, are very superior as regards quality to any of those of earlier introduction, as proved in the trial-grounds at Chiswick, the following varieties being specially selected:—Vermont Champion, round white; Iroquois, oblong white; President, round white; Fremont, large long white; also of somewhat older date, Adirondack, round white, splashed with pink round the eye—a very beautiful variety, almost sure to become a favourite; the Queen of the Valley, oblong pale pink; Matchless (Hooper), very beautiful

WEBBS'

THE MOST

BEAUTIFUL

FLOWERS.

For Packet—s. d.	s. d.	s. d.
WEBBS' EXQUISITE PRIMULA	1 6	2 6
WEBBS' SUPERB CALCEOLARIA	1 6	2 6
WEBBS' SUPERB CINERARIA	1 6	2 6
WEBBS' PERFECTION CYCLAMEN	1 6	2 6
WEBBS' EXCELSIOR GLOXINIA	1 6	2 6
WEBBS' BRILLIANT PETUNIA	1 6	2 6
WEBBS' DEFIANCE AURICULA	1 0	2 6
WEBBS' SHOW PANSY	1 6	2 6

All Garden Seeds Post-free (except Beans and Peas).
Seeds of 20s. value Carriage Free. 5 per Cent. discount for Cash.

THE QUEEN'S SEEDSMEN
WORDSLEY, STOURBRIDGE.

rosy-pink, and an extraordinary cropper; White Elephant (Daniels) and St. Patrick (Veitch) deserve notice also, as being very serviceable and meritorious sorts.

To the Celeries Messrs. Rutley & Silverlock give us a very good addition in the Winchester Red, a variety with very large leaf-stalks.

In Cauliflowers Messrs. Veitch's Extra Early Forcing, of the Early Erfurt type, will prove very useful. Amongst Onions Carter's Golden Queen, a straw-coloured variety of the Silver-skin, small in size, like the New Queen, and Carter's Silver Ball and Golden Globe Tripoli may be noted as distinct forms.

Tomatos now command a large share of attention, and hence we have a number of new varieties. Trencham Early Fiddlebasket may be noted as one of the most promising and useful varieties, and for beauty and solidity of flesh we name Dedham Favourite, a smooth dark red fruit. Messrs. Hooper give us also Abundance, having a very fine character; and from America we receive Livingstone's Perfection, stated to be of very superior merit.

Peas are special favourites in English gardens, and the raising of new varieties has long been an object of great interest. Amongst the more important additions during the past year we would mention Carter's Pride of the Market, which as far as we may judge from present appearances may be pronounced the best main crop market Pea in cultivation. Robert Fenn (Hurst), a dwarf marrow, is a variety of great excellence, coming into use the same time as Advance. Walker's Perpetual (Nutting), a much branching dwarf green marrow with well-filled pods, and an extraordinary cropper. Laxton's Earliest of All (Hooper), one of the earliest of all Peas, and of remarkably fine quality. Bunyard's Four Hundredfold, a very deep green marrow, with remarkably well-filled pods, and an immense cropper. Sharpe's Invincible and Culverwell's Giant Marrow may also be mentioned as new and proved good varieties. Many other aspirants full of promise are yet on their trial, the merits of which we hope to chronicle next year.

SABAL UMBRACULIFERA IN JAMAICA.

RUNNING parallel to the southern coast of Jamaica, and trending in a north-western direction from Alligator Pond to Black River, are the Santa Cruz Mountains. These mountains are composed of the characteristic white, porous limestone of Jamaica, and rise to heights varying from 2000 to 2300 feet. At the foot, and occupying the undulating country between the mountains and the sea, varying in breadth from 6 to 9 miles, are stretches of savannah lands, known as the Pedro Plains or Pratee Country.* The prevailing soil of the plains is composed of red mud, with here and there a deposit of gravel and alluvium. The district generally is hot and arid, the mean annual rainfall being about 50 inches, while the temperature is seldom under 80° Fahr. This is the home of Sabal umbraculifera.

The Palm is known locally as the "Big Thatch," or "Ball Thatch," and also as the "Palmetto Royal." A recent visit to these comparatively unfrequented Pedro Plains gave me an opportunity of seeing this magnificent Palm in its native country. On the authority of Purdie, Grisebach (*Flor. Brit. West Indian Islands*, 1864, p. 514) rightly notes this Palm as indigenous to Jamaica, and mentions "Black River savannah" as its habitat. Although sparingly distributed along the plains from Alligator Pond to the westward, even as far as Savanna-la-Mar, it is evident that its true home is confined within the limits of the Pedro Plains, and its abundance and magnificence there very clearly to my mind establish its indigenous character.

It would appear, however, that before Purdie's visit

the original source of this noble Palm was involved in some obscurity. For instance, in Dr. Seemann's *Popular History of Palms*, 1856, p. 337, published a few years before the *Flora of the British West Indian Islands*, we find the following remarks, quoted on the authority of Mr. John Smith, ex-Curator of the Royal Gardens at Kew:—"Although we have long known this species (*Sabal umbraculifera*) to be quite distinct from the well-known *Corypha umbraculifera* of the East Indies, yet we are still uncertain about its native country—it is generally supposed to be the West Indies, but we furnish no evidence of that being actually the case. All the specimens cultivated in England are very old, and it is singular that new ones have never, so far as my personal knowledge goes, been imported."

The botanical characters of *S. umbraculifera* are well described by Grisebach, and it is only necessary here to add one or two supplementary remarks. The trunk is singularly smooth and straight, free from ring marks, and uniform throughout. It sometimes attains a height of 90 to 100 feet, with an average circumference of 5 to 6 feet. The outer portions of the stem have an iron-like firmness, which is in marked contrast to the somewhat soft and fibrous nature of the inner portions. On this account narrow planks are made from the narrow rind, and pots, beehives, and various utensils are obtained from short portions of the stem hollowed out.

The large glaucous and suborbicular leaves are about 5 or 6 feet across; they are multifold, from one-third to two-thirds of their length, and have loose fibres between the bifid lobes; the segments are very acutely pointed with the ends somewhat pendulous; the unarmed petiole is much longer than the leaves, and remarkably strong. The spades appear among the leaves, and are about one-half as long; the branches are paniculate, with sessile blackish berries 4—6 inches in diameter. Plants appear to flower and produce fruit at all stages. One was noticed in fruit when quite stemless. This Palm is essentially gregarious; it is found covering several thousand acres, literally forming extensive groves in the Pedro Plains. These are known locally as "thatch fields." They occupy chiefly dry elevated banks and strips of land between numerous lagoons and morasses—the haunts of turtles and alligators. Seen across one of these lagoons the effect produced by a view of this Palm forest is indescribable. The tall, straight, cylindrical columns surmounted by their globular masses of fronds, often 25 or 30 feet across, are seen to rise out of a sea of green sedges and grasses, and as no other growths intervene the result—merely as a matter of scenery—is well worth a visit to the tropics to behold. Under such circumstances even the most sceptical would admit that Palms are rightly named "the kingly race of plants." Kidding underneath nothing could surpass in grandeur and beauty the effect produced by innumerable tall stems canopied by immense fan-shaped leaves rustling and rattling against each other in the refreshing breeze.

In the adult stage *Sabal umbraculifera* has all the majestic mien and habit of the Talipot Palm, *Corypha umbraculifera*, of Ceylon and Southern India. Indeed, to one familiar with the latter there is a great apparent similarity between the habits of the two Palms. The sharply pointed and pendulous segments of the leaves of the Sabal combined with their characteristic glaucous tint are, however, in marked contrast to the bluish and slightly bifid segments of the Talipot with its bright green leaves. Again, the free-flowering habit of the Sabal as compared with the solitary and final effort of the Talipot Palm, affords another important point of distinction: and the inevitable death of the latter after flowering would indicate that for avenues and ornamental Palm-groups the Sabal would be, by far, the better Palm to plant. It possesses also the merit of growing in comparatively poor soil, and in a climate very unfavourable for most tropical plants.

The fruit of the Sabal is like a miniature Date, and the sweet pulp with which it is enveloped attracts and supplies food for a large number of jabbering crows (*Corvus jamaicensis*), blue pigeons (*Columba inornata*), bald pates (*C. leucocephala*), and rat-bats. It is owing to these agencies, no doubt, that the Palm is so well distributed throughout the district. Of the economic uses of the Palm mention may be made of the leaves—the chief parts used—which form the only thatching material for both negro and European houses. Mats, ropes, hats, and baskets, are made from the younger portions of the petiole and leaves,

while, as already mentioned, the hollowed trunks, cut into short lengths, make admirable beehives.

It seems strange that while the Cocoa-nut Palm grows freely everywhere along the coast of Jamaica, it is almost entirely absent from Alligator Pond to Black River, viz., the district occupied by the "Big Thatch." At first, this was taken as an accidental circumstance, but careful inquiry on the spot convinced me that although the soil and climate differ very slightly from those of other portions of the island where the Cocoa nut thrives luxuriantly, all efforts to establish it in the Pedro district had signally failed. The plants appear to thrive for a few years, and to grow remarkably well, but before coming into bearing they suddenly die off from the top, leaving nothing but a bare stem.

After examining several trunks of the Sabal, and finding them completely riddled by the attacks of the larva of a beetle very closely allied to, if not identical with, the destructive Palm-beetle of the East Indies, I came to the conclusion that one, if not the chief, cause of the absence of the Cocoa-nut Palm in the district was the abundance of this beetle. Further information and inquiry in the neighbourhood has fully confirmed this view. The Sabal appears to exist and, indeed, to thrive luxuriantly, in spite of the beetle; but the Cocoa-nut fails. The terminal bud of the latter offers an easily accessible and tempting *bonne bouche* to the larva, and it succumbs to its attacks; on the other hand the Sabal thrives and covers the country. *D. Morris, Jamaica, Jan. 12.*

BIRD FLOWER OF MEXICO.

ABOUT fifty years ago Zuccarini founded the genus *Heterotoma*, upon a Lobeliaceous plant collected by Karwinski, on the peak of San Antonio, in Mexico, at an altitude of 8000 feet. The species he called *Lobelioides*. A few years later Presl described what appears to be the same plant, under the name of *Myopia mexicana*; and Bertolini, in his *Flora Guatemalaensis*, described it as *Lobelia calcarata*. It is very pretty, and though not so showy a plant as *Lobelia cardinalis* and some other allies, it is perhaps more interesting on account of the singular form of its red and yellow flowers. The curved corolla seems to be attached by the middle, and is perched, as it were, on the tip of a slender stalk. The closed or lower half is produced below or beyond the point of attachment in the form of a hollow spur. Along the under-side of this spur, and attached to it, are two of the calyx lobes, which extend a little beyond the spur, their short, free terminations curving upwards and outwards. The upper half of the corolla is slit down the front or under-side to the point of attachment, and the lobed limb is curved back, so that the whole corolla bears some resemblance to a bird. This is more especially the case just before the corolla opens and frees the stamens, which then project at almost right angles to the flower-stalk.

This curious plant seems to be common in the mountains of Guatemala, but we have seen no specimens from Mexico proper, though it is recorded from two or three localities, and was first described from reputed Mexican specimens. We are not aware that it has ever been successfully cultivated in this country, yet we may almost venture to say that it must have been tried, because both Hartweg and Ure Skinner collected it, and sent home dried specimens. Be that as it may, a little over twenty years ago it was in cultivation in Belgium, and a coloured plate of it appeared in the *Flore des Serres*, t. 1454. Unfortunately the specimen from which the drawing was made was drooping from want of water, and the artist, not being aware of the natural position of the flowers, represented them in an inverted position. The Editor makes a statement to this effect, adding, however, that it was their practice not to alter anything that was drawn from Nature, and that they had not made an exception in favour of the plant in question. Perhaps it was too late to do so! With regard to the name "Bird-flower" it seems to have been of Belgian origin, as we find no corresponding Mexican name for it. In the *Flore des Serres* the same opinion is expressed, and the designations "Petit Oiseau" and "Het Vogelleje," probably given to the plant by the brothers Fœnel, who introduced it. We think it probable that no very long period will elapse before it is seen in this country.

* This is the only portion of the island where descendants of the aboriginal Caribs are said to exist in Jamaica. They are very few in number, and are gradually being merged into the surrounding negro population. The Pedro Caves close by still contain interesting Carib remains.

New Garden Plants.

ODONTOGLOSSUM MIRANDUM, n. sp.*

I HAVE known this for a long while, and now propose it as a species, having up to the present time named it *Odontoglossum Lindleyanum compactum*. There is, however, an *Odontoglossum compactum*: hence I must take another name, and it is best to adopt one already proposed. It is very near *Odonto-*

The most liberal fresh materials were sent me by Mr. William Lee, Downside, Leatherhead. *H. G. Rehb. f.*

NEPENTHES RUBRO-MACULATA ×, Hort. Veitch.

This is a hybrid raised in Messrs. Veitch's nursery between *N. hybrida* and a Bornean species not identified at the time (probably *N. lanata*). It is of robust habit, with dark purple stems clothed with ferruginous hairs. Leaves partly amplexicaul, 12 inches long by 2 in width, rounded at the apex, leathery, very dark green, with three parallel nerves near the ciliate margin, and remote from the midrib. Pitcher (see fig. 24) 5–6 inches long by 1½ inch wide, leathery, yellowish-green, spotted with claret-red spots, cylindrical, slightly distended at the base, deeply winged, wings fringed, mouth oblique, surrounded by a broad, flat rim, the ridges of which are deep red; lid much smaller than the mouth, ovate, red-spotted, glandular on the inner surface.

N. hybrida ×, one of the parents of the plant, is said to have originated between *N. khasyana* and the pollen parent (the *N. distillatoria* of gardens) and an undetermined Bornean species. *M. T. M.*

NEPENTHES WRIGLEYANA ×, Hort. Veitch (fig. 23).

This is said to be the result of a cross between *N. phyllamphora* and *N. Hookeri*, and is similar to *N. Ratcliffiana*, but has rather more amplexicaul leaves and thinner pitchers. The light green leaves are like those of *N. phyllamphora*, are 10–12 inches long by 1½–2 inches in width, acute at both ends, glandular beneath, and with two or more parallel nerves on either side of the midrib. The pitchers are flask-shaped, with a thick cylindrical neck, pale green with crimson spots, wings narrow, ciliate, mouth oblique ribbed, ribs all green, lid broadly oval, smaller than the mouth, glandular on the inner surface, and with a simple spur. *M. T. M.*

BOMAREA VITELLINA, n. sp. (see fig. 26, p. 151).

The only materials at hand for the determination of this species consist of a water-colour sketch of the inflorescence and flowers prepared by Mr. Carder. It is, however, sufficient to show, by comparison with the specimens in the Kew herbarium, and with the descriptions of Herbert and Baker, that we have to do with an undescribed species belonging to the group, with branched inflorescence, large flowers, and unequal perianth-segments. In this section *B. lycina* is the only species maintained by Mr. Baker, to whose notes we have had the privilege of referring. From that species the present differs in its much laxer inflorescence, and longer flower-stalks. The colour of the flowers in the present species is, moreover, a rich orange-yellow, like that of the yolk of an egg. They are borne on long pendulous branched flower-stalks, arranged in an umbellate cyme, and surrounded at the base by a tuft of large ovate lanceolate leaves. Messrs. Shuttleworth, Carder & Co., have young plants in cultivation, so that we may hope soon to see more of this showy novelty, and to complete our now defective description. *M. T. M.*

MASDEVALLIA FRASERI, n. hybr.

This is a cross between *Masdevallia ignea* and *M. coccinea*. The tube of the flower is curved and rather slender, the limb is as in *Masdevallia ignea*. Whether the odd segment is always bent down I cannot say, the flowers having arrived in a faded condition. Perhaps Mr. H. Veitch will be so kind as to add a remark, provided he has kept the matter in memory. The colour of the limb, however, is the same as that of *Masdevallia coccinea*. It has also an entire androclinium: the two very obscure calli on the lip I never saw in *Masdevallia ignea*.

I find the angle over the anterior base of the petals not inflexed, as in the parent plants, but spread out and straight. I can scarcely believe a hybrid plant to present such a novel peculiarity. Hence, as I guess, the character may be constant in one or both parents. *Qui eviva verri.*

The leaf is long-stalked. It is decidedly a fine thing, but not such a showy thing as *Cyrtipedium Sedeni*, or *Lelia Dominiana*.

I obtained this rare product from Messrs. J. Veitch & Sons, who possess the stock raised by Mr. Fraser. *H. G. Rehb. f.*

ODONTOGLOSSUM CRISTATELLUM, Rehb. f.

This fine plant, with its rich brown and yellow flowers, usually adorned with neat red columnar wings and fine red borders to the keels, appeared at first as a monopoly with Mr. W. Bull, then with Mr. Oscar Schneider, Cromwell Range, Fallowfield, near Manchester. Now Mr. Duchan, Wilton House, Southampton, has been lucky enough to flower an unusually rich inflorescence from bulbs imported by Mr. F. Sander, of St. Alban's, and sent me by Messrs. J. Veitch & Sons. I was much struck by the unusually strong peduncle. It was sent by my friend F. C.

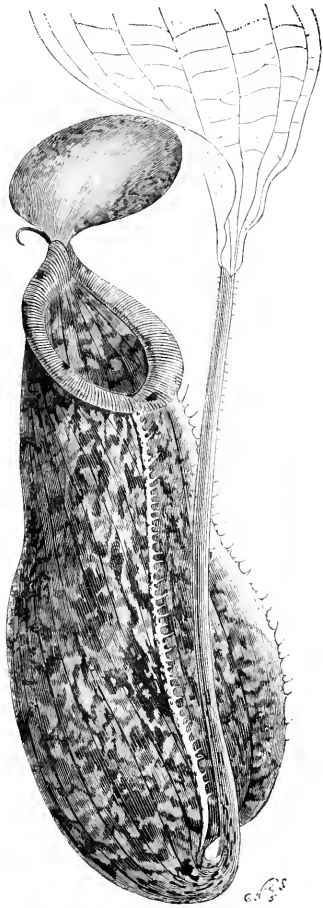


FIG. 23.—NEPENTHES WRIGLEYANA.



FIG. 24.—NEPENTHES RUBRO-MACULATA.

glossum Lindleyanum, but its large plump bulbs, its lanceolate leaves, its stiff one-sided raceme, and its well-developed rhomboid serrate columnar wings, render it easily discernible from the flaccid *Odontoglossum Lindleyanum* with its small, much thinner bulbs, linear leaves, lax nearly one-sided raceme, and far less developed columnar wings. The colours are far brighter than in *Odontoglossum Lindleyanum*. I have specimens from Messrs. Wallis, Chesterton, Coradine, Patin, Weir, Roccl, and Schmidchen, from the Frontino and from the Bogota districts.

* *Odontoglossum mirandum*, n. sp.—Affine *O. Lindleyano pseudobulbo pyriformi aciculis compresso*; foliis lanceolatis; pedunculo stricto valido; floribus quadrangulis; sepalis tepalique lanceis acuminatis; labello linearilanceo basi adnato antice reflexo, callis corniformibus geminis supra flexuram divaricatis; columna alis rhombis serratis.—*N. Granada*. (ex v. specimen ab. egr. Guillelmo Lee, Downside, Leatherhead.) *H. G. Rehb. f.*

* *Bomarea vitellina*, Mast., vide fig. 26, p. 151.—*Glabra, foliis ovato-oblongis acutis*; floribus laxo umbellato cymosis, cymis pendulis; pedunculis ad 12 longiusculis divaricatis parce ramosis, basi bracteis magnis foliaceis praectis; pedicellis floribus vix aequantibus; perianthi 2-pelticatis stonagato-campanulatis vitellino-aureantibus segmentis externis angustis oblongis acutis, segmentis internis late obovato-oblongis retusis apiculatis exteriora tertius longior. Character, ex nomine dom. Carder, qui in Colombia prope Oceanam detexit speciem.

Lehmann (whose last letter of December 16, 1881, brings very good news) under the name of *Odontoglossum Lehmanni*. It is decidedly one of the best marked and rarest of supposed hybrids. *H. G. Rehb. f.*

FICUS ELASTICA FOLIIS AUREO-MARGINATIS.

This is described in the *Gartenzeitung* as a very effective variety with golden-edged leaves, especially in autumn, when it has become full-coloured. The yellow band is about an inch broad, contrasting beautifully with the dark shining green of the centre. It was raised by a hybridist at Simmering seven years ago, and it has been offered £10 for the first five plants; and it has since been freely propagated, and will be sent out this spring. The writer adds that a similar variety exists in Belgium and England; most likely specimens that have mysteriously disappeared from the possession of the raiser!

THE KINGSTON-ON-THAMES NURSERY.

(Continued from p. 110.)

AMONG miscellaneous stock *Lapageria* in pots, *Vucca Whipplei*, and a large stock of hardy Ferns may be mentioned. Herbaceous and alpine plants are under the charge of one specially versed in the cultivation of this interesting class of plants, who understands the varieties that are most showy for general purposes, and who devotes much care and pains upon their cultivation.

At Kingston Hill the main stock of fruit trees, Conifers and other ornamental trees and shrubs is grown. The entrance to the nursery is off the Kingston Road, the main road to London. The entrance walk is bordered with duplicates of the more ornamental class of nursery stock, Weeping Ash and Birch, samples of *Abies nobilis*, *A. Nordmanniana*, *Lasiocarpa grandis*, *Pinus*, and *anabasis*; the choicer kinds of *Junipers*, *Cypresses*, *Retinosporas*, *Sequoia gigantea pendula*, *Taxus*, *Thuas* in great variety, *Taxodiums*, *Salisburia adiantifolia*, variegated *Hollies*, *Osmanthus ilicifolius variegatus*, flowering shrubs, hardy *Heaths*, and *Aucubas*. The nursery is divided into quarters in the usual manner, and consists of large quarters of fruit trees of every kind suitable for planting orchards; also dwarf standards and trained trees carefully grown for planting against walls or espaliers. Another branch, known as the Park Road Nursery, contains a splendid stock of *Privets*, *Hollies* in variety, English and Irish *Yews*, seedling and other *Conifers*, *Buxus* (a large stock), *Portugal* and common *Laurels*, quarters of *Elms*, *Beech*, *Oak*, and general nursery stock—all in first-rate order, through being regularly transplanted, and as a consequence having plenty of fibrous roots, which sustain the plants during the period of removal, and soon lay hold of fresh soil after being replanted. Fruit trees are also grown in considerable quantities in this nursery—small fruit trees, such as *Black* and *Red Currants*, *Gooseberries*, and *Raspberries* being especially fine.

In addition to the nursery business carried on by Messrs. Jackson, they are also largely engaged in market gardening, having rented the Royal Gardens at Hampton Court, where plants, flowers, fruits, and vegetables are grown extensively, and of the finest quality, and which are chiefly disposed of in the fruit and seed shop in Thames Street, Kingston-on-Thames. Apart altogether from the interest which attaches to a Royal garden so famous as that at Hampton Court, a notice of the management of such a garden can hardly fail to be acceptable to practical cultivators. Gardening is annually becoming more a question of pounds, shillings, and pence, than it has ever been during the memory of the present generation, and the detailed management of a garden that "must and does pay its way," will therefore be interesting, if not instructive, to those who are in quest of knowledge from practical sources upon the subject.

The garden under notice is, as nearly every one knows, situated on the north side of the Palace. There are four entrances to the garden, that opposite Hampton Court Green being considered the principal one. The garden is an oblong enclosed by four substantial brick walls, and is exactly 12 acres in extent. A wall running the whole length of the garden cuts it in two, lengthwise, and two walls running crosswise, equidistant from top and bottom, divides the garden into six quarters of 2 acres each. This arrangement, as will be seen, gives shelter and warmth, whereby early crops are considerably in advance of those in the vast majority of gardens. The soil, too, is free and open, while it is deep enough to grow root crops to perfection. The main walks are wide enough to admit of manure or other materials being carted on to the different quarters, which is an immense saving in labour from the ordinary system of wheeling.

In No. 1 quarter next to the Palace there is a range of forcing-houses in four divisions, 207 feet long and 18 feet wide. The range is about equally used for forcing *Black Hamburg* and *Muscat Grapes* and *Peaches*. Fine crops of *Peaches* are gathered annually from trees trained upon transverse trellising at 4 feet apart, which is considered the best system of training to secure the largest quantity of fruit. Quantities of *Chrysanthemums*, from 12 to 18 inches high, are also grown for furnishing, and are arranged in groups and masses under the leafless *Vines*. Over 6000 *Strawberries* in pots are forced in a range of pits, facing the south, 140 feet long and 15 feet wide

The pits are filled with dry leaves up to within 18 inches of the glass, and the pots are plunged in their respective kinds in the leaves, and brought forward in rotation as the season advances. Plants are grown in a house made into two divisions, about 140 feet long, and 18 feet wide, with a path up the centre and a pair of shelves suspended from the roof over the path. The shelves contain *Primulas* in flower and a splendid batch of *Mignonette* in small pots, with from four to six plants in a pot in full flower, and with deep green leaves down to the rim of each pot. The plants have been raised from seed sown last July and August—such a batch of plants as would gladden the heart of any one who is partial to fragrant smelling plants in a sitting-room, or even in an ornamental garden structure.

The body of the division is filled in each case with bedding plants, *Solanums*, *Richardias*, *Cinerarias*, and other soft-wooded decorative plants. The walls of this division are planted with *Pears* and *Plums*, and the open quarter with bush fruits and vegetables for forcing. The walls of the second division are stocked as follows:—*Pears* on the west aspect, *Apricots* on the east aspect, and *Peaches* and *Nectarines* upon the south. Standard fruit trees do not interfere with the vegetable crops beneath them, each having a clean stem of over 6 feet, and a spread of branches barely proportionate to the length of the stem. Small fruits and vegetables are planted in proportionate quantities, say three-quarter of an acre of *Strawberries*, a like extent of *cabbages*, sown last July, planted out in September, and expected to be ready for cutting by the end of next April.

The third division is called the Apple quarter, from the fact of its containing a greater number of Apple trees than the rest. Now for an example of the system of cropping. Early crops of *Potatoes* are planted a yard apart with summer *Cabbages* between, which are cut and a second crop of *Sprouts* allowed to follow, which are in use at the present time. When the *Potatoes* are lifted a crop of *Coleworts* succeeds them. The three favourite *Potatoes* are the old *Ashe-leat* for an early crop, *Covent Garden Perfection* for second early, and *Champion* for winter use. These are not all the kinds that are relied upon. *Raspberries* are planted among Apple trees. Over half an acre of *Celery* is grown, and whole horders of *Tartley* are sown in September, which give a supply for the whole year. It is gathered in quantity during the months of April and May. The walls of this division are stocked with a variety of fruit trees similar to the preceding one, and are improving in condition annually.

No. 4 division begins with the opposite side of the garden next to Hampton Court Green. *Figs* are grown upon the south wall here, and *Apples* and *Pears* upon the north wall; the arrangements upon the east and west walls do not differ from those already mentioned. The south border is cropped with *Prawn Cos*, *Hardy Hammersmith*, and *Grand Admiral Letuce*, planted at 6 inches apart each way; every alternate plant is drawn in spring either for planting out or marketing. At the base of all the south walls *Cauliflowers* are being wintered for planting out in spring; over half an acre of *Spinach*, three-quarters of an acre of *Savoy*, *Cottagers' Kale*, and a border of *Sugar-loaf Cabbages* ready for use, are the chief features of this division. Stock beds of *Strawberry* plants and herbs without number are grown in lines to meet the great demand upon the garden for these all-important garden products.

In No. 5 division small fruits, *Cabbages*, *Sea-kale*, and *Asparagus* are the most important crops. The beds of *Asparagus* are very fine. In the sixth and last division walls well stocked with fruit-bearing trees, crops of fine vegetables, including *Giant Rocca Onions*, *Little Pixie Cabbages*, *brakes* of *Coleworts*, and splendid *Bussels Sprouts*, *Endive*, and root crops are the most noteworthy products.

In the lower garden adjoining the Palace the south wall, 158 yards long, is covered in with a range of forcing-houses in nine divisions, eight of which are employed in *Grape* growing—the ninth division being a double *Peach-house*. Fine crops of early and late *Grapes* are grown in these houses, a fair sample of which Messrs. Jackson exhibited at the late show at Kingston-on-Thames—good-sized bunches, black as *Sloes*, and with a dense bloom which attracted considerable attention from fruit growers. These houses are occupied in winter with *Canellias*, *Azaleas*, *Chrysanthemums*, and stocks of other nursery plants

too numerous to mention in detail. *Figs* are grown in a span-roofed structure by themselves.

Two houses are, or rather have been, filled with pot *Vines*, now removed to head-quarters at the nursery; pits containing thousands of *Cauliflowers*, in pots, *Lettuces*, &c., are noticeable in the framing ground, where there are also pits of *Cinerarias*, *Calceolarias*, *Verbenas*, *Violets*, thousands of *Intermediate Stocks* to come into flower next spring, and *Mignonette*. Most of these pits are used for *Melon* growing in summer. In the *Cucumber-house* Jackson's *Prolific Cucumber* is growing and fruiting as freely as could be wished at midsummer—the fruits are of moderate length, good shape, and fine quality. It may be interesting to remark that most, if not all of the pit, detailed above were built for *Pine* growing when Hampton Court was a Royal residence: over 10,000 *Pines* were grown in those days, which must have entailed a good deal of hard labour when the system of *Pine* growing that was followed by our forefathers or even during the past generation is taken into account. Mr. Laytham is Messrs. Jackson's garden-in-chief—one of the Chatsworth school, thoroughly practical in every department of his business, and who knows how and when to sow and plant and when to force in order that the produce may bring its highest value. *W. Hind.*

FRUIT NOTES.

Very Late *Pears*.—I am sure the gardening community are much obliged to Mr. Carmichael, p. 111, for his list of late *Pears*, but they would be still more obliged if he would send up a few dishes to the next meeting of the Fruit Committee of the Royal Horticultural Society at South Kensington. The proof of the pudding is in the eating. We are also told that there is no enterprise in the trade to try the new kinds. Indeed? I think we have tried them pretty well and got our fingers burned, trusting to descriptions in catalogues. Mr. Scott in the English language tells us there is not a better in the English language than which that he grows 1800 kinds, I have done my share in this way, having grown, eaten, and drawn over 100 kinds, and perhaps it would be acceptable to intending planters if I give the names of those which I consider either worthless or only second-rate, and I shall begin with *Prince Albert* and *Beurré de Jonghe*: they both came across the water with fine characters, and I wish I had put them on the faggot-stack rather than on the south wall of the kitchen garden when they came. The same applies to *Bergamotte Soldat*, *Colmar de Schamps*, *Belle Faveur Nouveau*, *Bannax*, *Duc de Brabant*, *Comte de Flandres*, *Bezi d'Espere*, *Doyenné Crott*, *Reine des Poires*, *Prevoist*, *Beurré de Merode*, *Summer Franc Real*, *Madotte*, *Crot Castle*, *Belle Excellent*, *Beurré Gris Nouveau*, *Lindser Seul*, *Beurré d'Arenberg*, *Urbaniste*, *Bezi d'Espere*, *Althorp Crassane*, *Autumn Colmar*, *Vicar of Winkfield*, *Winter Crassane*, *Autonne Colmar*, *Easter Bergamotte*, *Beurré de Rance*, *Beurré de Capiaumont*, *Hessel*, *Beurré Langellier*, *Doyenné Siculle*. You will thus see that I have scratched exactly one-third of my hundred. There are exceptional cases, when some of these will come good, but I maintain that they are not to be depended upon for general planting. How seldom one meets with that fine old Pear, *Bezi de St.-Waast*; it is generally named *Bezi Vaat*, and is a great favourite with some. *Chaumontel* from a south wall is good, and comes in rather late. *Passe Colmar* is good any time, and grafted on *Williams' Bon Chrétien* is *par excellence*. *J. Rust, Eridge Castle.*

Plum, Peach (syn. *Large Peach, Reine Claude de Berger*).—As a really handsome dessert *Plum* of high excellence, and as one worthy of a place in the choicest collection, I can confidently recommend this variety. Knowing that the *Nectarine Plum*—a totally distinct variety—is sometimes confounded with the *Peach Plum*, I cannot do better than quote a very accurate description of it by that veteran pomologist Mr. Scott, who in his *Orchardist* very clearly and minutely describes it thus:—"Fruit large, roundish, inclining to oblate, marked with a shallow suture on one side; skin bright red, dotted with amber; flesh tender, melting, juicy, very sweet and luscious, separating freely from the stone; shoots smooth." An early dessert *Plum*. I would further add that it is a capital sort to grow on a north wall—i.e., in the South of England. It ripens about the end of July or beginning of August, and is almost a sure cropper. *J. Horsfield, Helyesbury.*



The Arboretum.

PICEA ENGELMANNI AND PICEA PUNGENS.—In the *Gardener's Chronicle* of December 24, 1881, p. 828, I notice a reference to the beautiful blue Spruce of the Rocky Mountains under the name of Picea Engelmanni. This is a mistake, which I have repeatedly met with. The Spruce in question is my Picea pungens, formerly [but erroneously] referred to P. Menziesii (= P. sitchensis), of the Pacific coast. The true P. Engelmanni is a second distinct species of the same mountain region, but occupying higher elevations. It forms extensive forests at an altitude of from 6000 to 11,500 feet up to the timber line, and a scrub above it. It has pubescent reddish branchlets, square leaves less sharply pointed, and small cones; its light cinnamon-brown bark is thin and scaly, and the leaves of young seedlings are smooth-edged. Picea pungens has white glabrous branchlets, stouter, in old specimens somewhat flattened, spiny-pointed leaves, blue in young trees and in the young growth of old trees; the cones are much longer and paler, the bark thick, crooked, and greyish; leaves of seedlings somewhat denticulate. It never occurs in forests, but is scattered along the banks of mountain streams at lower elevations than the other. Old trees become bare and quite unsightly, but the large pale cones in their tops are a very conspicuous feature. *G. Engelmann.*

TSUGA PATTONIANA AND HOOKERIANA.—Perhaps you will permit me to venture a suggestion in reference to two other West American Conifers which have occasioned a good deal of doubt, discussion, and hypothesis—I mean Abies, or properly Tsuga, Pattoniana and Hookeriana, which are also mentioned in the same page of the *Gardener's Chronicle*. Prof. Sargent and myself have visited Jeffrey's localities of Scott's Mountain, in North California (not Oregon) and the mountains south of Fort Hope, on Frazer River in British Columbia, connected with the Mount Baker Range. In both localities (as in many others near the timber line in Oregon and California) the beautiful Tsuga now known everywhere as Pattoniana, but in Edinburgh called Hookeriana—that with the angular leaves—abounds, with larger or smaller purple, or sometimes green, cones. On the northern mountains only, and not in California, and where the Edinburgh A. Pattoniana with flat leaves is said to come from, Tsuga Mertensiana climbs up to the same altitude as the other—smaller there, but otherwise undistinguishable from the seaside form. Now the leaf anatomy of the tree in the Edinburgh Botanical Garden, raised from Jeffrey's seeds, and cultivated there as Abies Pattoniana, is that of a true Tsuga, and cannot be distinguished from that of T. Mertensiana, as the figure of Prof. McNab in *Proc. Roy. Irish Acad.*, vol. iii., p. 23, fig. 2, under the name of Pinus Pattoniana, shows, and as I have myself found it in examining the Edinburgh specimen; but the original figure in the so-called *Oregon Committee's Report* is that of the angular-leaved tree called there A. Pattoniana, and now generally known by this name, or sometimes as A. Williamsoni. Now, is not the flat-leaved tree called in Edinburgh A. Pattoniana, the mountain form of Tsuga Mertensiana? This I suggest as a plain solution of the difficulty. The only objection seems to lie in the reported size of the cones of this species, which are said to be nearly of the size of what we now call Pattoniana, and much larger than those of Mertensiana; but may there not be some error or confusion about these cones? At all events I cannot distinguish the Edinburgh A. Pattoniana from T. Mertensiana, nor the small mountain form from the colossal seaside trees of this species, and I find no third species. *G. Engelmann, St. Louis, U.S.*

A NEW FIR.—Abies Eichleri is the name given to a Fir figured and described in the current number of the *Gartenzeitung*. It is a native of the Caucasus, and allied to A. Nordmanniana. The

following is a free translation of the description and history of it:—A tree about 100 feet high, symmetrically branched from the base; bark brownish-grey; leaves in two rows, or scattered all round, directed upwards, notched and rounded at the tip, furnished on the underside with two longitudinal bluish-white stripes; young shoots bluish-green; cones about 3 inches long by three-quarters of an inch thick, black-blue, cylindrical, rounded at the base; bracts obscurely toothed and provided with a short projecting point; scales distinctly stalked; seeds winged, the wing as long as the scales.

Abies Eichleri is one of the handsomest of the Firs. It is a fast grower, is perfectly hardy in winter, and as it does not start into growth before A. Nordmanniana it does not suffer from spring frosts. Seeds of this Fir were from Tiliis to the Royal Gardens, Potsdam, by Dr. Radde, about twelve years ago; only one seed grew, and until it fruited last year the plant was regarded as a form of A. Nordmanniana, from which it differs in appearance only in the white, brighter colour of the under-surface of the leaves and in the blue-green of the young shoots. The plant has grown into a fine specimen, about 10 feet high and 6 feet through; and last spring it flowered for the first time. Fortunately there was a plant hard by of A. Nordmanniana bearing young cones, so it was easy to observe the differences. Whilst the green cones of A. Nordmanniana were 6 inches long, and 2 inches thick, the black-blue ones of A. Eichleri attained only the dimensions given above.

The appearance of male and female cones at the same time permitted of artificial fertilisation, which has resulted in the production of fourteen well-formed cones. It is to be hoped that the seed will germinate, so that this fine species may be sexually propagated. Last spring a number of scions were grafted upon young plants of A. Nordmanniana, and they have all grown well. *W. R. Hemley.*

THE CHEMISTRY OF HORTICULTURE.—(THIRD PAPER.)*

By W. IVISON MACADAM, F.C.S., F.L.C., &c. (Lecturer on Chemistry and Analytical Chemistry, Edinburgh.)

IN the paper which I read before this Society last year we considered several of the classes of plants grown by horticulturists. You will remember that we considered more especially the Pelargonium, Fuchsia, Primula, Heliotrop, Begonia (partly), Cyclamen, Lobelia, and Dracaena; whilst this year we have Liliium, Hydrangea, Coleus, Verbena, and Petunia, and also very fully the Acacia, Aralia, Ficus, Grevillea, and Yucca.

Taking, then, the first series it will be found on looking at the table that in the Liliium the potassic oxide (potash, K₂O) runs from 24.728 to 27.206 per cent., and the sodic oxide (soda, Na₂O) from 15.081 to 11.545 per cent. The two oxides are found in the plant in combination with small quantities of chlorine as chlorides, and to a larger extent with sulphuric anhydride (sulphuric acid, SO₃) as sulphates. The remainder of the potassic and sodic oxides, when present in the fresh plant, is in combination with organic acids which are formed by the plant from the carbon of the carbonic acid present in the atmosphere, either directly or in its solution in rain water. These organic acids, when the plant is burned, are decomposed, and the oxides are found at the close of the operation as carbonates. The carbonic anhydride, as shown on the table, is very large, and is derived, as previously stated, from organic acids present in the fresh plants.

Of the ingredients present in the ash, and which are insoluble in water, but can be dissolved by acids, the most important are calcic oxide (lime, CaO), and phosphoric anhydride (phosphoric acid, P₂O₅). The calcic oxide is present in the Liliium in quantities varying from 8.741 to 11.225 per cent., and is partly in combination with the phosphoric acid, and in part also as organic compounds. The total amount of phosphoric acid ranges from 0.222 to 6.273 per cent. A portion of the phosphoric acid is in combination with some of the magnesian oxide, the remainder of this oxide being in combination with organic acids. The ferric and aluminic oxides are, as usual, present in very small quantities.

In Hydrangea the potassic oxide is only 12.619 per cent., and the sodic oxide 4.513 per cent., whilst the proportion of phosphoric anhydride is 13.328. The

calcic oxide is very high, 21.557 per cent., and is in combination mostly with organic acids.

Coleus shows a large proportion of potassic oxide, 30.795, with a small quantity of soda salts. The phosphoric acid is high, 15.654 per cent., and is mostly in combination with calcic oxide, of which there is 15.688 per cent.

Verbena has from 18.788 to 19.626 per cent. of potassic oxide, with 2.2 per cent. of sodic oxide, and from 5.4 to 8.9 per cent. of magnesian oxide. The phosphoric anhydride ranges from 13.40 to 15.07 per cent.

Petunia contains a very small quantity of calcic oxide—11.282 per cent., and a relatively large proportion of magnesian oxide—7.453 per cent. The phosphoric acid is also low—14.823 per cent.

These results, then, show that for the healthy growth of the Hydrangea only about a half the quantity of the potassic oxide is required that would be necessary for the life of the Lily, or about one and a half times less than that required for the Coleus. On the other hand, the Coleus requires much less calcic oxide in the form of organic salts than is required for the Hydrangea.

In the second series of plants submitted to investigation, namely, the Acacia, Aralia, Ficus, Grevillea, and Yucca, the results are given more in detail. With these plants three separate determinations have been made, first with the leaves, second with the stem, and thirdly, with the root. This system was adopted so as to learn whether any material difference could be observed in the mineral constituents of the various parts of the plant, for if such were the case, it might be possible to apply the materials which would aid the growth of the special part of the plant most desired; as, for instance, in the case of foliage plants, where the leaves are prized. The first constituents determined were the water, organic vegetable matter, and saline matter, and also the nitrogen present, the results being calculated as ammonia. The following tables give the results:—

Average Composition of the Leaf.

	Water.	Organic Vegetable Matter.	Saline Matter.	Solid Dry Residue.
Acacia lophantha	69.52	28.78	1.69	30.47
Aralia Sieboldii	74.71	23.15	2.63	25.78
Ficus elastica	77.73	20.43	1.83	22.06
.. rubiginosa	73.83	23.07	3.69	26.16
Grevillea robusta	71.48	23.39	2.31	25.51
Yucca aloifolia	78.68	19.01	2.31	21.23

Average Composition of the Stem.

	Water.	Organic Vegetable Matter.	Saline Matter.	Solid Dry Residue.
Acacia lophantha	59.72	37.04	1.33	30.97
Aralia Sieboldii	71.51	25.53	2.65	28.48
Ficus elastica	72.51	26.59	0.98	27.48
.. rubiginosa	75.37	23.44	1.48	24.63
Grevillea robusta	64.40	34.51	1.68	35.59
Yucca aloifolia	78.87	20.13	0.98	21.11

Average Composition of the Root.

	Water.	Organic Vegetable Matter.	Saline Matter.	Solid Dry Residue.
Acacia lophantha	67.05	31.50	1.44	32.04
Aralia Sieboldii	80.87	16.76	2.36	19.13
Ficus elastica	72.43	28.12	1.44	27.56
.. rubiginosa	71.02	26.42	2.55	28.07
Grevillea robusta	64.21	33.99	1.79	35.78
Yucca aloifolia	78.10	21.26	0.64	21.00

Percentage of Nitrogen given as Ammonia.

Acacia lophantha	0.77	Ficus rubiginosa	0.89
Aralia Sieboldii	0.59	Grevillea robusta	1.04
Ficus elastica	0.35	Yucca aloifolia	0.22

The figures show very yucca results with the various plants. Taking Acacia, we find that the largest percentage of water is in the leaf—69.52; that the root comes next with 67.05, and the stem is driest with 50.72 per cent. On the other hand, we find that Ficus rubiginosa has the largest proportion of water in the stem—75.37 per

* Read before the Scottish Horticultural Association at the meeting held on January 3.

cent.—while the leaf has 73.83, and the root 71.02 per cent. In Yucca the whole plant contains about 78 per cent.

In the proportion of saline matter there is just as wide a range of figures. Ficus elastica contains in the leaf 1.83 per cent., in the root 1.44 per cent., and in the stem 0.98 per cent.

In determining the constituents of the ash the same order has been kept up, and separate analyses made of each part of the plant. The figures are as follows:—

Chemical Analysis of the Ash of the Leaf.

Table with 10 columns: Compound (K2O, Na2O, CaO, etc.), and 10 rows of plant species (Acaecia, Acaia, etc.).

Chemical Composition of the Ash of the Stem.

Table with 10 columns: Compound (K2O, Na2O, CaO, etc.), and 10 rows of plant species (Acaecia, Acaia, etc.).

Chemical Composition of the Ash of Root.

Table with 10 columns: Compound (K2O, Na2O, CaO, etc.), and 10 rows of plant species (Acaecia, Acaia, etc.).

COMPOSITION OF THE ASH OF PLANTS.

Large table with 10 columns: Compound (Lithium, Hydrogen, etc.), and 10 rows of plant species (K, O, Na, O, Ca, O, etc.).

The effect of a growing plant on the composition of the soil surrounding it is very well illustrated by the two analyses given below. In the first case the soil was sampled before the plant was potted, and the second analysis is of the same soil after the plant has been growing in it for a considerable period. It will be noticed from the latter analysis that all the substances that can be said to be useful to the plant are greatly diminished. This is very evident in the case of the phosphoric anhydride, calcic oxide and potassic oxide. The results are the more interesting as they show the actual loss sustained by the soil even when every care has been taken to regularly feed the plant with artificial food, and proof is thus given that the subject has not yet been fully mastered, else the soil would have been found as good at the end of the experiment as at the commencement of the season.

Composition of Greenhouse Manure.

Table with 3 columns: Compound (Water, Organic vegetable matter, etc.), and 2 columns: Before use, After use.

The figures show how necessary it is to constantly replenish the soil with small quantities of the plant food. The more is this the case when the plants must of necessity be grown in comparatively small quantities of soil, as in our greenhouses. What the best food is to give the plants is the object of these investigations; as yet we are only beginning to get a few of the facts together which are necessary to start the operation—in fact, we are simply sifting out the land. The chances of a good return for our labour are very great; already we have such information as points to the direction that must be followed, and shows clearly that the various classes of plants etc., as we proceed with the analyses of their ashes, finding their way naturally into larger groups, each of which will have clearly defined properties and composition. Having determined these groups it will be a matter of ease to say what is the best manure to give to the members of the group so as to ensure a profitable return. It has been supposed that my desire was 'to have every gardener weighing out grain by grain the

proper materials for each plant, and that it was supposed that each potting-shed should have plenty of small bottles of the various simples arranged for use." I should like to know what we should think of a farmer were he to manure his fields indiscriminately with any one manure. What is desired is to let every man who professes horticulture have as thorough a knowledge of his plants as the farmer can have of his crops.

A point of some importance is that the mineral constituents of the plant must necessarily vary somewhat with the soil in which it grows. It will therefore be of great importance to have plants grown in various soils, and, from the combined results, come to an understanding as to the normal amounts of each ingredient present in the plant.

That these investigations are of use will be clear when I state that from the results given in my last paper, I, at the request of the Association, compounded a manure, which was placed in the hands of several of the most prominent members, and I am glad to say the results are far above what had been anticipated; not only has the manure been employed with the classes of plants for which it was intended, but other varieties have been experimented upon with good results. Amongst these may be mentioned Pinks, Pansies, Roses, Chrysanthemums, Pelargoniums, Fuchsias, Heliotropes, Petunias, besides Strawberries, Peas, Pines, Vines, Tomatoes, &c.

Another good result arising from the papers has been the drawing of attention to the enormous price demanded for the manures usually sold for greenhouse plants. The Gardeners' Chronicle, in an article on my last paper, declared its determination to test my statement as to composition and cost, and in their review of the year 1881 (p. 349, December 31, 1881) they say:—"The analyses of artificial manures undertaken at our suggestion has revealed the fact that, while some are excellent and none so far positively bad, yet the price asked for them is in almost every case so extremely high as to outweigh any profit from their use on any but the most restricted scale."

THE TORRENT REGIONS OF THE ALPS.

MR. E. MCA. MOIR has published a report of his visit to the French Basses et Hautes Alpes. He explains that the denudation of the hills-sides is partially due to the felling of the timber on the part of the herdsmen with a view of extending the available pasturage, partly to the flocks of goats. The winters are very severe, and the summers very hot, hence the melting of the snow and the rain tend to produce torrents, which create much mischief; to remedy this the Forest Department has undertaken several operations of replanting (reboisement) and the erection of weirs of stone (barrages), or of wattles (fascines, clayonnages), the construction of which is explained by the author. The works, wherever practicable, should be carried out at the sources of the torrents. As to replanting, the trees made use of are Ash, Poplar, Robinia, Maple and Elm, some of the transplants being at least 7 feet in height. The highest portions and the worst land are planted with two-year-old plants of Austrian Pine, each plant being surrounded with three or four large stones, which are said to have a wonderful effect in protecting the plants from the sun, and from being uprooted by the action of the frost, as well as in retaining moisture during the droughts of summer. In some districts Austrian Pine is planted even where the Scotch native pine soil, experience having shown that the Austrian Pine grows more rapidly than the Scotch. Sowing broadcast has been proved to be a failure, and the planting of small young trees before they have attained strength to withstand the rigours of the winter is also not recommended. After describing in detail his visits to various districts, including Mont Faron, near Toulon, where replanting has been successfully carried out, the author compares forest conservancy in France with that in India, pointing out the great advantages the French officials have in dealing with more intelligent subordinates and a more law-abiding population. The advantages of not transferring the forest officers from place to place are pointed out, so that the officials in charge of any district can not only initiate but supervise the operations for a series of years, while at the same time they are not hampered with the multifarious duties of the Indian forest officer, but can devote themselves much more uninterruptedly to their forest duties.

ROOT GROWTH UNDER DIFFICULTIES.

I SEND a root cut from the exposed mass of roots of a large Elm tree blown down by the great wind of October, 1881. The tree was in perfect health, and had attained a height of over 80 feet. It had evidently derived considerable support from the surface-soil, a superficial accumulation of about 2 feet formed of the decomposed stone of the middle lias. The roots,

sensitiveness and power of motion consequent on that sensitiveness possessed by roots during their growth, and in virtue of which they penetrate the soil and overcome obstacles. "Geotropism," or the growth of the root in a direction towards the earth's centre, manifests itself differently in the primary radicle from what it does on the subsequent root-branches. Sensitiveness to pressure also varies in the tip of the root and in the part immediately above it, as also does the sensitiveness to the moisture in

Orchid Notes and gleanings.

THE COOL ORCHIDS AT HEATHERBANK.—Mr. Wilson's garden at Heatherbank, Weybridge, is perhaps better known for its collection of hardy herbaceous and rock plants than as an Orchid-growing establishment, and if one dare suggest a quiet hint, it would be that the prestige of the former will sooner or later be eclipsed by the latter. One seldom hears or reads of an enthusiast in horticulture halting long between two opinions, sympathy generally gravitates towards one branch or another, but in Mr. Wilson's garden all is done well. There are little alpine plants outside one of the Orchid-houses looking as happy and comfortable in point of vigour as the healthiest *Odontoglossum* within the walls of the cool Orchid-house, but here the similitude ends. What a contrast when you enter the door of the Orchid-house! I think it was Mr. Fish who wrote something about a feast of *Phalænopsis* a year or two ago; well, here is a feast of *Odontoglossums*, and in a by no means extensive collection. Indeed the great merit of the collection lies in the fact that the largest number of the plants of which it is composed are in a vigorous flowering condition. The flowering plants consist of the following:—*Odontoglossum Kossii majus*, *O. Halli*, *O. triumphans*, *O. membranaceum*, *O. roseum*, a fine variety for cutting, and several distinct varieties of *O. crispum* (*Alexandrae*). One of the plants, bearing a compact but vigorous flower-spike, is very interesting, having six clearly defined spots upon each petal, which gives it a distinct appearance from other varieties of the same species. Another Orchid conspicuous for its beauty is *Pilumna fragrans*, which, as will be gathered from the name, is sweet-scented, and is as pretty to look at as it is agreeable to smell. I should have especially mentioned a finely grown plant of *Odontoglossum crispum* bearing two strong flower-spikes, with fourteen and thirteen flowers respectively upon each shoot. The same plant produced two stronger flower-spikes last year, with sixteen flowers upon one shoot and thirteen upon the other. Several fine plants of *Cœlogyne cristata* are in flower, as also *Dendrobiums*, of which *D. Picardi* is unusually vigorous and floriferous. *W. H.*

PERISTERIA ELATA.—I shall be much obliged if you will kindly inform me if anything is definitely known as to how this Orchid can be made to flower freely. We have here a large stock of plants, extraordinarily strong in bulbs and growth, but we have never seen a flower of it. Can the reason be that we give it a too rich soil? *George Kittel, Eckersdorf, Silesia.* [Give them a good season of rest after they have made their growth, and but little water during this period. ED.]

CŒLOGYNE CRISTATA.—Probably the largest and most remarkable specimen ever seen of this grand Orchid came under the hammer at Stevens' Rooms on Monday. It measured about 6 feet over, and bore upwards of 200 spikes of flowers. It was a fine variety, often having eight flowers on a spike, and, as may be imagined, was greatly admired by all who saw it. It was sent up for sale by a private grower, and was purchased, a bargain, by Mr. F. SANDER.

ORCHIDS IN EAST ANGLIA.—At Rendlesham Hall the following Orchids were lately found fully in bloom in that distinguished collection:—*Phalænopsis amabilis*, *grandiflora* and *Schilleriana* in quantity, many of them with very fine spikes, and also the more rare *Porteana*. The plants were in the most robust health, with fine leaves in number and length far exceeding most of those seen either in the trade or private collections. The following *Lælias* were also in bloom:—*L. anceps*, *L. autumnalis*, the chaste white *L. anceps Dawsoni*, also *L. albidia grandiflora*. A fine stock of the bright scarlet *Sophroneites* contrasted beautifully with the pure white *Madevallis tovarensis*. *Pleione humilis* was still in fine condition, while the pans of *maculata* must have been magnificent, and the pans of *Cœlogyne cristata*, studded with flower-stems, are nearly two yards across. The *Odontoglossums* were simply magnificent, *O. crispum* being finely in bloom; *O. Pescatorei* was also very fine, as was *O. tripudians*. *Odontoglossum Kossii* (*Warneri*) *majus* was also in splendid condition, as was the chaste, sweet-scented



FIG. 25.—OBSTRUCTED ROOT-GROWTH.

penetrating deeper, had struggled through a compact yet disrupted mass of stone, and the history of that struggle is well recorded in the specimen I send, and which shows a curious adaptive power, illustrated in clasping some of the opposing lumps of stone, and in contracting and enlarging according to the amount of resistance offered by the stony substrata. *W. Ingram, Belvoir.* [Our illustration (fig. 25) is a representation, much reduced as to size, of the root sent by Mr. Ingram, and with the lower end turned upwards, so as to save space. Our readers are familiar with the experiments and observations of Mr. Darwin on the

soil. The conjoint agency of these forces regulates the direction and forms of the root. ED.]

PICEA MAXIMOWICZII.—In this country, so far, this is a meagre, stunted bush, possessing no qualifications to enable us to recommend it to planters, but we notice that at one of those useful, practical discussions which characterise the meetings of the Massachusetts Horticultural Society, and which might most properly be imitated here, *P. Maximowiczii* is spoken of as "very desirable . . . close and compact in habit, with the foliage short and very rigid, and the under-side of the leaf quite glaucous."

O. pulchellum grandiflorum, with noble spikes of flowers. A noble plant of *Vanda cœrulea* was also in bloom, and several *Lycastes*. The health and cleanliness of the general collection of plants were all that could be desired—*Lælia*s, *Cattleyas*, *Dendrobiums*, *Acridies*, *Saccolabiums*, *Oncidium*s, all promising a rich harvest of bloom in their season. The collection is specially rich in *Cymbidium eburneum*, some of the plants being of great size, and all in the most robust health. But as the collection has been frequently noticed it may suffice merely to note those in bloom, and to say that the plants are in such splendid condition as must yield the highest pleasure to Lord Rendlesham, who makes Orchids his hobby, and that they reflect much credit on Mr. Mill, who has had them under his care for a dozen or so of years. *Violas*, *Gardenias*, *Eucharis*, perpetual *Carnations*, *Roses*, &c., are good as usual at Rendlesham, and Mr. Mill has still a good supply of late *Grapes*, while the early *Vines* are breaking so as to catch the late ones up if possible. The *Marie Louise* is the *Violet* group, and the many frames are sweet and fresh and full as the finest bank or bed could be in April. D. T. Fish.

RAISING ORCHIDS FROM SEED.—I have often pictured to myself the luxury in store for the enthusiastic hybridiser who shall have the good fortune to be placed in such a position as will enable him to carry out with spirit the hybridisation of Orchids. I was pleased to read Mr. Douglas's remarks on this subject. The crossing of Orchids opens a fine field for the skillful and earnest hybridist, but I have no doubt, as suggested by "H. C." (p. 49), it might be attended with some risk to the plants operated on, and looking at the rarity and immense value of some of the subjects alluded to by Mr. Douglas the owners of such treasures may well demur to subject them to such an ordeal. Is it impossible to establish hybridising establishments in the natural habitats of some of our grandest Orchids—in the homes, for instance, of the *Acridies*, *Cattleya*, *Cymbidium*, *Lælia*, *Lycaste*, *Odontoglossum*, *Phalenopsis*, *Saccolabium*, and *Vanda*. There are many other beautiful genera, but the above embrace many of our most gorgeous Orchids. [Such establishments are already in operation, under the management of Dame Nature. Ed.] The endless variety presented in some of these as imported, many of them differing only slightly from each other, arising from close breeding [I probably just the reverse. Ed.], and, no doubt, in some measure owing to a natural tendency to revert to the original type, but still presenting abundant evidence of their disposition to produce new forms from seed. In their natural habitats they would take more freely, the seed would, no doubt, ripen more perfectly, and would germinate more freely, and the young plants would flower at an earlier stage than they would under artificial treatment. Thus it would be possible to prove, in a comparatively short time, that which now occupies the time of a reasonably long life to accomplish. If it were possible to find security for such establishments there can be little doubt, if placed in the hands of persons thoroughly devoted to the art (it must be a labour of love), and possessing the necessary knowledge of the formation of the flowers and the mode of reaching the organs without injuring them—considerable knowledge is necessary—the results would be very gratifying, and in several of the enterprising firms who make Orchids a speciality there is no want of either means or spirit. In hot swamps, where many of our fine Orchids luxuriate, it might be impossible for Europeans to live comfortably for any length of time. But as their cultivation would require little attention during a great portion of the year, they might, except at the time of flowering and seed gathering, and sowing time, be placed under native supervision, so that collectors, if qualified to carry out this cross-breeding, could in addition to their work of collecting manage these establishments. In their natural state, as with us, there can be little doubt that the less they are disturbed the better, notwithstanding all that has been written regarding their cultivation. My experience with many of the most popular is, that when they got fairly hold of either pot or block, the grand secret is to leave them alone. And to the question frequently asked, "What do you do with your *Saccolabiums*, &c.," that they succeed so well?" my reply has been, "Leave them alone;" and I imagine to succeed with them in their native habitats would be to leave them as much as possible to Nature. Mr. Boxall, now collector for Messrs. Low, when a young man, acquired a considerable knowledge

of the mystery of Orchid hybridisation, and when he lived with me some fourteen years ago, he crossed and ripened seed of various kinds of choice Orchids. And looking at the many fine things he has sent home, his early love has not abated. If such an establishment as I suggest was placed in such hands, the result could not be doubtful. H. E.

THE FERNFIELD ORCHIDS.—Dr. Paterson had the following Orchids in flower at Bridge of Allan on January 24:—

<i>Angreum sesquipedale</i>	<i>Lælia superbiens</i>
(three spikes)	, <i>albula bella</i>
<i>Anchilistia</i>	<i>Leucis bicolor</i>
<i>Brassia Veitchiana</i>	<i>Lycaste Skinneri</i>
<i>Cattleya Veitchi</i>	<i>Masdevalla melanopus</i>
, <i>rubra oculata</i>	, <i>tovarensis</i>
<i>Cattleya Trianae</i> (fine)	, <i>amabilis</i>
, <i>Symeii</i> (grand var.)	<i>Neotia picta maculata</i>
<i>Celyne</i> sp.	<i>Odontoglossum cordatum</i>
, <i>cristata</i>	, <i>triumphans</i>
<i>Cymbidium sinense</i>	, <i>crispum</i>
, <i>Lowii</i> (three spikes)	, <i>mesium</i>
<i>Cypripedium Argus</i>	, <i>constrictum</i>
, <i>Domianianum</i>	, <i>Uro-Skinneri</i>
, <i>roosei</i>	, <i>Rossii majus</i>
, <i>Maulei</i>	, <i>hustoniense</i>
, <i>villosum</i>	, <i>Halli</i>
, <i>Eltonii</i>	, <i>pulchellum majus</i>
, <i>Pardunum</i>	<i>Oncidium orthotrichum</i>
<i>Dendrobium Farneri</i>	, <i>nubigenum</i>
, <i>Pierardii</i>	, <i>aureum</i>
, <i>fiatbatium giganteum</i>	, <i>Wicksoni</i>
, <i>Wardianum</i>	, <i>Kramerianum</i>
, <i>bigibulum</i>	<i>Omithidium sopheriitis</i>
, <i>aureum</i>	<i>Platanus fragrans</i>
, <i>Wallichianum</i>	<i>Pleione burdasi</i>
, <i>fiatbatium oculatum</i>	<i>Saccolabium giganteum</i>
<i>Epipedium fragrans</i>	<i>Sepidium sandiliora</i>
, <i>erectum</i>	<i>Vanda Cathartii</i>
, <i>speciosum</i>	, <i>lurva</i>
, <i>rhizophorum</i>	, <i>lunellata</i> Boxallii
, <i>clavate latifolium</i>	, <i>luteolor</i>
<i>Lælia anceps</i>	, <i>mesigena</i>
, <i>Barkerii</i>	<i>Zygopetalum Mackayi</i>

ORCHID CULTURE IN PORTUGAL.—Floriculture appears to have made considerable strides in Portugal during the last twenty years. The State, the King, and many private individuals have created glass-houses, and formed collections of exotic plants. We have now before us the second catalogue of the Orchids cultivated in the Jardim Real do Faço d'Ajuda, by Luiz de Mello Dreyner—a name that looks like a compound of German and Portuguese. It contains upwards of four hundred species and varieties, and as there are very few of the small-flowered genera, the collection is fairly rich in species of the showier class. The author mentions that the cultural directions in English and French works devoted to Orchid culture are not always suitable in the climate of Portugal. This, of course, one would naturally expect, considering the great differences in the climates.

Notices of Books.

British Fresh-water Algae, exclusive of the Desmidiæ and Diatomacææ: with coloured plates. By M. C. Cooke, M.A., LL.D., A.L.S. (Williams and Norgate.)

All students of fresh-water Algae will welcome this latest work of Dr. Cooke's unting pen and pencil. There is no English book on the subject of more recent date than Hassall's, and that not very satisfactory one appeared nearly forty years ago. It is true there is Kabenhorst's *Flora Europæa Algarum aquæ dulcis et submarinæ*: but that is written entirely in Latin, the figures are uncoloured, and the text is almost restricted to technical descriptions. The present work is written in English, and will appear in parts. The first part contains the Palmellacæ, and consists of twenty-eight pages of letterpress and eleven plates; and the second part is to contain the Protococccæ and Volvocinæ, with sixteen plates; to be followed by the Zygnemacæ in part three. Independently of the definitions of the classes, orders, families, genera, and species, this new work abounds in interesting notes and extracts; and the references are copious, directing the student to the more important literature. In addition to the author's own measurements, those of Kabenhorst and other writers are frequently given. The figures, as far as we can judge, are good, and those copied are duly acknowledged.

— *The Live Stock of the Farm* (Bradbury, Agnew & Co.).—This is one of the "Handbook of the Farm" series, edited by Mr. J. Chalmers Morton, whose name alone is a guarantee of accuracy and sound sense. The present volume consists of a series of chapters on cattle, dairy management, horses, sheep, swine, and poultry, treated by various writers. If the several subjects are not treated with quite the same fulness as in the case of the previously published *Chemistry of the Farm*, yet they are dealt with in a concise, straightforward way, which will commend itself to the agricultural reader.

The Kitchen Garden.

PLANTING AND SOWING.—Peas and Beans which were sown in pots and boxes the last week in December, and subsequently hardened off, will now be ready for planting in a warm and previously prepared border. They should be turned carefully out of the pots, and planted with a garden-trowel—disturbing the balls of mould and roots as little as possible in doing so—in rows 4 feet apart (which will be wide enough for the dwarf-growing varieties), and 1 foot asunder in the row. A little soil should be drawn up on either side the rows, after which a line of lime and soot should follow in the same direction, as also some short sticks to support the haulms. The sticks should be put sufficiently close on either side the rows of Peas to keep the latter in an upright position, and then some Spruce boughs stuck firmly in the ground on either side the row sufficiently close to protect them from frosts and cutting winds. As the Peas progress in growth, and become injured to the weather, the boughs should be gradually removed, which will prevent their making a weakly growth. And as soon as the weather becomes favourable enough for the purpose (towards the end of the current month), the boughs should be removed altogether, and the Peas be finally staked.

Beans should be transplanted individually in rows 2 feet apart and about 6 inches apart in the row; if for exhibition purposes, the rows should be 4 feet apart, and the plants from 10 to 12 inches in the row. Draw a little soil drawn up to the plants on either side then a line of lime and soot in the same direction, to protect the plants from the attacks of slugs. Should the borders in which the Peas and Beans (especially the former) are planted be facing due south—that is, running east and west—it will be advisable to plant the rows at an angle of about 45° from the wall to the walk, by which means the individual rows will be more directly exposed to the influence of the sun. Another sowing of Peas and Broad Beans, of the following or kindred varieties, should be made next week—viz., Laxton's Supreme, Culverwell's Telegraph, Carter's Telephone, and Carter's Stratagem Peas, and Seville Longpod and Taylor's Broad Windsor Beans. These will be found suitable for all purposes. Should the present spring-like weather continue, another planting of Cauliflowers and Cabbages should be made in the manner described in the Calendar for January 7, p. 16. Remove the Fern from young Lettuce plants that were pricked out thickly in a warm border in the autumn for transplanting in February and March on all favourable occasions, and *vice versa*. Of these, however, a planting may now be made in a warm border, over which a dusting of lime and soot has been previously strewn, in rows a foot apart, and the same distance in the row. For this purpose the plants in every other row in the nursery-bed above referred to should be taken up as required, which will then leave a space of 1 foot between the remaining rows, which again should be thinned out in the row as the plants are required.

ORDINARY WORK.—Stick autumn-sown Peas, if not already done, and run the Dutch hoe between rows of Onions, Spinach, Cabbages, &c. Hand-weed, sweep, and roll garden walks, and let neatness and cleanliness, together with good cultivation, be observed throughout this department. Pitted Potatoes should now have attention in the way of sorting and disbanding; and Jerusalem Artichokes should, where not already done, be taken up, sorted, and housed.

FORCING DEPARTMENT.—Thin out young Carrots growing on hotbeds to 2 inches apart in the rows, after which they can be thinned out as required for use. Transplant young Lettuce plants as soon as they are large enough to handle on a bed containing a gentle bottom-heat; and earth-up Potatoes on hotbeds as they require it with soil of the same temperature as that in which they are growing, and air freely on all favourable occasions. Tomato plants which are intended for fruiting in pots should now be shifted into larger-sized pots, using good loam and well-rotted manure, about three parts of the former and one of the latter, with a sprinkling of charcoal in potting them, and again place them near the glass in a forcing-house where the night temperature ranges

from 50° to 60°, and by day from 65° to 70°; and endeavour to keep a short jointed consolidated growth in the plants—conditions essentially necessary to the achievement of satisfactory results. Maintain a good supply of Mint, Tarragon, Mustard and Cress, also French Beans. The latter should be syringed twice a day, as a means of keeping the plants free from, and checking the attacks of, red-spider, to which they are subject when grown in artificial heat if not judiciously supplied with water. Pinch the points of the shoots out of successional plants to make them branched and top-dress with rich soil. For early work we grow a variety of our own—something after the habit of *Ne plus Ultra*; but our next and subsequent sowings will be made of Canadian Wonder—the best all-round French Bean in cultivation. *H. W. Ward, Longford Castle, Wilts.*

NOTES ON VEGETABLES.

CELERY COLONEL CLARKE'S RED.—After trying various sorts of Celery, I have for the past two seasons planted none but Colonel Clarke's Red [syn. Leicester Red], which undoubtedly combines every good quality requisite in a Celery of the highest excellence. It has been in use here during the past four months, and we still have some 500 plants, few of which have as yet shown the slightest tendency to flower, proving at once that this may not only be considered a good early sort, but suitable for cultivation as a late kind also. *A. L. H.*

CHAMPION RUNNER BEAN.—This is decidedly the best type of Runner Bean with which I am acquainted, and I commend it to the notice of those of your readers who have not already grown it. It is highly prolific, grows to a good size, is very tender, and of a beautiful colour; this latter quality, from a marketing point of view, is rather an important one, and will doubtless cause it to become the leading variety grown for that purpose. *H. J. H.*

The Hardy Fruit Garden.

DIAGONAL ESPALIER TREES.—It is universally admitted that large Apple and Pear trees are very objectionable in vegetable gardens; and it is really, in most instances, quite unnecessary to have such trees there, as abundance of fruit of the finest quality can generally be grown on low pyramidal-trained trees; or on trees trained in the form of espaliers, which will throw no appreciable or injurious shade upon adjacent crops of culinary vegetables of any kind. And if such trees are properly managed they are exceedingly ornamental, as well as useful. One of the prettiest among the many pretty objects in the beautiful gardens of Hardwicke, near Bury St. Edmunds, during the past season, was a long line of diagonal, or diamond-trained Apple trees, which extends to the entire width of the kitchen garden, or from the east to the west side. The rail or fence to which the trees are trained is formed of strong wire, and is just 5 feet high. The trees when planted were all maidens, in most cases with one strong shoot each, so that they were planted in pairs; and the shoots laid in at full length, one to the right and the other to the left. The pairs of trees were planted 30 inches from each other, and none of the shoots were cut back, as the object was to complete the espalier in the shortest possible time. And this was fully accomplished in two years, and has proved to be in all respects a most complete success, bearing fruit so early as the second year after being planted. They have now been planted some four or five years, and the espalier is in all respects complete, no portion of the wire being visible, and from one end to the other at the time I saw it (end of September) it was covered with fruit of the finest quality, and was a sight not likely soon to be forgotten. It must have been an exceedingly profitable as well as a very ornamental object, comprising as it did an extensive collection of the very best kinds of dessert as well as culinary Apples—the latter occupying the eastern portion of the espalier, while the stable sorts occupied the western portion of the same, among which I particularly noticed Scarlet Nonpareil, a very handsome, high coloured, fine flavoured variety; Old Nonpareil, Bradick's Nonpareil, Adam's Pearmain, Lambi Abbey Pearmain, Cornish Gilliflower, Court-pendu Plat, Cox's Orange Pippin, Dutch Mignonne, Golden Harverg, Golden Keinette, Kerry's Pippin, Sam Young, Margil, &c.; and among culinary sorts, Cellioi, high coloured and very fine; Beauty of Kent, Blenheim Orange, Cox's Pomona, Dumelow's Seedling, D. T. Fish, Hawthornden, Jolly Beggar, Keenish, Filthasket, Bess Pool, Golden Noble, Lord Suffield, &c. *P. Grieco.*

Peaches and Nectarines.

EARLY PEACH TREES have come on very fast this season. The fruits on our earliest are larger than horse Beans, while this time last year they were scarcely set with treble the amount of fire-heat that they have had this year. Continue disbudging until all the trees are finished. By this time some of the longest shoots will be ready for heeling down, and if handsome well-shaped trees are wished for it is very essential to do this when the shoots are young. Always select the best placed shoots nearest the base of last year's wood; any terminal shoots that are intended to be taken out after the fruit is ripe may be stopped in close. Use the syringe freely, and should greatly make its appearance fumigate at once. Where the fruits have set thickly they may now be thinned, leaving the largest and best placed fruit, always leaving plenty on to allow for dropping during the stoning period, some varieties dropping their fruit at that time much more than others, which latter thin accordingly. Treat second and third houses as advised for early house in former Calendar, giving abundant supplies of chilled water at the roots whenever they require it. Any trees in late houses that it is desirable to move, or that require root-pruning, if not done, should be completed as soon as possible. *J. Wallis, Kew Gardens.*

Cucumbers.

EARLY CUCUMBERS WITHOUT HOT-WATER PIPES.—Cucumber growing in houses of modern construction has not been a difficult matter this winter, owing to the mild weather, but there is always more or less risk incurred in attempting to force Cucumbers in hotbeds during the early spring months, the great drawback being the loss of heat from the fermenting materials for want of some method of preventing its escape. A simple way of getting over the difficulty, and one that answers well, is to run up a slender brick pit with 4½-inch brick walls the requisite height, say from 5 to 6 feet high at the back, giving a good fall to the front in order to catch a maximum of sun and light, which is of the first importance to Cucumbers early in the season.

The walls should be strengthened according to their height, and the pit should be high enough to admit of a door being introduced at one end, otherwise it will be little better than the ordinary hotbed, which is a great middle, and a constant source of annoyance to gardeners during unfavourable weather. The path would run parallel with the back wall, where a shelf could be erected for forcing French Beans or other plants requiring the same temperature as the Cucumbers. There is then the body of the pit to be disposed of to the best advantage, which would be done by enclosing the whole space by a wall 3 to 4 feet high, the whole length of the pit running flush with the path. Cross walls should then be built at distances of about 3 feet apart, and "pigeon-holed," and the pit is complete. The next operation would be to fill every alternate space divided by the cross-walls with fermenting materials raised to the proper height, and then to add the mounds of soil for planting. When the heat is found to be declining, the empty spaces are filled with fresh materials as often as is found necessary, and the moist heat generated is conserved for the benefit of the plants. Only half the materials used for a hotbed and half the labour will be necessary to grow Cucumbers satisfactorily in this way, and, what is more, there need be no "break" in the supply, as in case of one set of plants growing exhausted, a second lot may be brought forward to take their place, and be in full bearing before the exhausted plants are removed. *Cultivator.*

Grapes and Vineries.

THE DUKE OF BUCKLEUCH GRAPE AS A STOCK FOR FOSTER'S SEEDLING.—About four years ago I inarched a shoot of Foster's Seedling on the Duke of Buckleuch Grape. This is now a nice rod, and growing close to it are two Vines of Foster's Seedling on their own roots, and one rod inarched on Burchard's Prince. They are growing in the same border, and all receive the same treatment. Burchard's Prince being a robust grower, I expected the Grapes from the rod inarched on it would be an improvement on the others; but I could not perceive any difference

between them and the Grapes from the Vines on their own roots. The rod on the Duke of Buckleuch stock, however, bore a good crop last season, and the Grapes were a great improvement on the others, the berries being larger and of a much finer colour, and the Grapes were ripe from two to three weeks earlier than the others. The difference in the appearance of the Grapes on the Vines was very striking. The Vines are now breaking, and I hope in a few months to see if the improvement is maintained. *M. Saul, The Gardens, Stourton Castle, Yorkshire.*

KEEPING OF LATE GRAPES.—Our experience in this matter is quite contrary to that of Mr. Douglas—p. 83—as we have never found them to keep better, in fact that would be almost impossible, as we have not cut a dozen mouldy berries out of our latest house, which is 80 feet long. This is partly owing, perhaps, to the very favourable weather we had when they were ripening, which enabled us to finish them with plenty of air and a minimum of fire-heat. *W. H. Dives, Bursley Park.*

Plants and their Culture.

POTTING STOVE PLANTS.—This indispensable operation should now be thoroughly gone into. To meet certain cases a few plants may have been potted occasionally, but it will now be advisable to closely inspect the entire collection. Secure sufficient soil for this purpose where it can get somewhat warmed up to the minimum temperature of the house. Cast off the fine and close refuse from the peat, and if the loam is of too tenacious a nature, or rather on the wet side, mix some old mortar rubbish with it. In potting give healthy-growing stuff a size larger pot, if possible, but reduce any that may be up to their full size, and all such plants as are yearly pruned into the hard wood. Always make it a practice to remove any soil to which the roots have not taken themselves freely. Do not increase the size of pot in the case of any plants that are sickly, but rather reduce to a smaller size; better still, dispense with them entirely where possible, and grow on others. Experience conclusively proves to me that Palms are more frequently over-potted than they should be. They retain a fine healthy and vigorous growth in far smaller pots than many imagine. Give stimulants and water freely, instead of potting so often, and a better result will be gained.

When the potting process is going on take the opportunity to inspect all climbers that may be turned out into beds of soil, and remove any sour matter, and top-dress with fresh soil. Take the opportunity also of turning out any fresh ones where there may be room for them. Before the plants are re-arranged give the interior of the house a thorough cleansing. Be cautious with watering for a few weeks, and perform the same as much as possible with a fine rose attached to the can. Increase the temperature slightly, more especially in the daytime; keep a nice healthy growing atmosphere of 65° for night temperature, and rising 15° and 20° during the day when the sun is shining.

FORCING DEPARTMENT.—Regular supplies at frequent intervals should be introduced; the mistake often made is in prolonging the intervals to too great a length; a few things at a time, and often, is better economy, giving a more regular supply of flowers with less waste.

GREENHOUSE.—Seed should now be sown of Rhodante for early blooming, likewise of Mignonette, to succeed the autumn-sown stock. A pinch of Stock seed (Ten-weeks) should also be got in to follow in like manner. Propagate the necessary supply of plants bearing sweet-centred flowers and foliage; of the former such as Heliotropes and Tree Carnations, of the latter *Alyssia citriodora*, and the various scented-leaved Pelargoniums, are most useful. An early batch of Bouvardia cuttings struck now would give a good return early in the autumn. Of Fuchsias some cuttings should also be got in as soon as possible, and old stools be shook out and re-potted when commencing to break freely. *James Hudson, Currier's-bury House, Aton.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb. 6	Sale of Plants from Ghent, &c. at the Auction Mart, by Protheroe & Morris.
WEDNESDAY,	Feb. 8	Sale of Established Orchids, Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Feb. 9	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Feb. 10	Sale of Imported Orchids, at Stevens' Rooms.

IN offering PRIZES FOR THE LARGEST POTATO of a given kind the Messrs. HOOPER will probably elicit no inconsiderable amount of unfavourable, and not altogether unjustifiable, criticism. Of course, prizes for the biggest bunches of Grapes, the largest Melons, the longest Cucumbers, the heaviest Cabbages, &c., or even the most gigantic Gooseberry, may be all right, but to offer prizes for the biggest Potato is rank heresy. It may, however, serve to throw oil on the critics' perturbed waters if we mention that the donors of these prizes are not anticipating any very great national benefit to result, neither, we believe, do they expect that there will be in consequence a flow of golden coin into their pockets—indeed, it removes the gift from the region of the heroic when we learn that the Messrs. HOOPER are really trying to promote a bit of fun, an amusing incident in the humdrum of our prosy lives. Prizes are given all over the kingdom for the handsomest Potatoes, and really we see myriads through the season so handsome and so perfect that they become monotonous. They are of their kind fine—so very fine, in fact, that we almost sigh for something that is ugly or big, or for some new and novel form as a foil to so much excellence. The Messrs. HOOPER propose to supply this. We hope in the spirit in which they are offered they will be accepted, and that, keeping up the fun of the thing in earnest, some scores of big samples of the Queen of the Valley Potato will be presented at South Kensington next autumn. Queen of the Valley is not a beauty certainly, she is too Brodingnagian in her proportions, a sort of regal giantess, but she is enormously productive, and the Fruit Committee of the Royal Horticultural Society have, it may be presumed, in granting to her a First-class Certificate, testified that her table-merits are good. Naturally productive of large tubers, yet those who may aspire to win the prize will do well not to trust too much to ordinary lines of culture. A large seed tuber cut up to sets having single eyes, will make for the purpose the most promising sets, and each root should have but one stem. In this way two or three giants may be found, instead of the customary eight or ten of lesser size. The Messrs. HOOPER advise budding philosophers to quit their airy nothings and betake themselves to the planting of large Potatoes. To plant big ones needs little special judgment or wisdom, we prefer to ask them not so much to "plant" as to "grow" big ones.

But although this Queen of the Valley is one of the present season's Potato novelties, it is by no means the only one, and from a show point of view there are not a few new sorts that are some way her superiors; indeed, a fellow importation from the United States, the Adirondack, is superior, and will probably take a higher position as an exhibition tuber. This kind, too, has taken a First-class Certificate at Chiswick, so that it has a good reputation for quality. It is of a flattish round form, a shape characteristic of American kinds, has a somewhat rough netted skin, which is of a pale red colour, whilst the eyes are of a deep carmine hue. In this same section, that of coloured rounds, probably the handsomest of the new-comers, and not least, a beauty amongst the old ones, is that very pretty pebble-round kind named Reading Russett; its colour is bright red, and its flesh, when cooked, first-rate. We have so many good coloured rounds that something quite superscellent is needed to

match with Matchless, Vicar of Laleham for good looks, Radstock Beauty, Grampian, and Beauty of Kent; and we think when we put Reading Russett with these we select some among the best coloured rounds good for show and good for table that we have. The season, however, has not been very productive in *bona fide* new white rounds, and somehow it happens that this section is about the weakest. The new Fifty-fold seems to be the most promising, because it gives us fair size with fine quality. Some other new white rounds are better suited for the frame or early border, the tubers rarely taking on show size. Knowing something of its qualities before it got into commerce we think it may fairly be classed with Schoolmaster, Bedford Prolific, Reading Hero, and Porter's Excelsior as among the best white rounds for exhibition we yet have in commerce.

In the section of coloured kidneys two kinds stand out as valuable additions. Prizetaker Kidney, another First-class Certificate kind, is a fine handsome red variety, a Bountiful in form, cropping, and quality, but about twice the size. Growers of this will, we think, have no occasion to complain that they can't get size into it. Then we have the pale purple hued Defiance, a handsome long flat kidney, a wonderful cropper, and of good quality. This will make a telling exhibition variety, and these two kinds, with Mr. Breese, which is indifferent for eating purposes, American Purple, Beauty of Hebron, and American Rose, are among the best in the opinion of the "fancy." Some will no doubt think Trophy should have been included, but Trophy is not very desirable, in spite of the certificate it got at Chiswick. In English coloured kidneys we are yet weak, such sorts as Bountiful, Purple Ashleaf, Crimson Ashleaf, and Princess of Wales, seldom showing good samples. The Americans are strongest in coloured sorts, and it is to be hoped that we shall soon remedy that defect, for few of the American sorts are really first-class table kinds.

There are two or three notable new additions to the white kidney section, the most prominent of which is Cosmopolitan, a First-class Certificate kind at Chiswick and one that should universally take on the show table the premier position hitherto held by International. Cosmopolitan is much earlier, it comes as large and handsome, whilst its table quality is good. Duke of Albany resembles the Beauty of Hebron, but it has a white skin and if it always exhibits the fine handsome form shown in the samples sent out it will make a popular show kind. Victor is handsome but evidently too small. It is really a frame or border kind. Cleopatra is a large flat kidney, something after the King of Potatoes form. It has also received a First-class Certificate at Chiswick, so that it comes to us well recommended. It is handsome and promising. From Scotland comes a large flat kidney named Cromwell, that has a good reputation and is a great cropper. As seen so far it bids fair to make a show Potato. We take the best six white kidneys for exhibition to be Cosmopolitan, Woodstock Kidney, Pride of America, Covent Garden Perfection, Advance, and Duke of Albany.

In writing so much we have had in view the exhibition table as at present constituted. If we were dealing simply with other and, as we think, more important qualities, our selection would be considerably different.

—THE PAST MONTH.—January has been a most interesting month, having given us neither fierce frost nor snowstorm, nor, indeed any event of meteorological importance, beyond occasional heavy fogs and unusually high barometer. And yet gardeners, and, indeed, all concerned in horticulture, have good reason, in the very monotonous character of the past month, to remember it for a long time, and that with satisfaction. In spite of all our professed repugnance to what we will call unseasonable weather, there can be no doubt that a mild, open January is better than is a cold, frosty one.

The benefits resulting from a month so open and of such an even temperature have been immense. We have not had a day's hindrance to work, and in gardens everything has gone on as if it had been October or April. Of special benefit has such a pleasant season been to horticultural trade, for planting of all kinds has gone on with singular comfort and ease; indeed, the winter so far has been a sort of planter's millennium, and if the most has not been made of a midwinter almost unparalleled in human memory, the fault will lie with the planters, and not with the season. Not only has the weather been so open, but it has been dry. Excepting during long spells of frost it is long since we had such a rainless January, and soils that were at the opening of the year saturated with moisture have become friable and working in the most satisfactory condition. We cannot expect so pleasant a time long to continue; the present month may be wild and stormy, but it can hardly be marked by prolonged severity.

—THE GREAT YORK GALA AND HORTICULTURAL FÊTE.—The schedule for the twenty-fourth annual exhibition of this Society is now ready, and the exhibition for the present year takes place on June 14, 15, and 16. Very liberal prizes are again offered for plants, there being also two classes for groups arranged for effect. The annual exhibition at York always brings out a first-class display of Pelargoniums grown in the style made popular by Mr. CHARLES TURNER and the other old Pelargonium growers many years ago, and this part of the exhibition alone is a great feature. Roses in pots, as well as in a cut state, have liberal encouragement, and for the first time at York good prizes are offered for a "table for dessert, 8 feet by 4½ feet, completely laid out for ten persons, and arranged so as to show the best means of utilising fruits and flowers in its adornment." About £50 is also given in prizes for fruits, and there is invariably a good display. The Society is in a flourishing condition, and has about £1600 in the Funds.

—FIRE IN A HORTICULTURAL BUILDERS PREMISES.—On the evening of January 26 the workshops of Messrs. MAKENZIE & MONCUR, horticultural builders and hot-water engineers, Upper Grove Place, Edinburgh, were burnt to the ground, loss being sustained, it is stated, to the amount of £7000 or £8000. The establishment consisted of two three-storey buildings, one of them about 230 feet long by 36 feet in breadth, and the other about 60 feet long by 20 feet in width; and the fire spread with such great rapidity that the workmen had not time to save their tools. A large stack of wood was also destroyed, and for several hours the western portion of the city was brilliantly illuminated. The loss is covered by insurance.

—PHYTOLACCA DEBANDRA IN NEW JERSEY.—A contributor to COULTER'S *Botanical Gazette* states that a plant of the Pokeweed attained extraordinary proportions last summer in his garden at Freehold, N.J. It threw up ten stems, nine of which averaged to feet in height. The sight presented by its beautiful cylindrical racemes of purplish berries is said to have been very fine. The writer estimated the quantity of fruit at a little more than a hundredweight. Over 1800 racemes were counted. In October the robins were feasting daily upon them, and the writer feared they would leave none for the snowbirds. This robin, by-the-by, is not a true robin, being more akin to our thrushes than to our robin.

—A NEW FERN FROM ARIZONA.—Woodson Plummer is the name given to a "lovely Fern" described in COULTER'S *Gazette* by J. G. LEMMON. It is dedicated, we are told, "to Mrs. LEMMON, whose maiden name was SARA A. PLUMMER, and whose devotion to science, arduous labours, and daring heroism while botanising in the land of the Apache, entitle her to high honours and this timely recognition." We hope that the Fern is worthy of the honour. There can be no doubt of the lady's merits, though her husband prefers commemorating her maiden condition. This Fern differs, it is stated, from *W. obtusa* in having bright green, almost diamond-shaped fronds. The pinne are not remote, except the lowest, but approximate, not obtuse, but long attenuate from a broad base. The segments are longer, narrower, and with more teeth, all conspicuously ciliated with stalk glands, as are also the lobes of the indusium.

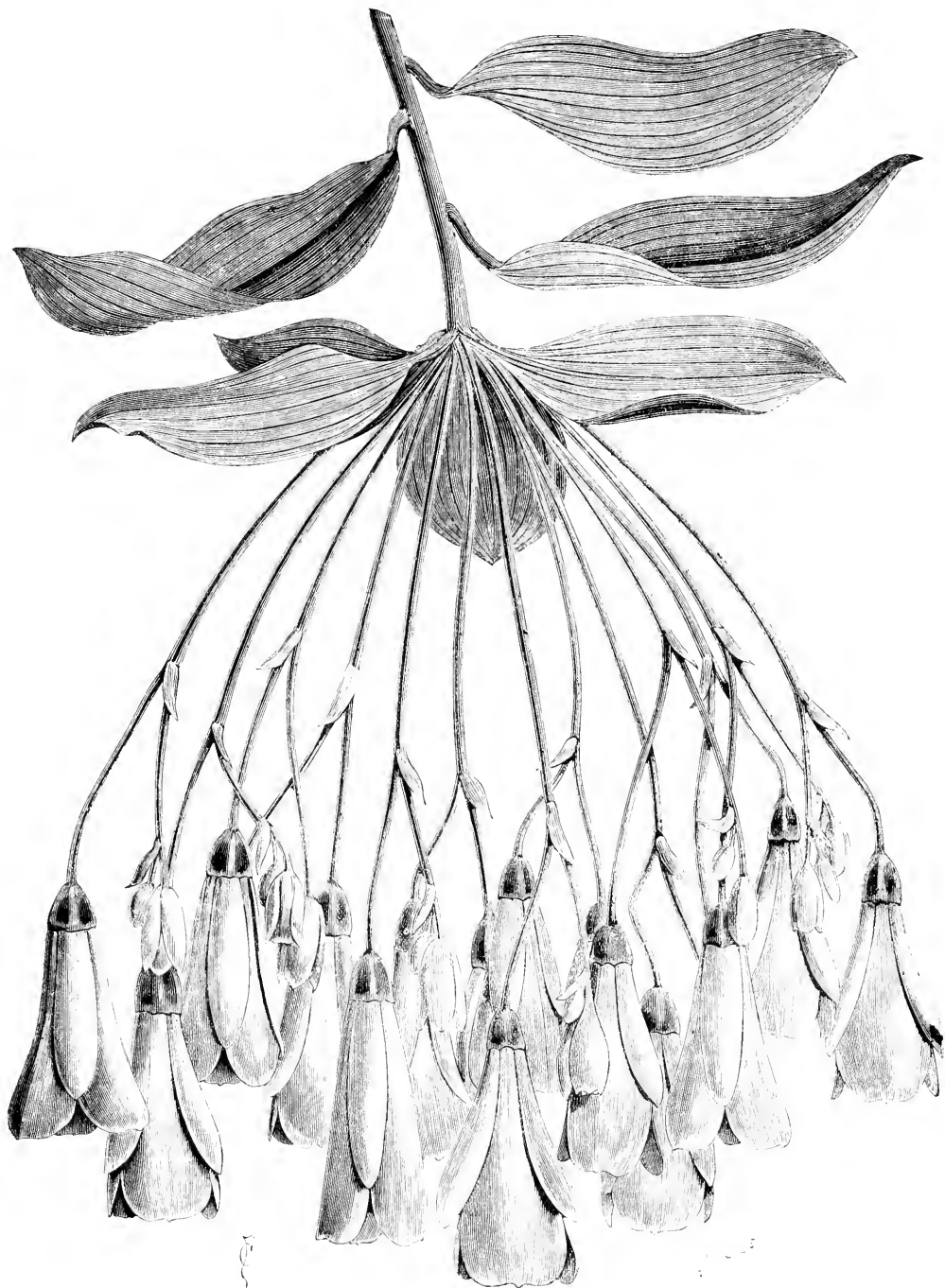


FIG. 26.—BOMAREA VITELLINA. (SEE P. 143.)

— PARASITISM OF EPITHECUS VIRGINIANA.—This plant, an ally of our Broomrape, is common under Beech trees, parasitic on their roots, in the Eastern States of North America, where it bears the names Beech-drops and Cancer-root. S. T. FERGUS describes its mode of parasitism on its nurse plant in COULTER'S *Gazette*. "The Beech root," he says, "on being touched by the parasite, sends a branch or branch-like growth into the latter, through which all its nourishment is carried, causing the death of the root from this point to the end, if not too large, while that above flourishes despite the drain of the parasite. If, however, the root is larger, and there is substance enough after the parasite is supplied, it will live, but will be retarded in its growth." If this is what the writer intended to say, and at the same time true, the benevolent Beech trees of America voluntarily support parasites, and even go out of their way to make them comfortable!

— EARLY AZALEAS.—At no season of the year are the rich colours of the Azalea more welcome than during the first months of the year, when there are so few flowers to rival them for all ordinary decorative purposes. At the Oak Hill Nursery, Suburbion, there is now a good show of early kinds, including Bernard Andréas alba, semi-double; Raphael, also a semi-double, white; Apollon, a beautiful flower, with pink stripes; and Madame Van der Cruyzen, a charming pink semi-double kind; all of which are useful for cutting, and will last over a week in a cut state in fresh water.

— BLACKBIRDS AND SLUGS.—In a short article entitled the "Blackbird in the Garden" (*ante*, vol. xvi., p. 782), it was inadvertently stated that all practical gardeners are aware that if the blackbird makes free with ripe fruit at one season of the year, at another it devours large numbers of slugs, snails, and other vermin, &c. Several correspondents have questioned, and justly, no doubt, the accuracy of the statement that blackbirds eat slugs; and one has gone so far as to suggest that they are not particularly partial to snails. As far as slugs are concerned the statement was made from the writers' observation, but the writer has often witnessed blackbirds breaking snail-shells on stones and extracting the snails.

— GARRYA ELLIPTICA.—This beautiful evergreen shrub is now to be seen in fine condition in the grounds of Somerley Park, growing in a fringe of scrubbery, and displaying its charms in a very attractive manner. The evergreen branches are freely adorned with long, slender, pendulous catkins, which make a most showy and elegant appearance. Were it growing against a wall in the most favoured position, it could scarcely be more advantageously displayed than in the open in the picturesque grounds of Somerley Park. And yet, remarkable and valuable as it is, how seldom, comparatively, is it met with! It will grow well in common soil—it does not need a rich one; and it will succeed against a wall where it will not thrive in the open air.

— THE BOTANY OF CENTRAL AND NORTH-EASTERN ASIA.—We have before us two recent contributions to the botany of Central Asia, namely, *Descriptions Plantarum Novarum et minus cognitarum: fasciculus viii., auctore E. REGEL; et Diagnoses Plantarum Novarum Asiaticarum: iv., scripta C. J. MAXIMOWICZ*. The former is supplemented by an index of localities; by some general observations on the flora of Central Asia; by tables showing the distribution of the Juncaceæ, Cyperaceæ, and Gramineæ of Turkestan in particular; and by a map on which are traced the routes of the travellers A. REGEL, FEDTSCHENKO, KAULBARKS, KUROPATKIN, OSTEN-SACKEN, KRZEWALSKI, and SEWERZOW. The elevations are approximately shown by shading. The descriptive part of REGEL'S work is almost entirely devoted to the three natural orders mentioned above. A very striking feature of the flora of Central Asia is its poverty in sedges, grasses, and rushes. The numbers of species in Turkestan are:—Juncaceæ, 15; Cyperaceæ, 81; Gramineæ, 195; 17 of the Cyperaceæ and 34 of the Gramineæ are peculiar to Turkestan. In his general observations Dr. REGEL alludes to the comparatively recent upheaval of Central Asia—a theory confirmed by the vegetation. Not a single species of Rhododendron or Liliium has been found in Central Asia, whereas both genera are numerously represented from the Altai to Eastern Europe, in the great dividing ranges

of mountains. On the other hand the genera Tulipa, Allium, Eremurus, Elymus, &c., and especially the Salsolaceæ, have their greatest concentration in Central Asia. Rye, Secale cereale, we are told, is indigenous; and Hordeum Kaufmanni is a new species of barley, found in West Turkestan, that is likely to be added soon to our cultivated cereals. The following is a complete list of the new species described, and now cultivated in the Botanic Garden, St. Petersburg:—

ALLIUM OSTROBKIANUM, Regel, Western Turkestan.
SITICATUM, Regel, Sarawshan Valley.
SUWOROWI, Regel, near Uralsk.
COLICUS HUBERI = Salvia Schimperii, Abyssinia.
CRINUM SCHIMMELI, Regel, Natal.
DELPHINIUM CORYMBOSUM, Regel, mountains of Eastern Turkestan.
GENTIANA KESSELENGI, Regel, mountains of Eastern Turkestan.
HELICOPHYLLUM LEHMANNI (Aroidæ), Regel, Western Turkestan.
LONICERA ALBERTI, Regel, Eastern Turkestan.
MERENDERA RAIBEDANA, Regel, Caucasus.
STATICE SUWOROWI, Regel.
TANMATEUM LEPICOPHYLLUM, Regel, Eastern Turkestan.

MAXIMOWICZ'S *Diagnoses* are chiefly of plants from North-eastern Asia, and they are not limited to previously undescribed species. In many instances all the species of a genus inhabiting that region are reviewed or described. Thus—Hypericum, sixteen species; Eonymus, seventeen species; Chrysosplenium, thirty-nine species, with the exception of two in South America, restricted to the northern hemisphere, and mostly to Asia. One species, *C. alternifolium*, is generally diffused in the northern hemisphere, including some parts of the arctic regions. Of the rest, thirty-two are peculiar to Asia, two to North America, one to Europe, and one is common to Europe, Asia Minor, and the Caucasus. Altogether thirty-four inhabit Asia, the greater part China and Japan. Four new species of Primula are described, and a new genus of Primulaceæ, Pomatosæ, allied to Androsæ. Several additional Pedicularis are described, two of Kenigia; and there is a dichotomous key to the Chinese and Japanese species of Ficus constructed from the habit and the character afforded by the vegetative organs. Finally, there are figures of *Acer pilosum* and *A. discolor*.

— MARKET POTATOS.—Political economists are doubtless noting with satisfaction the important fact that Potatos are now cheaper and more abundant in the country than they have been for several winters, so much so, in fact, that growers grumble greatly as to prices, not so much because of foreign importations as for the reason that Potatos are so plentiful at home. That this abundance should happen after what was in many parts a somewhat disastrous season, because of the autumn rains, is remarkable, and is chiefly due to the immense breadths of such robust kinds as the Champion and Magnum Bonum being planted, and these have produced enormous and healthy crops. But there is yet another reason for this cheapness, and it is found in the unfavourable light in which these two kinds are regarded in the market. It is of no consequence that they so largely resist the disease—a matter to the grower of the first importance; the fact remains that the Magnums are of inferior quality, and the Champions, though good cookers, are so ungainly and deep-eyed as to be wasteful and regarded with disfavour. Were the immense bulk of Potatos good sound Victorias there would be no complaint as to price or of too great abundance, and although this latter fine kind, even at its best, does not rival either the Champion or Magnum Bonum in the production of crops, still the lifting, storing, and marketing of the one is as costly as the other, and the profits are far less. It, therefore, becomes evident that we cannot rest satisfied with the coarse market kinds now so largely grown, and raisers may find an ample field open to them to produce such sorts as, whilst equal to the Victorias in quality, shall rival the Champion in health and productiveness. From a cultural point of view there is much room for improvement, because both Magnums and Champions are great soil exhausters; and great as are the root crops, they are by no means equal to the top growths. Sorts that will produce these big crops with one-half the top growth and a month sooner are much needed.

— TRITOMA GRANDIS IN FLOWER.—If things go on as they are, there will soon be reason for draw-

ing up a heavy indictment against the Clerk of the Weather. When plants that flower in the early autumn are found in full beauty at the end of January it certainly looks as if Nature was growing somewhat erratic in her plans. The plant in question is the earliest variety of its kind and as seen in the nursery of Mr. D. S. THOMSON, of Wimbledon, at the present time, is a remarkable illustration of the mildness of the weather. Spring flowers coming in a month before their time is perhaps not so great a wonder to a good many as autumn plants flowering—one may almost say between winter and spring. The fact is, a great many plants have made second growths, and are consequently flowering a second time, but it is not difficult to distinguish between the flower of an after-growth and that of a plant which has only been awakened into activity a little before its proper season by the mild weather. In Mr. THOMSON'S nursery there are hosts of spring flowering plants surrounding the group of Tritomas referred to, which are coming into flower much earlier than usual, but any one having the least knowledge of plants can hardly fail to discern the vigour of the former as compared with that of the latter. The only mischief that is likely to follow cases of this kind is that autumn-flowering plants which have been kept in a state of greater or less excitement when they should have been at rest will flower less vigorously at the right season, unless, indeed, they sustain further injury from severe spring frosts which cannot at present be taken into account. Valuable plants should, in the event of such a contingency, be protected with dry Bracken, or, failing this, thick Scotch Fir branches, either or both of which should be got in readiness before the evil day arrives.

— THE CAUCASIAN LAUREL.—The late severe winters which have decimated whole collections of plants and shrubs in various parts of the country have at least done some little good in attesting the hardiness of certain varieties of trees and shrubs which will materially assist planters in making their selections in future. Laurels were badly cut up in many places—in some cases severely—except the Caucasian variety, which is weather-proof anywhere. Those who wish to cover unsightly banks where grass will not grow have in this plant something that will not only clothe such naked places, but make them pretty and cheerful looking at all seasons. The variety is of dwarf growth, and will live anywhere if plants will live at all.

— SPARMANIA AFRICANA.—This fine old greenhouse shrub, that in an ordinary conservatory flowers freely at this season of the year, is now so seldom met with that there is great danger of its being almost lost to cultivation; in this respect going the way of many other useful things that have become neglected. A specimen in the conservatory at Hanger Hill House, Ealing, the residence of E. M. NELSON, Esq., is now flowering freely, its attractive spikes of flower demonstrating a bold leaf-growth. It is very pretty at this season of the year.

— THE BOTANIC GARDEN, GLASNEVIN.—From an extract from the report for the year 1881, we learn that there was an exceptionally large number of visitors to the garden during the past twelve months as compared with previous years. There was an increase of 19,029 on 1879, and 47,157 on 1880, the total number in 1881 being 249,911, made up as follows:—Sunday visitors, 187,114; week-day visitors, 62,797. The highest monthly attendance was in July, when the gardens were visited by 35,435 persons; September coming next with a total of 33,080. This gratifying increase is chiefly attributed to the fine dry season, and also to the fact that on the principal holidays the weather was fine.

— VEGETATION OF THE KUFARA GROUP OF OASES.—The *Sitzungsberichte des Botanischen Vereins der Provinz Brandenburg*, contains a flora of this interesting and remote group of oases, drawn up by Dr. ASCHERSON from the collections and observations of G. KOHLFES. This celebrated traveller visited Kufara in 1879, and was the first European who set foot there. The lateness of the season, and the hostile attitude of his Arab escort, prevented a thorough investigation of the botany. The latter circumstance was also the cause of the untimely end of the journey. KOHLFES stayed in the Kufara group during a part of the months of August and Septem-

ber. In the Egyptian oases the water-yielding strata are very deep, often so deep that wells have to be sunk to a depth of more than 100 yards, whilst in Kufara they are either from 1 to 3 yards of the surface, and the separate oases are of much larger extent, a single one exceeding in size the county of Sussex. Nevertheless, the former Teboo inhabitants did not reach a very high step in agriculture; and the plantations formed by the new settlers, about twenty years ago, are too young too enable us to draw a comparison between the variety and luxuriance of the plants intentionally and those unintentionally introduced by man. The Kufara group, although large and presenting large areas covered with a spontaneous vegetation, appears to be exceedingly poor in species—partly owing, no doubt, to its being isolated from other fertile spots by immense tracts of plantless desert. KOHLFES noted the almost total absence of weeds; but the season of the year must be taken into account. Even the *Alhagi maniformis* was not seen. Among cultivated plants the Fig had run wild and become perfectly naturalised, bearing edible, though not very good fruit. The list of plants, wild and cultivated, numbers only thirty-nine, and is so interesting on account of the remoteness of this group of oases that we give it in full:—

- | | |
|-------------------------------|-------------------------------|
| <i>Portulaca oleracea</i> | <i>Capsicum annuum</i> |
| * <i>Tamarix</i> sp. | * <i>Salsola lutea</i> |
| <i>Abelmoschus esculentus</i> | * <i>Salsola peruvia</i> |
| <i>Gossypium</i> sp. | * <i>Portulaca monacantha</i> |
| <i>Vitis vinifera</i> | * <i>Calligonum comosum</i> |
| <i>Citrus limonium</i> | <i>Ficus carica</i> |
| * <i>Aurantium</i> | <i>Pithecia dactylifera</i> |
| * <i>Monsona nivea</i> | <i>Typha angustata</i> |
| <i>Medicago sativa</i> | <i>Alium Cepa</i> |
| * <i>Acacia arabica</i> | → <i>sativum</i> |
| → <i>Seyal</i> (?) | <i>Juncus maritimus</i> |
| <i>Amygdalus communis</i> | <i>Sorghum vulgare</i> |
| → <i>persica</i> | <i>Luperula cylindrica</i> |
| <i>Prunus Armeniaca</i> | <i>Panicularia</i> sp. |
| <i>Punica granatum</i> | <i>Euphorbia coracana</i> |
| <i>Cucumis Melo</i> | * <i>Vitis spicata</i> |
| <i>Citrullus vulgaris</i> | <i>Avicula Piracanthis</i> |
| <i>Olea europaea</i> | <i>Triticum vulgare</i> |
| <i>Solanum Lycopersicum</i> | <i>Hordeum vulgare</i> |
| → <i>melongena</i> | |

Those species preceded by an asterisk are regarded as indigenous. The total number of Date Palms was estimated to exceed a million. Many of the plants enumerated are only cultivated on a small scale in the gardens of the Senoosii settlers.

— *COLEOGYNE CRISTATA ALBA*.—The new and charming pure white form of *Coleogyne cristata* is now in flower in Mr. WILLIAM BULL'S establishment. Of new and desirable orchids this may be considered one of the most chaste and beautiful.

— *CINCHONA*.—With reference to the *Cinchona* mentioned in a recent issue (p. 791, vol. xvi.), Mr. HOLMES writes as follows to Messrs. THOS. CHRISTY & CO. who have forwarded the letter to us for publication:—"In reply to your inquiry respecting the leaves, barks, and seeds of *Cinchona* forwarded to me, I may say that I have carefully compared them with specimens in the museum of this Society, and the barks correspond well with the finest specimens of cultivated Bolivian *Cinchona* here. With respect to the leaves and fruit, so far as I can judge, the *Cinchona morada veluta* is the *Cinchona Calisaya Boliviana* subvar. pubescens of WEDDELL'S Notes (Transl., p. 44), and the *Calisaya verde* is, so far as I can ascertain, WEDDELL'S *Cinchona Calisaya oblongifolia*, and the tree concerning which MARKHAM (*Travels in India and Peru*, p. 276) gives the following account:—"I have been assured by GIRONDA and MARTINEZ that there are three sorts of *Calisaya*; the *Calisaya fina* (*C. Calisaya vera*, Wedd.), the *Calisaya morada* (*C. Boliviana*, Wedd.), and the *Calisaya verde*. They also told me that the last-named tree was a very large one, with leaves wholly devoid of any red colour on the nerves, and habitually growing very far down the valleys, and even in the plains. A tree of this variety supplies 600 or 700 lb. weight of bark, whereas the *Calisaya fina* yields only 300 or 400 lb. GIRONDA declares that in the province of Muneças, Bolivia, he saw one that furnished 1000 lb. of taba—that is to say, of the bark of the trunk and lower branches." These remarks confirm the statement made in the copy of the letter forwarded with the barks, viz., that it pays better to cultivate the *Calisaya verde* than the *Calisaya fina*; or, in other words, that, although the *Calisaya verde* yields only 64 to 9 per cent. of pure sulphate of quinine (while the very best *Ledgeriana* yields 13 per cent., and other specimens not more than 6 per cent.), yet as the *Calisaya verde* yields

twice the amount of bark than the *fina* or *Ledgeriana* does, this is equivalent to from 13 to 18 per cent. of quinine in the *Calisaya verde*; moreover, from the fact that the *Calisaya verde* is a more vigorous tree than the delicate *Ledgeriana*, and will grow at a lower elevation, it is obvious that it can be cultivated to a much greater extent, and may be extremely valuable for grafting the *Ledgeriana* upon, more especially since the attempt to graft the *Ledgeriana* upon *C. succubra* has proved unsuccessful. I am not aware that the *Calisaya verde* (*Cinchona Calisaya oblongifolia*) has as yet been introduced into India, and I think you are to be congratulated on having succeeded in obtaining seeds of so valuable a *Calisaya*." *E. M. Holmes, Pharmaceutical Society.*

— BIBLIOGRAPHY OF RUSKIN.—A new edition of the *Bibliography of Ruskin*, corrected and brought down to the present time, is in the press, and will be issued shortly by Mr. ELLIOT STOCK.

— DEATH OF SIR ROBERT CHRISTISON.—We regret to have to announce the death of Sir ROBERT CHRISTISON, a very eminent Edinburgh physician, whose multifarious labours in medicine, medical jurisprudence, and materia medica did not prevent him from interesting himself in botany and arboriculture. Of late his memoirs on the best methods of measuring trees and estimating their age have attracted much attention.

— THE DEATH OF THE REV. GERARD SMITH is also announced. His *Flora of South Kent*, published many years ago, is a delightful companion even now to the field botanist, and its numerous notes are so interesting and betoken such keen observation that it is matter for regret that he was not able to continue his botanical researches. He retained, however, his fancy for botany to the last, and it is not long since we were privileged to publish some communications from his pen.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending January 30, issued by the Meteorological Office, London.—The weather during the first few days of this period continued dull, with a great deal of mist or fog, but no rain. By the 27th, however, it had become less settled, rain falling in the southern and south-western districts, while some heavy snowstorms were experienced in the north of England. The temperature has been a little above the mean, except in the north-western, central, and southern parts of England, where it was about equal to the mean value. The maxima varied from 54° in "Scotland, E.," "England, S.W.," and "Ireland, S.," to 51° in the east of England and north of Ireland. The minima, which were registered during the earlier part of the period, ranged from 26° over the greater part of England to 29° in "Scotland, E.," and 31° in "Ireland, S." and "England, N.W." The rainfall has been rather more than the mean over central and north-western England, and equal to the mean in "England, N.E.," but in all other districts the fall was less than the average. Bright sunshine was still very deficient, the percentages ranging from 29 in "Scotland, E.," and about 20 in Ireland to 2 in "England, S." Depressions observed.—During the greater part of this period the barometer continued highest in the south-east part of our area, while some depressions were shown to the north-westward and westward of our islands. The wind was light from between E. and S.E. in the south, generally moderate or fresh from the southward in the west, and from the south-west in the north. By the 28th, however, the distribution had changed: pressure had increased briskly in the north, and a depression had appeared between Scilly and Valencia. This disturbance travelled eastward, and caused an easterly current to spring up, though moderate generally, increased to a fresh gale on the east coast of England and over the Irish Sea at the close of the period.

— GARDENING APPOINTMENTS.—MR. R. ALLEN, late Foreman at Holme Lacy, Hereford, has been engaged (through Messrs. E. G. HENNINGSON & SONS) as Gardener to Captain SPENCE, Wynberg House, Wymberg, Cape Town, South Africa.—MR. WILLIAM HALL, who has been for some time under Mr. GLEN at Wentworth Woodhouse, Rotherham, has been engaged as Gardener to G. WHITEHEAD, Esq., Deighton Grove, York.

WINTER FLOWERS AT SWANLEY.

It was a strange experience when, going to Mr. Cannell's Home for Flowers at Swanley to see his grand collection of Chinese Primroses, the winter blooming plant *par excellence* of the greenhouse, we found something even more beautiful, and far more brilliant in a long house filled with single-flowered zonal *Pelargoniums* in such superb bloom as to literally take aback even one not accustomed to be surprised. Here was the remarkable fact shown, that the finest display of winter flowers was furnished, not by winter flowers at all, but really by plants with which we have hitherto associated summer's most brilliant floral hues. Mr. Cannell has shown boxes of zonal *Pelargonium* blooms, both single and double, so often, and in such superb form that we have grown quite accustomed to them. Still there was always the suspicion existing that these flowers thus presented in boxes were but the sparse and carefully collected product of a large number of plants, grown at great cost and with much trouble. No greater mistake could have been made, for zonal *Pelargoniums* are grown and flowered all through the winter at Swanley, with just as much care as any ordinary gardener may grow Primulas, if not with even less trouble.

The long 100-foot house, 12 feet wide, devoted to the single kinds, is full throughout with plants nearly all in 6-inch pots and all in glorious bloom, really as much so as if it were June and not January, whilst the colours of certain kinds are even purer or more brilliant. There is just within the door a big lot of that pure new white kind, *Eureka*, literally covered with bloom. Here, as a winter bloomer, it is the very best white we have—very pure, very free, and a first-rate habit, and if the market growers could be set it they would no longer pin their faith to Madame Vaucher. Then just opposite is the *White Vesuvius*, looking almost pink in the presence of its new rival. This *Vesuvius* is a splendid winter bloomer, and here is singularly pleasing, but as a white sort it cannot hold a candle to *Eureka*.

It is, of course, not possible to note many of the kinds now so brilliantly blooming in this house, but a selection of a dozen of the sorts that not only struck us as singularly effective and distinct, but which are also capital winter bloomers, is here given, the first being the *Eureka* above mentioned. A striking contrast to that is the popular summer bedder, *Henri Jacobi*, here in superb bloom, its flowers an intense crimson. A lovely kind is *Lizzie Brookes*, the flowers of fine form and of a rich rose scarlet; so also is *Lumen*, a brilliant crimson-scarlet with a white eye. Both these kinds cropped up continually as very striking. Dr. Denny's Commander-in-Chief has fine vermilion-scarlet flowers, quite a grand kind; and *Constance*, a rich rose pink, is very beautiful and free. (Quite a distinct hue is *Mrs. Strutt*, the flowers of a soft lilac. *La France* has blooms of a rich magenta hue, a considerable improvement on Dr. Denny. A very distinct and pleasing flower is *Mrs. Moore*, the ground white, and a ring of rich carmine round the eye; whilst the very best winter blooming salmon is *Fanny Catlin*. A very striking kind, indeed, is *Attala*, flowers rich orange-scarlet, and of fine form; very lovely is *Edith Pearson*, the flowers of a delicate rose-salmon, and singularly effective. *Eva*, very rich magenta, is indeed beautiful; and *Mrs. Pollett*, rose-scarlet with white eye, is a grand flower. It does not follow that a month earlier—for these plants have been full of bloom from September last—but that other dozens quite as good might have been picked out, but these were the best selection to our liking but a few days since.

Now, how does Mr. Cannell succeed so well in having these *Pelargoniums* in such superb bloom all through the winter?—for after all it is less in sort and more in culture that the means of success lie. Houses have much to do with it, for they are low, light, and well ventilated on the top. Heating has something to do with it, for just one-third of the heat is given, not below, but just over the plants and close under the roof. But preparing the plants also is an important point, and this is done by selecting spring-struck cuttings put into small pots singly, for all *Pelargoniums* are struck in this way here. The young plants are shifted into their blooming, that is, 6-inch pots, in June, and are well pinched back; are then stood in the house to promote quick rooting, and then go out into the open air for a few weeks to make plenty of short-jointed robust shoots. No bloom is permitted

to expand till August, and within a fortnight after the plants are run in they are literally a mass of bloom, and so continue all through the winter. What is here done so well, is also done in a far larger way in some of the market-plant establishments, and in a much smaller way might be done in almost every private garden.

Besides the single kinds there is a house devoted to the double Pelargoniums, and though this does not present such a brilliant appearance, yet there is an astonishing lot of bloom, the trusses are large and clean, not a tinge of damp or decay is to be seen on them, and these blooms are, because of their retentive nature, most serviceable where cut flowers are wanted. We picked out a dozen kinds that were superbly blooming, and not one but must be ranked as first-class, both now and at all seasons. General Gallifet is a curious and very taking flower, quite laced and flaked with rosy-pink upon a white ground. F. V. Raspail is a brilliant scarlet; Charles Darwin, purplish-red, shaded with violet—a perfect flower; Jules Simon, cerise-pink, very free; M. Gelein Louvagine, fine cerise-scarlet; Aglaia, magenta, very free and striking; Grand Chancellor; General Faidherbe, very deep crimson, shaded violet; Heroine, pure white, and very fine pip—a beautiful kind; Madame Delloy, lovely pale flesh colour, very beautiful; Sergeant Hoff, rich orange-scarlet; Sylvia, bright lilac-pink; and Ithenri Cannell, rich violet, shaded—a superb kind. It is well to mention that doubles need from four to five degrees more heat than the singles do.

CHINESE PRIMROSES.—It must not, however, be concluded that although the Pelargoniums so far out-distance the Chinese Primroses these latter are disappointing. So far from that being the case they are truly beautiful, and form a wonderful collection; but just at the present moment it will surprise many who have seen the grand plants shown by Mr. Cannell during the winter to learn that not a plant is in full bloom, although there are thousands, in fact three 100-foot houses quite full of them. Mr. Cannell grows plants ostensibly for show, really to produce seed, and therefore every one had had its head of bloom taken off and had been repotted into 6-inch pots, in which they are to make fresh flower, and then seed so that in a month or so the display will be a grand one. The rich madder-coloured Swanley Red is in splendid form, its very deepest hue being found in Dr. Denny, a superb selection. There are many hundreds of the Swanley Red, and with the promise of such a big stock it ought to become a popular market kind. The Swanley Purple, really a deep violet shaded flower, is a beautiful companion kind, and one of the richest hues of this shade we have; the form is of the finest, and the flowers large. There is, too, a Swanley Carmine; the flowers large, and of a pleasing warm carmine tint. And there is also a Swanley White; flowers large, pure paper-white, and most freely produced. The plants differ from others in having leaf-stalks of an intermediate colour—half green, half red—and the kind is distinct from all other whites. There is a wonderful white kind produced on plants that have peculiar robust massive leafage; the flowers are enormous, and is a grand match for Tomkins' Queen, but this latter has Fern-leaf foliage, the flowers white, tinted with pink, of great size but too much crumpled. A charming kind is Delicata, which has pale green Fern-leaf foliage, and fine blooms of a rosy-lilac kind, edged with white. Princess of Wales, certificated the other day, is a lovely salmon-tinted flower, and very free. There are other shades of lilac, of purple, and of carmine, indeed the collection is a most varied one. Very striking indeed are several of the white speckled or punctata kinds, the flowers of medium size, perfect form, finely fringed, and freely produced. The magenta, crimson-red, and carmine are beautiful, and only need enlarging to the size of our best kinds to be almost perfect. A few blues, of the Hobson Gem type, are in the collection, and will be useful as cross breeders.

Of other winter flowers Cyclamens are a good feature, and next winter the Swanley collection will be a splendid one. The new white Heliotrope, White Lady, is in abundant bloom, and should make a popular market plant; so also should the new blue kind, President Garfield, the flowers of which are the brightest colour yet seen. A batch of the old Cineraria cuncta in full bloom ought to delight the most enthusiastic admirer of anti-florists' single flowers, but far prettier is what Mr. Cannell not inaptly calls the Blue Paris Daisy, the *Agathæ celestis*, a charming

thing for winter blooming. There is a fine lot of double Cinerarias coming into bloom, and a huge lot of fine plants of single kinds, among which Mr. Cannell's *March Past* shows up prominently. The double Tropæolum, *Hermine* Grashoff, shows itself to be a good winter-blooming plant. There are many fine kinds of double Primulas, but these show no novelties. They are well done, as all things here are, and no higher praise need be given.

HOME CORRESPONDENCE.

Hardy Flowers at Heatherbank.—In Mr. Wilson's garden at Heatherbank, Weybridge, there is now a good show of Primroses, purple, yellow, and white Snowdrops, and several varieties of hardy Cyclamens, which are exceedingly healthy and well grown. The leaves of *C. europæum* are of wonderful size, and very richly marked. It is evident from Mr. Wilson's success with these plants that shelter is an important item in his system of cultivation. The plants that have the largest development of leaves and flowers are invariably those that enjoy the most sheltered situations, the base of a rockery, and peeping out of pockets or little nooks between stones, where they are snug and cozy let the wind blow high or low. As an instance of the favourable nature of the situation combined with the effects of the mild weather, it may be mentioned that the lovely blue *Lithospermum prostratum* is now in full flower months before its proper season. The plant is, however, in a position where it has in all probability suffered a little from drought last autumn, and was consequently forced into premature flowering. The fact of its being in flower in January still remains a remarkable instance of what may be accomplished in a mild season in gardens exceptionally favoured as regards shelter and climate. *W. H.*

Pear Trees in Flower.—I send you a small box of flowers which I gathered to-day from a Pear tree in Messrs. W. Pritchard & Son's nursery, Shrewsbury, about 100 yards from the Severn. The variety is Brockworth Park, not a very early one, but it is a mass of flowers at the present time, and many other sorts are bursting into blossom. The show for Pears is a grand one at present, but what will it be like if frost comes? *J. Don.*

Ice Storing in Sawdust.—If Mr. Melville will refer to the *Gardeners' Chronicle* for January 8, 1876, p. 43, he will see that sawdust was used here then, as now, as a means of preserving ice in stacks above-ground, and by way of supplementing the remarks which I then made respecting the *modus operandi* of stacking ice in the "open air" at Longford Castle, I beg to inform Mr. Melville and those of your readers who may be desirous of having a supply of ice all the year round that it is not at all necessary to expend £20 or £25 in the excavation of pits, &c. In order to make myself better understood I may at once state that when we had filled our icehouse, which in every particular corresponds with the description given at p. 45 of the one at Dunrobin, we used to make two large stacks of ice in the open (above-ground), and which answered admirably; however, having further considered the matter, we arrived at the conclusion that 300 loads of ice made into one large heap would keep better, and that we should incur less labour expenses than with the same quantity made into two stacks. Therefore, the last week in November, 1880, we made one large stack instead of two smaller ones, as follows:—"In a valley over-hung with spreading trees (but not immediately over the stack), the luxuriant foliage of which renders a shady and agreeable canopy to the stack during the summer and early autumn months, and at the bottom of the slope (a north-east one, and which is rather steep, thus affording ample drainage) we commenced our stack, and built "uphill" about 15 feet to the edge of the cartway, which had been made for the occasion. There were some hurdles placed at the bottom, forming a kind of semicircle, to prevent the ice when "tipped up" at the top from going beyond its bounds. The ice, the same as in the house, was well broken and rammed together, and boiling water applied as the work proceeded to consolidate it. When the stack was headed a man with a ladder placed against it, spade in hand, commenced at the top, and trimmed the whole stack right round to the top, thus filling all the crevices with the descending "ice dust," which was well beaten in as the operator progressed with his work. This done, the whole was covered with sifted sawdust 4 or 5 inches thick (a half-inch mesh sieve was used for the purpose), then 2 feet thick of freshly collected leaves, over which some long litter was placed to prevent the wind from blowing the leaves off, and, as a "finishing touch," the stack was enclosed by hurdles, which were fastened by tar-storing to stout sticks driven into the ground, by which means the cattle, &c., are kept away. In

conclusion, I may state that we have not yet (January 20—nearly fourteen months from the date of making it) finished this stack—a circumstance which fully demonstrates the fact that a supply of ice can be had all the year round without incurring the expense of making and filling an ice-house, inasmuch as half the labour necessary to fill the latter would suffice for making the stack. And, in order that the opening made in the coverings of the ice-stack each time that a fresh supply of ice is required may be again rendered air-tight, it will be advisable to send the same men on each occasion. *H. H. Ward.*

Cytisus purpureus.—This happens to be one of those good old-fashioned things which is more frequently seen in a botanical garden or a high-class nursery than on a gentleman's place; why this should be so I know not, but certain it is that it is a very pretty and interesting species of the genus to which it belongs, and for this reason it is highly deserving of being brought before the notice of your readers. For the information of those who are unacquainted with it, its character may be briefly described thus—Hardy deciduous shrub, 1½ to 2 feet high, flowers freely in July, colour purple. Wherever there is a choice and varied collection of deciduous shrubs the above ought most certainly to be grown. It does not appear to be at all particular either as to soil or climate, in fact, with us it has passed through the late severe winters unscathed. *J. Horsfield.*

Broadlands.—Respecting the large trees in the grounds at Broadlands, I find by referring to my notes of them that I omitted mentioning the largest and finest tree, not only in the grounds, but on the place—an Elm—which at 4 feet from the ground is 24 feet 6 inches in circumference, about 130 feet high, and at 6 to 10 feet from the ground has two leaders, each of 6 to 8 inches in diameter. The tree, which is forming a good-sized tree, and is growing a short distance north of the mansion, is in fine condition—apparently as vigorous as ever it was. *Tourist.*

Forcing Plants in the Dark.—That many plants force better and come quicker in the dark than in houses under glass I have proved again and again, and we now always make a practice of starting all those of a deciduous nature and most herbaceous kinds in a spare part of the Mushroom-house, which being kept at a uniform temperature of between 55° and 60° just suits them, as in this degree of heat with the amount of moisture always maintained they respond at once, and start into growth with great freedom. We have this day been taking out Spiræas, Weigelas, Lulæ, Deutzias, Frunns, and such-like things that have only been in a fortnight, and yet they have pushed so much as to be now showing their bloom. It may be remembered perhaps that some years ago I advocated the forwarding or fast starting of plants in celled sheds by standing them in or plunging them in beds of gently fermenting leaves or straw, and I am now of opinion that much may be done in that way, and that the system is well worthy of the attention of all who have space in those useful structures to spare. I have now a large batch of grafted Roses standing in one of the bins of the Mushroom-house, where they are buried in leaf-soil, and I do not expect to lose one, as under such regular conditions of heat and moisture they callus and unite in a very short time. Besides those grafted I have also hundreds of Rose eyes prepared exactly in the same way as those of Vines usually are, and I hope in a few days or a week to send the Editor a batch of them to let him see and report how well they are doing. The eyes referred to are simply buried thickly, layer upon layer in pans, and covered with moist sand, to prevent the drying of which 6 inches or so of leaf-soil is thrown over the whole. If Roses can be struck in this quick and easy manner during the winter there is no reason why we should not have the greater portion of the dwarfs on their own roots, and as one eye and a piece of wood about an inch long is sufficient to start a new one, as there is no risk in a cutting. If any one should feel disposed to try their hands at this method of propagating Roses I would advise them to select the firm well-matured shoots to take the buds from, as having less pith the granulatory matter is the more readily formed. *J. Sheppard.*

Forcing Bulbs.—Lilies of the Valley, Spiræas, Hyacinths, and Tulips all now claim a most important part of the attention of growers, who may be for commercial purposes or for the embellishment of private establishments; therefore the most efficacious means of producing these as quickly as possible is of no small importance. First and foremost stands the Roman Hyacinth, and the sooner these can be got into bloom the more they are appreciated, and to accomplish this I have found that to grow them in total darkness is the most expeditious means, the most convenient place for this purpose being a Mushroom-house, plunging the pots in a bed of warm manure, at the same time placing an inverted flower-

pot over each, which can remain until the bloom-spikes require more room, by which time they are ready to be gradually exposed to light. I have found that Roman Hyacinths grown in this way are far superior, and quite as lasting as those forced in the ordinary way. The same mode of procedure is equally applicable to Lilies of the Valley, Spiræas, Hyacinths, Tulips, &c., that are required very early; others for succession can, of course, be treated in exactly the same way, but without the use of bottom-heat. *Z. Morgan, The Butts, Harrow-on-the-Hill.*

Early Strawberries for Market.—As the Vicomtesse Héricart de Thury Strawberry does not answer a "Market Gardener's" purpose, I would advise him to try Dr. Roden's Early Profide, and providing he gets it true I think he will be satisfied with it; it is a free bearer, of good size, colour, and flavour. I am using it for my first crop, and have a nice lot of fruit now swelling. My next lot will be Vicomtesse Héricart de Thury, after that President, with Sir J. Paxton to finish. I think Sir Joseph the best market Strawberry grown, being large in fruit, of a good dark colour, and stands carriage well. *S. Taylor, Acaia, Appleby, Leeds.*

—Has your correspondent, "Market Gardener," tried La Grosse Sucrée? If not, I would advise him to do so. The fruit is much larger than Vicomtesse Héricart de Thury, equally early, its appearance above mediocrity; the flavour is slightly acid, but general appearance will outweigh that slight drawback in the market. I may add that this and Vicomtesse Héricart de Thury are the only sorts we have had to any extent for forcing, as well as out-of-doors, but we shall try half a dozen other varieties this season. A few years ago Princess Alice Maude was the leading early variety grown by the Kentish growers. The Vicomtesse was known in private gardens, but I never saw or heard of the "growers" having it. Princess Alice Maude grew very large in Kent, but that is no criterion for a Darlington market gardener. *W. P. R., Preston, Lancashire.*

How to Make Seeds Germinate.—Mr. Harpur-Crewe asks how to make Choripora and other seeds germinate. In the first place he should never be in a hurry for their germination; many seeds will take a twelvemonth and more to germinate. I am pretty successful in vegetating seed, and I do it as follows: I have a small section of the house glazed all round, an evaporating pan at the bottom, and a wire trellis over it. On this trellis I place my seed-pan filled with sand, as it shows the seed off better; this sand is slightly moistened, and on the sand I place my seed, and never water them. The air is so saturated that the seed get quite enough moisture from the condensation at night: of course a nice heat must be kept up. I every morning give a rapid ventilation to change the air, and close up again. This is the best plan I have tried for germinating all seed, with the advantage of seeing how they get on, and taking up those required at any stage. *Chas. D. G. de Vascet Monteiro, Almada, Portugal.*

Balchin's New Double White Mignonette.—This novelty, which was shown by Mr. Balchin last season, is shortly to be distributed. The other day I saw some splendid branched spikes, which had been cut from plants grown at his nurseries at Hassock's Gate. What can be more valuable at this season of the year than a white double-flowered Mignonette? It is a very distinct kind, and highly attractive, with a delightful perfume, and either for cutting purposes or for decorative work will be found a gem. *A. O.*

The Cones of Sciadopitys verticillata.—Your fig. 18 (p. 112) gives an idea of the most common form of the cones of Sciadopitys verticillata in the neighbourhood of Yokohama; in fact it is the only one I saw there, and I took it for the normal state. Those I met were probably better developed than your model, and on the top of the cone the tuft of leaves came out more boldly. I was told by the nurserymen there, that at the time of maturity the terminal bud started into a leader, and the axis of the cone swelled and burst asunder the scales of the bud. But I took it for granted, and never tried to ascertain how far this statement is true. *Jeon van Volken.*

Veronica pectinata.—Enquiries are often made for plants suitable for covering the surface of the soil through which tall-growing bulbs, or such as flower without leaves, like the Colchicums, may send up their stalks—Veronica pectinata seems well suited for this purpose. It is procumbent and evergreen, and its shoots, covered with neat and elegantly crimped leaves, form a loose network over the surface of the soil without taking much out of it. The species bears blue flowers in abundance in May, and there is a variety with pale red flowers, and there may be one with white flowers, of which I should be glad to

hear, as I have never seen it. The plant grows well in any soil. *C. Wolley Dod, Edge Hall, Malpas, Jan. 30.*

Strawberry Vicomtesse Héricart de Thury.—This deserves all that Mr. Ward has said in its favour. Its merits are indeed pretty well known and appreciated now, and I believe it can be had in fruit in every month in the year. We had it at odd times till the middle of November, when our stock became exhausted, and in the last week in that month I saw in Mrs. Heywood's gardens at Norris Green, near Liverpool, pots with twelve to eighteen even half-swelled fruit, so that a very little excitement would bring them to maturity, for up to that time, judging from the other occupants of the same house, they had been kept thoroughly cool. I think I may fairly assume that they would be all ripe by Christmas, and now we have Mr. Ward ready with them on the eve of January, so the three worst months are spanned, and to have them for twelve months daily is simply a question of resources. *W. P. R.*

Leucium æstivum.—Mr. Lynch sends from Cambridge a sketch (fig. 27) of a bulb of this plant with a second growing from it. We have frequently seen a similar condition in Tulips, where it is due to the formation of a new bulb at the apex of the stem,

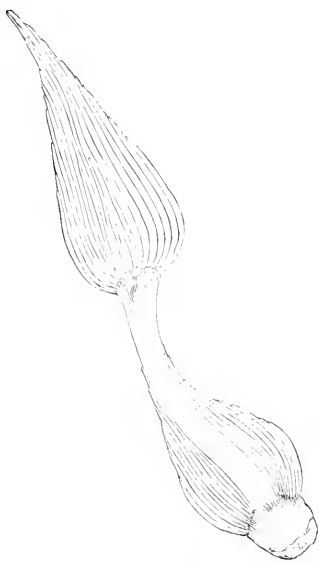


FIG. 27.—BULB UPON BULB IN LEUCIUM.

instead of a flower or group of flowers. What the conditions are which cause the inflorescence to be replaced by a bulb we do not know. A phenomenon of a like character occurs in the Tree or Potato Onion, where the flowers are replaced by a tuft of little bulbs.

Passiflora cerulea.—This is just now finely in fruit on the front of a mansion opposite Mr. Miles' conservatories, in the Great Western Road, Brighton. It is trained up the front of the mansion, covers a space of 15 feet by 25 feet, and is literally covered with bright orange-coloured egg-shaped fruits. It is evidently a good plant for favourable positions in seaside districts. The Eranthises also are used very extensively for decorative purposes; some trained by the sides of the windows in many of the mansions are exceedingly neat for that purpose. *A. O.*

COLONIAL NOTES.

CAPE BULBS.—Mr. Uppjohn, of Rondebosch, Cape of Good Hope, whose collections of Cape bulbs have been much appreciated for many years, retires from business in favour of Messrs. Johnson & Harman, who are also endeavouring to import a variety of trees suitable for cultivation in the colony, though hampered by the perversely stupid regulations as to the phylloxera. *C. E.*

Florists' Flowers.

THE FLOREST'S TULIP.—I have read with much interest the remarks of Mr. J. Douglas on this subject at p. 23, and I agree with him, that there is not so much fancy for the fine late Tulips as there was in former times, and this is the case on the Continent as well as in England. On the contrary, the taste and demand for early and medium single and double Tulips, with their striking colours, has much increased, especially for spring bedding. As for the late Tulips, however (the Tulipa serotina of Parkinson), there are still some collections found which may be said to be complete as far as the variation of colours is concerned. For example, my firm has kept the old collection intact which fifty years ago was annually shown in parade beds under a tent, and which collection has since been increased by introducing into it several first-rate Continental collections. So I cannot agree that in the time of Parkinson there was more variation in the colours of these Tulips than there is now-a-days. Parkinson himself in introducing this matter to the reader says:—"The late-flowering Tulip hath had his description expressed in the precedent discourse, so that I shall not need to make a repetition of what hath already been set down. [This relates to what was said about Tulipa præcox and Tulipa media.] The greatest matter of knowledge in this kind is this: that it hath no such plentiful variety of colours or mixtures in his flowers as are in the two former sorts, but is confined within these limits here expressed as far as hath come to our knowledge."

The position is quite the same at the present time: the early and medium section are more varied than the late ones, but in these, with their breeders and more or less broken varieties—viz., roses, byblossoms, or violettes, bizarres, &c.—we have certainly now a much greater variety of colours than in Parkinson's time. In this question the following peculiarity must also be taken into consideration. At present the few growers there are only care for breeders and totally broken varieties, the intermediate forms are not usually found in commerce. It is more than probable that in Parkinson's time the different degrees of variation in the same Tulip were more particularly described, and the not totally broken breeders more sought for than in the Tulip fancy time of the beginning of this century. The descriptions in the old books seem to indicate this, and in my collection of drawings of that time it is proved by several examples. *J. H. Krelage, Haarlem.*

LATE-FLOWERING CHRYSANTHEMUMS.—I beg to endorse all that has been said in favour of the variety called Princess Teek, and also to recommend another called Miss Marechaux, a pure white incurved flower, with very thick waxy-looking petals, which for quality of flower surpasses any other variety I grow. That you may form an opinion of its merits I send you a bloom. [Very fine indeed. Ed.] *Robt. Featherstone, St. Ann's Nursery, Ebury, Leeds.*

—I have great pleasure in adding to the list a valuable Japanese variety named Meg Merrilys, which did good service here in January. It is a beautiful sulphur-yellow, a colour that is invaluable either for conservatory or cut flowers for vases, &c. I have enclosed a few blooms for your inspection, which are fine and large, but sufficient to give you some notion of the value of this as a late-flowering variety. I think there are many who will agree with me, that medium sized blooms are the most serviceable where cut flowers are in request. I may add that the cuttings were not struck till the end of May, and after they were potted off they were put in the cool frame and kept close for a few days, and then removed outside with other varieties that were struck earlier and grown on in the usual way. In the autumn they were removed to the vinery until Christmas, then put into a little heat. *D. Elkins, Shrewsbury House, Cirencester.*

—I send you a few Japanese Chrysanthemum blooms, to show how late some varieties may be had in flower. The sorts now in bloom here are the Khedive, Lania, Splendens, Ethel, and Fair Maid of Guernsey. The plants are in 8-inch pots, and bear from twenty to forty blooms on each. The latter are small, it is true, but none the less acceptable at this

season on that account. *Wm. Whittaker, The Gardens, Manor House, Stockland, Bridgewater, Jan.*

CHRYSANTHEMUM LATE DUCHESSE.—This is a very late flowering kind, sent out some time ago by Mr. B. S. Williams, of Holloway. Some plants are now (end of January) in flower at Goodwood; Mr. Rutland grows it very extensively, as he finds it invaluable at this time of the year. The flowers are a pure white, pale lemon centre, medium size, and it is a very abundant bloomer; it is an intermediate form, between the Anemone-flowered and pompon sections. Where cut flowers are required this will prove itself very useful just now. *A. O.*

JAPANESE CHRYSANTHEMUM GRANDIFLORUM.—Mr. Manderson, gr. to Sir Edward Colebrooke, Ottershaw Park, Chertsey, grows under the name of Grandiflorum a bright canary-yellow coloured Japanese variety which is valuable as a late bloomer. Treated in all respects the same as the earlier sorts, this one carries on the display well into February, and on that account deserves a word of praise and recommendation.

FORESTRY.

ORNAMENTAL HEDGES AND FENCES FOR WINTER EFFECT.—When we combine what has been written with what is daily seen it would not be expecting too much to look for a great amount of improvement in the culture and management of ornamental hedges and fences for winter effect. The subject is too varied and extensive to be dealt with in one, or even several, brief chapters such as this, but as it is intended to treat only of one or two samples in the meantime, it is at least hoped that some small modicum of good may be accomplished.

There is scarcely anything connected with ornamental planting so easily attained as that of growing Ivy upon walls, stone dykes, trellises, and any other sustaining structure, and yet the cases where this is properly done are few in number compared with what they might easily be.

The Ivy most commendable is the common *Hedera Helix*; and although there are many other beautiful varieties of it, except for merely variety's sake there appears no advantage gained by planting other than the common sort, which of all others is the best and most commendable.

Having planted and covered miles of walls and dykes with Ivy, I will describe briefly why and how it is done, and what the results are.

The walls referred to are chiefly those enclosing policies and pleasure-grounds; and as such in the winter-time, when the trees and all deciduous plants are divested of their leaves, appear bare and poor to look upon, at least when contrasted with those covered with a rich mantle of green. The use of Ivy on walls is also to preserve the stones from falling out, especially walls built without mortar or cement. The rootlets find their way from side to side of an open rubble dyke, and lace the two sides of the wall together in a remarkable and useful manner. Another important use of Ivy is to grow it upon walls of houses either disposed to damp, or such as from the description of the stone, or exposure to the blast, admit of rain driving through them.

Any such walls, if covered with Ivy, are rendered perfectly waterproof, both against rain and also damp from the ground, which it assists in drying.

The manner of doing the planting is by first digging or trenching the ground 2 feet wide and 18 inches deep, or thereabouts, and if the soil is very poor enriching it a little by adding well-rotted manure or leaf-compost. If rooted plants can be got so much the better, as thereby one, or perhaps two years' growth is gained; but if rooted plants cannot be procured, the next best thing to do is to plant cuttings, the younger the better, by laying them in a notch about 3 inches deep; and in doing so the leaves, or at least part of them, must be kept above-ground. If the soil is at all inert, and deficient in sand, a small sprinkling should be put in the trench and over the plant, which greatly aids in promoting root-growth.

If from any cause, such as the wind detaching the fibrils from the wall, the Ivy remains bushy, and does not climb the wall, in such cases the lower leaves should be clipped off, and the shoot nailed to the wall, after which it rarely gives further trouble or inconvenience.

It requires pruning annually to take off the old, damaged, or withered leaves, which is best done about May, after the spring frosts and cold weather are over. Ridgeway's hedge-chipper is the best implement for the purpose of Ivy pruning, being quicker and better than any other I have seen. Walls frequently require to be planted on both sides; and when this is done the Ivy meets at the top, and the branches interlace with each other and constitute a completely covered wall, which surpasses any other hedge for winter in strength and appearance, and unless more than usually exposed to animals, answers all the purposes of an ordinary hedge-fence, and is cheaper, more substantial and durable than any, even the very best of Holly or other evergreen hedges.

Another and very beautiful winter hedge, well-adapted for several places, is that of the Cotoneaster, of which there are several varieties all suitable and well-adapted for winter screen and ornamental purposes, which can be differently constructed as circumstances require. Walls may be covered with it in a way similar to that recommended for Ivy, or a wooden paling or trellis of wire may be erected, and the plants trained up to interlace it to any desired height, and by annually trimming it a very beautiful, substantial, sheltering, permanent fence is formed.

I believe that an excellent winter ornamental hedge might be formed of the *Cupressus Lambertiana* (especially for sea exposures), rendered strong and secure against snow, wind, &c., by extending a few horizontal wires along it, so that the plants may grow up between them, and yet not interfere with their growth.

The Norway Spruce has also been tried as a hedge plant for purposes similar to the before-mentioned; but except in its young state it does not maintain its foliage and glossy hue well; and, moreover, is at best, for such a purpose, only of second-rate importance.

The Silver Fir is in several important respects similar to the Norway Spruce, but vastly superior to it for hedge purposes. Its defects, however, are that it grows less bushy, and stands pruned worse than Norway Spruce does. It is very hardy (except in situations exposed to spring frost), stands any amount of exposure, and survives to considerable age. In growing it as a hedge its top growth should not be interfered with till it has attained its full desired height, after which it should be topped, and allowed to branch and thicken, which it does beautifully.

The preceding hedges, as already said, are recommended only for their ornamental shelter and winter beauty, which are in many places most desirable things, and neither difficult to produce nor expensive to maintain. *C. Y. Michie, Cullen House, Cullen, January 9.*

The Rosery.

ROSE PROSPECTS.—It may perhaps be considered somewhat early to determine anything with regard to Rose prospects, and the utter hopelessness of being able to predicate anything of the character of the season that is before us only makes it more difficult.

The severe winters of 1879-80 and 1880-81 created tremendous devastation amongst Roses both at home and abroad. Standards everywhere perished by the thousand; and, great as were our losses, they were nothing to be compared to those in France. Around the Rose district of Brie Comte Robert, where the greatest stock of French Roses is grown, it is not too much to say that they perished by the million. So complete was the destruction that the Rose Society there, the most flourishing one in France, has for two years utterly collapsed, as there were no Roses to show. This destruction mainly arose from the fact that hardly anything but standards are grown there; it must have been very grievous, as some of the finest quarters of standard Roses I ever saw were those I saw in the early autumn of 1879, and with pardonable pride the Rose growers pointed to these as specimens of what their culture had effected; all these were swept away. The lesson, one would have thought, to be learned by such losses was, not to grow standards again; but as was the case in 1861, when nearly similar desolation took place, people consoled themselves that it would be many years before such a calamity would overtake them,

and went into it as largely as ever. It has been, indeed, nearly twenty years since then, but it is surely hardly worth while to run such risks for such a questionable form of beauty as a standard Rose. Many who grew dwarf Roses with us were caught napping, and from want of protection numbers perished; last autumn found amateurs especially (for nurserymen with their large stocks cannot do it) making their Roses snug for the winter; protection was nearly everywhere the rule, and the consequence is that in such cases the exceptionally mild winter we have had has been against them. Roses have begun to grow, buds are starting even low down, and many are expressing great doubts as to the future of their condition. It is certainly very remarkable to see the flowers of Roses now; all the upper buds everywhere have started, and I have beds of Tea Roses which have not shed a leaf as yet (Jan. 20) while the wood is firm and plump. In my own case I determined to have all ready for protection, but did not apply it, nor even much until very late, and, indeed, went through my beds and put a fork under each plant, gently lifting it, and so checking undue growth. I was sure it would do good, because Roses get in course of time too much buried, and this would also stimulate them to make fresh roots and thus take away from their power of making growth above. If danger is to be apprehended I fancy it will be mostly with dormant buds which may start early, and if cut off then are useless for the maiden blooms.

This being the present condition of Roses, what course are we to adopt with regard to pruning? Some years since, when Roses were very forward, the advice was given to delay pruning as late as possible, for it was said if you prune early, when the sap is rising, as you will most probably after a mild time have severe weather, the young growth then encouraged would be cut off. The idea was feasible, but the result did not justify the course adopted; it was found that a good deal of the vigour of the plant had been expended on this early growth, and the effect was a weakly growth in the plants and an indifferent bloom. I think, therefore, that it would be a mistake to defer the pruning this season beyond the usual time of performing that operation, say March. We are, it is true, having extraordinary weather, the barometer higher than it has been known for forty years, but still the temperature is low and sunshine deficient, and where Roses have not been coddled I do not think their state is so forward as to justify any alarm on this account. I have carefully looked over my own collection and do not see that the lower buds have moved, and I imagine that a good many other collections are in the same condition.

But then comes the question as to the manner of pruning. I am now writing only of dwarf Roses. Here, again, the two last winters have taught us something. The general plan of pruning was to leave sufficient length of wood to make nice symmetrical bushes, to cut out the centre, so as to give freedom of circulation to the air, and not to be particular as to the length of the shoots, but frost necessitated a different treatment last season. It was seen as pruning went on that the pith was affected, and it became needless to cut down lower and lower, until at last in most cases there was hardly left more than an inch or two of the shoot, which had either been covered by snow, or the protecting material used. It seemed as if all hope of a good bloom from such plants was delusive, but it was not so; they started up from the ground and underneath it to the very point of union, and splendid growth was the result. This has led many growers to the conclusion that hard pruning is the best. It is just possible for those who have exhibiting in view that it may be considered too risky, and that flowering would be too late for the shows, but in such cases, as Roses are grown by the hundred or thousand, it would be easy to adopt both plans. Prune some in the usual way and some back. In saying this one must recollect that there are some Roses which must always be pruned hard; delicate kinds, such as *Marquise de Mortemart*, ought always to be treated thus, but it is now questionable whether it is not the best method to adopt with all. There is one excellent Rose grower, Mr. Geo. Baker, of Reigate, who thus treats his Roses. His soil is not really a good Rose soil, but I do not think I have anywhere seen a more healthy or beautiful collection of plants than those that he grows; and I am therefore inclined myself to the system of hard pruning. I think there has been a great mistake with regard to Tea Roses—the invariable teaching has

been, shorten the tips but do not prune hard; but surely the last winter was a revelation to many on this point also. Tea Roses were of course very much cut by the frost, and in many cases were considered hardly worth preserving, they were, however, treated as others, and many of them—by far the largest portion—pushed up vigorously from the underground portion of the stem where on their own roots, or from the very lowest portion of the budded shoot. In fact a good many notions about Tea Roses are on their trial, their supposed tenderness being one of them. I have found some of them quite as hardy as many of the hybrid perpetuals, and even from the far North, and from the Highlands, the same account reaches me. I would therefore make no difference between Tea Roses and hybrid perpetuals in the matter of pruning: they will bear the knife well. This does not apply to Noisettes, such as *Maréchal Niel*, *Gloire de Dijon*, *Madam Derard*, and others which require very little shortening of the wood.

As the area of Rose growing is rapidly increasing we shall have the experience of many more growers on these subjects, but at present my own opinion and experience are strongly in favour of hard pruning. *W. Hand.*

MARÉCHAL NIEL ROSE ON ITS OWN ROOTS.—Those who plant this favourite Rose should not lose heart if it does not grow away vigorously at first, especially if it is on its own roots. A plant has recently come under my notice which was planted on the back wall of ainery twelve months last November, and made very little progress until the following May. It then started to grow freely, no doubt after its roots had laid hold of the rich fresh compost in which it was planted, and in a few months it had made fine shoots, two of which measured between 30 feet and 40 feet in length. Lots of Roses, indeed hundreds, are either smothered with other plants in the early stages of growth, or have their roots destroyed with drip from other plants, and yet people wonder why plants do not grow after they have (unconsciously no doubt) done everything possible to prevent them. *W. Hand.*

ROSES.—We generally prune the hybrid perpetuals very late in the spring, but we are rather puzzled how or when to prune this year, as the buds have started on the whole length of the young wood in many instances. There is no alternative but to leave them alone for some time longer. It may be that there yet may be sharp frosts, and in that case the Roses would suffer more injury pruned than they would if unpruned. Those who tied up the heads of the standards with some protecting material to preserve them from frost will be in still worse plight, as the growths will be blanch under it. Where a thick coating of littery manure has been placed round the base of dwarf plants it ought to be drawn a little away from them, but should be in readiness to be replaced in case the frost should yet be severe enough to injure them. Planting should now be finished with the least delay possible, and do not fail to mulch round the roots of the plants as soon as they are put out. Cuttings of Tea Roses that were put in last autumn have done remarkably well; they are yet in the cutting-pots in cold frames, but they will be potted off singly as soon as we have an opportunity to do so. A little peat of a light character should be added to the potting material. *F. Douglas.*

LATE FLOWERING ROSES.—I have noticed the following varieties for several years as being among the best to flower late in the season, often in mild winters, and in a sheltered position, continuing up to and after Christmas—(Queen of the Bourbons (one of the best), *Tea*, *Safrano*, *Noisette*, *Triomphe de Rennes*, *China*, *Cramoisie Supérieure*, and *Just*, but by no means least, the common pink *China*, or monthly *Rose*. The varieties with loose open flowers, such as the exhibitor treats with contempt, expand by far the best in the dull and damp days of winter. Such kinds as *Gloire de Dijon* often bear plenty of late buds, but they fail to open in bad weather, and eventually turn brown and fall off, but a few hours' sun will cause the loose-flowering ones to expand to perfection. It is worthy of note that scarcely any of the famous exhibition varieties show themselves at this part of the year. I once saw a beautiful handful of Tea Roses cut from a warm position in the open air on January 3. They consisted of *Safrano*, *Madame de St. Joseph*, *Madame Falcot*, *Triomphe de Guillot*, and *Homere*. This

was in Kent, in 1877. Should a sudden change occur in the weather, it is a good plan to cut all that are on the point of expanding, and place them in a temperature of 45° to 50°. If supplied with water they will continue their progress, and afford many useful flowers which would otherwise be lost. *W. H. Divers, Bursley.*

Reports of Societies.

Manchester Royal Botanical and Horticultural. *Jan. 30.*—The fifty-fourth annual meeting of the subscribers and friends of this Society was held in the Mayor's Parlour of the Town Hall, the Right Hon. the Earl of Derby (President of the Society) in the chair. The Chairman, in moving the adoption of the report, said that they would observe that it was stated that the International Exhibition held at Whitehouse was attended by nearly 50,000 persons, and that what was very rightly called the great event of the year—the International Exhibition, which was held in the month of August, had been from every point of view an entire success. His lordship, however, generally admitted that no exhibition of the kind had been held out of London of equal merit or importance. The one thing that failed them was the weather. That was very unfavourable, and as a necessary consequence the financial results were not altogether what they had hoped and expected. It was intended that the funds expected to result from that exhibition should have been applied to the replacing of various glasshouses, and in carrying out other necessary improvements in the gardens. It had not been possible to do that to the extent which was desired or contemplated, but to a certain extent it was being done. There was a surplus of £800, and that would be applied to the purposes which he had mentioned. The number of visitors who had attended the various exhibitions in the course of the year was put at nearly 2,000,000, and the sum given away in prizes in the course of the year was £2,200. The Council proposed that a rather more ambitious name should be adopted by the Society. It was formerly, and was at present, known as the Botanical and Horticultural Society of Manchester, and it was now proposed to add the words "and Northern Counties," because it was found that a great deal of the support which it received, and a great proportion of the visitors who attended the exhibitions came from districts far beyond the immediate range of Manchester. He was asked to mention the fact that assistance had been frequently given—in fact was habitually given—to the small local societies which were established in various parts of this county. The members of those small local societies were generally working men, and it had been found to be of advantage to them, and an advantage in many ways, to be invited to hold their shows in connection with the exhibitions of the Manchester Botanical Society. On the motion of Mr. S. L. Helm, seconded by Mr. B. Arncliffe, it was resolved, "That the Society be henceforth called the Royal Botanical and Horticultural Society of Manchester and the Northern Counties." The Chairman, in putting it, stating that the addition was only proposed in order to bring the name of the Society into accordance with the facts.

The officers of the Society for the ensuing year were then elected, the list including the Earl of Derby as President, and the Mayor of Manchester, Dr. Ainsworth, the Rev. Canon Gibson, and Mr. Joseph Broome as Vice-Presidents.

Variorum.

FORESTS OF NORTHERN SIBERIA.—On the slopes of the steep tundra bank and in several of the tundra valleys there is an exceedingly rich vegetation, which already, only 100 kilometres south of Yefremo-Kamen, forms actual thickets of flowering plants, while the tundra itself is overgrown with an exceedingly scanty carpet, consisting more of mosses than of grasses. Salices of little height go as far north as Fort Dickson (73° 30' N. lat.), the dwarf Birch (*Betula nana*), Elm is met with only as a bush creeping along the ground, at Cape Schaitanskoj (72° 8' N. lat.); and here, in 1875, on the ice-mixed soil of the tundra we gathered ripe Cloudberries. Very luxuriant Alders (*Alnus fruticosa*, Ledeb.) occur already at Mesenkin (71° 28' N. lat.), and the Birchov Islands (70° to 71° N. lat.) are in several places covered with rich and luxuriant thickets of bushes. But the limit of trees proper is considered to begin first at the great bend which the river makes in 69° 40' N. lat., a little north of Dudino. Here the hills are covered with a sort of wood consisting of half-withered grey moss-grown Larches (*Larix sibirica*), which seldom reach a height of more than 7 to 10 metres, and which much less deserve the name of trees than the luxuriant Alder bushes which grow 2' farther north. But some few miles south of this place, and still far north of the Arctic Circle, the Pine forest becomes tall. Here begins a veritable forest, the greatest the earth has to show, extending with little interruption from the Ural to the neighbourhood of the sea of Ochotsk, and from the 58° or 59° of latitude to far north of the Arctic Circle, that is to

say, about 1000 kilometres from north to south, and perhaps four times as much from east to west. It is a primeval forest of enormous extent, nearly untouched by the axe of the cultivator, but at many places devastated by extensive forest fires. On the high eastern bank of the Yenisei the forest begins immediately at the river bank. It consists principally of Pines: the *Centra Pine* (*Pinus Cembra*, L.) valued for its seeds, enormous Larches, the nearly awl-formed Siberian Pine (*Pinus sibirica*, Ledeb.), the Fir (*Pinus obovata*, Turcz.), and scattered trees of the common Pine (*Pinus sylvestris*, L.) Most of these, already north of the Arctic Circle, reach a colossal size, but in such a case is often here by all forestry, grey, and half dried up with age. Between the trees the ground is so covered with fallen branches and stems, only some of which are fresh, the others converted into a mass of wood-mould, held together only by the bark, that there one willingly avoids going forwards on an unbroken path. If that must be done, the progress made is small, and there is constant danger of breaking one's bones in the labyrinth of stems. Nearly everywhere the fallen stems are covered, often concealed, by an exceedingly luxuriant bed of mosses, and also on the other hand of ferns, probably in consequence of the dry inland climate, *Selagin*, occur sparingly. The Pines, therefore, want a very mossy covering common in Sweden, and the bark of the Birches which are seen here and there among the Pines is distinguished by an uncommon blinding whiteness.—From the "Ergasse of the Vega," by Baron Nordenskiöld.

METEOLOGY.—The following resolutions were adopted by the Conference for the development of Agricultural and Forest Meteorology, held at Vienna in Sept. 1880. (*Ö. Verh. Meteor. Soc.*, VII., published in No. for April):—"Vegetation is materially dependent on the following meteorological elements:—(a) temperature of the air and soil; (b) duration and intensity of the illumination; (c) all the hydrometers; consequently, the vapour tension and relative humidity, precipitation (rain, snow, &c.), as well as the other forms of condensation (fog, dew, and hoar-frost); (d) motion of the air. On the other hand the daily march of pressure and of course appears to be of less importance for vegetation. Conversely, the meteorological elements appear to exhibit the influence of vegetation in the following way. Vegetation on an augmented scale, such as pasturage, tilled land, forests and moorland, &c., give rise each in their own districts to special conditions of temperature and atmospheric humidity, and perhaps of rain also, and may therefore exert an influence on the climate of the surrounding country in respect of temperature and hydrometers, and also of springs." "On the whole it appears important that on as many rationally managed estates as possible special observations should be carried on of all the elements recognized as important. These observations should be made in different soils, and with different types of culture, and should be compared with the crop return year by year, so as to investigate in detail the relation between vegetation and meteorological elements. The general mean results published by the several institutes do not furnish values in sufficient detail for the study of individual types of culture or of local conditions. [Then follow instructions in the method to be adopted for observing the various elements, with remarks on the trustworthiness of instruments, which will be given in connection with each element.] It is advisable to organise the system of radial stations, in order to ascertain the direct extensive masses of vegetation, especially forests, exert on the climate of the surrounding region, both in their immediate vicinity and at a distance. This system promises better results the more continental is the character of the region in which it is established. Observations immediately above the tree crown are of importance. Would it not be desirable, with a view to the special observations which must be undertaken (as, e.g., phenological observations) to prepare a general form of instruction? The Conference thinks it desirable to prepare general instructions for phenological observations. The list of plants to be observed should not be too long. [Members of committees] should deal in the first place with cereals and forage plants; secondly, with the more important forest and fruit trees; and lastly, with other plants of importance to agriculture and to the phenomena of animal life."

HOUSES BUILT OF COTTON.—Of all substances apparently the least likely to be used in the construction of a fireproof building, cotton would perhaps take the first rank and paper the second, and yet both these materials are actually being employed for the purpose indicated, and their use will probably extend. Compressed paper pulp is successfully used in the manufacture of doors, wall-panellings, and for other similar purposes, with the result that all risk of warping and cracking is obviated, while increased strength is attained, and the fear of dry rot is forever banished. *The Times* has lately shown a useful purpose in an unobtrusive manner for years as a material for small trays, paper-knives, and other

such light articles, has now suddenly assumed a still more important position in the industrial world. A still more sudden and striking advance has been made in the employment of cotton as a building material. A preparation called celluloid, in which cotton is a leading ingredient, has been used lately as a substitute for ivory in the manufacture of such articles as billiard balls and paper cutters; and now a Canadian manufacturer has invented a process by which compressed cotton may be used not merely for doors and window-frames, but for the whole fabric of large buildings. The enormous and increasing demand for paper for its normal uses as a printing and writing material prevents the extended use of *papyrus-nitidus* as a building material, for which it is so well suited in so many ways; but the production of cotton is practically unlimited, and there seems to be a large field available for its use in its new capacity as a substitute for bricks—or at least plaster—and wood. Treated with certain chemicals and compressed, it can be made perfectly fire-proof and as hard as stone, absolutely air and damp proof; and a material is thus produced admirably adapted for the lining—internal or external—of buildings of which the shell may or may not be constructed of other material, while it easily lends itself to decorative purposes. *Colonist and India.*



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JANUARY 25, 1882

MONTH AND DAY.	BAROMETER		TEMPERATURE OF THE AIR.			HYGROMETRIC DEVIATIONS FROM GLASHER'S FALLS (Ed. Ed.).	WIND	RAINFALL.
	Highest.	Lowest.	Highest.	Lowest.	Range.			
Jan. 26	30.06	29.81	35.0	32.2	4.8	3.0	SE	0.00
27	30.22	30.06	35.0	34.4	0.6	3.0	SE	0.00
28	30.14	30.37	35.5	34.5	1.0	2.0	SW	0.00
29	30.05	30.17	35.0	34.4	0.6	3.0	SW	0.15
30	30.22	30.45	35.5	34.4	1.1	3.0	W	0.00
Feb. 1	30.44	30.27	36.0	34.9	1.1	3.0	NW	0.09
2	30.41	30.67	35.5	35.0	0.5	3.0	E	0.00
Mean	30.26	30.43	35.4	34.8	0.6	3.0	NSE	0.15

- Jan. 26.—A dull, orcast, frosty morning; erid, cloudy day
- 27.—A dull, damp, overcast morning; fine, bright afternoon. Fine mid night.
- 28.—A fine fresh morning, rather windy, warm day. Fine, overcast night, moon's phase visible.
- 29.—A fine day, sky overcast and dull. Dark night.
- 30.—A dull, damp, overcast day. Fine night.
- 31.—A dull, overcast, windy, cold morning. Fine night, sky overcast.
- Feb. 1.—A fine, bright day, sun shining brightly, deep blue sky. Fine, clear, cold night.

LONDON: *Atmospheric Pressure.*—During the week ending January 28, the reading of the barometer at the level of the sea decreased from 30.68 inches at the beginning of the week to 30.57 inches by midnight on the 22d, increased to 30.72 inches by 9 A.M. on the 24th, decreased to 30.74 inches by 3 P.M., and increased to 30.77 inches by midnight of the same day, decreased to 30.37 inches by 9 A.M. on the 27th, increased to 30.39 inches by midnight of the same day, and was 30.28 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.54 inches, being 0.20 inch lower than last week, and 0.62 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 59° 5, on the 28th. On the 25th the temperature did not rise above 33° 5. The mean of the seven high day temperatures was 47° 1.

The lowest temperature in the week was 27° 5, on the 23d; on the 28th the lowest temperature was 43° 5. The mean of the seven lowest temperatures was 32°.

The greatest range of temperature in one day was 13° 5 on the 24th; the smallest was 4° 8 on the 29th. The mean of the seven daily ranges was 9° 1. The mean daily temperatures were on the 22d, 37° 1, on

the 23d, 33° 7, on the 24th, 35° 5, on the 25th, 31° 1, on the 26th, 32° 6, on the 27th, 41° 4, on the 28th, 47° 4, and these were below their averages till the 26th, by 0° 3, 3° 5, 2° 2, 0° 7 and 5° 3 respectively, and above the average on the 27th and 28th by 3° 3 and 0° 2 respectively. The mean temperature of the air for the week was 37°, being 0° 3 higher than last week, and 0° 8 lower than the average of the week.

The highest reading of a thermometer with blackened bulb in *vacuo*, placed in the fall rays of the sun, was 63° 5, on the 24th; the highest, on the 25th and 26th, was 38° 5. The mean of the seven readings was 47° 5.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 21° 5, on the 26th. The mean of the seven readings was 27° 8.

Rain.—No rain fell during the week.

ENGLAND: *Temperature.*—During the week ending January 28, the highest temperature, were 50° at Truro, 54° at Sunderland, and 53° 2 at Bristol. The lowest temperature, at Wolverhampton was 46° 8, at Hull 48°, and at Brighton and Nottingham 48° 8. The general mean was 50° 9.

The lowest temperatures in the week were 25° at Truro, 27° 4 at Cambridge, and 27° 3 at Blackheath. The lowest temperature at Bradford was 34° 6, at Leeds 34°, and at Liverpool 33° 2. The general mean was 29° 9.

The greatest ranges of temperature in the week were 31° at Truro, 25° 4 at Cambridge, and 25° at Bristol. The least ranges were 13° 7 at Bradford, 12° at Leeds, and 18° at Hull. The general mean was 21°.

The mean of the seven high day temperatures was highest at Sunderland, 49° 7, at Truro 48° 3, and at Liverpool 45° 9, and was lowest at Blackheath, 41° 1, at Brighton 42° 3, and at Wolverhampton and Hull 42° 9. The general mean was 45°.

The mean of the seven low night temperatures was highest at Bradford, 37° 6, at Liverpool 37° 1, and at Plymouth 37° 1; and was lowest at Wolverhampton, 31° 8, at Blackheath 32°, and at Nottingham 32° 4.

The general mean was 34° 7. The mean daily range was greatest at Sunderland, 13° 7, at Nottingham 12° 4, and at Truro 12° 2; and was smallest at Bradford, 7° 3, at Plymouth 8° 7, and at Brighton and Liverpool 8° 8. The general mean was 10° 3.

The mean temperature for the week was highest at Sunderland, 42° 6, at Truro 41° 9, and at Liverpool 41° 2; and was lowest at Blackheath and Wolverhampton 37° 1, and at Brighton, 37° 6. The general mean was 39° 6.

Rain.—The largest falls were 0.70 inch at Wolverhampton, 0.53 inch at Liverpool, and 0.51 inch at Leicester. No rain fell at Blackheath, Brighton, Sheffield, Hull or Leeds, and only 0.01 inch at Bristol. The general mean was 0.16 inch.

SCOTLAND: *Temperature.*—During the week ending January 28, the highest temperature was 54° 3, at Aberdeen 1; at Greenock the highest temperature was 49° 2. The general mean was 51° 1.

The lowest temperature in the week was 29° 1, at Edinburgh; at Glasgow the lowest temperature was 37°.

The mean temperature for the week was highest at Glasgow, 44° 3, and at Paisley, 44° 2; and the lowest at Aberdeen, 43° 6. The general mean was 43° 4.

Rain.—The largest falls were 1.36 inch at Greenock, and 0.56 inch at Paisley. The least falls were 0.10 inch at Dundee, and 0.15 inch at Aberdeen. The general mean was 0.43 inch.

JAMES GLAISHER, F.R.S.

Obituary.

We have heard with regret of the death on Jan. 25 of MR. WILLIAM MACKENZIE, of Achindinny, Ayr, Ross-shire, a gentleman who was widely known as an estate improver, and the details of whose long and well-spent life cannot otherwise but prove of great interest to gardeners. Mr. Mackenzie was born at Urquhart, Ross-shire, in 1806, his father being a small farmer in that parish, in which his ancestors had also resided for many generations. In 1824 he commenced his gardening career as an apprentice at Balmadry Gardens, which belonged to Sir Colin Mackenzie, of Kileay. Having served his three years he went to the nursery of Dickson & Co., of Edinburgh, and from thence, in 1827, to Dalkeith, where Mr. Macdonald was gardener to the third Duke of Buccleuch. Here he remained for two years, and then went to Barcaldine, the seat of Sir Duncan Campbell, in Argyllshire, to assist in laying out new gardens, and in carrying out other estate improvements. Four years Mr. Mackenzie stayed at Barcaldine, and next became gardener, forester, and general superintendent of estate works at Rosneath, Ross-shire, which then

belonged to Sir James Wemyss Mackenzie. He served Sir James until his death in 1843, and his son and heir for four years after, during which time new gardens were made at Rosneath, and also at the Highland residence of the family at Kinlochinchear. These large gardens, as well as that at Barcaldine, were made with great care and sound judgment, and to this day bear witness to the excellent manner in which Mr. Mackenzie did his work. In 1847 he went to Ardross, Ross-shire, the property of Alexander Matheson, Esq., M.P. for the county, and it was here that he made his great reputation as an estate improver. Mr. Matheson commenced the improvement of his large estates in 1847, when the population of the district of Ardross was only 109 souls. Of the success of his efforts, ample evidence is afforded in the fact that five years ago the population in the same area was 600, and there has no doubt been some increase since that time. The limited space at our disposal forbids us entering very largely into the details of Mr. Mackenzie's work, but we cannot omit the mention of the more salient features, while for fuller information we refer our readers to a descriptive account of Ardross Castle in our own columns, at p. 272, vol. iii., and to Mr. Mackenzie's most interesting autobiography published with appreciative comments by the Editor, in the *Agricultural Gazette* for October 16, 1875. The pleasure grounds at Ardross consist of about 800 acres, which Mr. Mackenzie laid out, and for the most part planted. Upwards of 5000 acres of moorlands were planted, chiefly with Scotch Fir and Larch. More than 50 miles of private roads were made, and 12 miles of walks through the pleasure grounds, one being 6 miles continuous along the fine scenery of the Ainess. Upwards of 40 miles of stone dykes were made, and 80 miles of wire-fencing erected, enclosing arable land and plantations. At Delny, one of the detached properties, extensive drainage works, requiring great engineering skill, were most successfully carried out, and at Dunraig, on the west coast, a few miles from Strone Ferry, a garden mansion was built and extensive estate and garden improvements also carried out. For twenty years from 300 to 400 men were employed, and the only assistance Mr. Mackenzie had in the engineering and planning was that of a young man only seven years old when the works were begun. For nearly eleven years 200 of the men lived in a square of barracks, and so powerful for good was the influence that Mr. Mackenzie had over them that the services of a policeman were never required for any purpose. One of the first things that Mr. Matheson did was to establish a school in the district, with the result that at the present time the sons of the small farmers are to be found in various respectable positions in life—students in medicine, law and divinity, merchants, gardeners, and artisans, while one is the chief constable of the county, and another took the Queen's prize of £100 in one of the Universities, and became one of Her Majesty's Inspectors of Schools. In 1873 the tenants showed their appreciation of the benefits derived from Mr. Mackenzie's great skill and untiring energy by presenting him with his portrait and an address expressing the esteem in which they held him. When the writer had the pleasure of paying him a visit in 1875 Mr. Mackenzie, besides carrying on the duties of factor to Mr. Matheson, was himself farming some of the land which he had reclaimed, and excellent crops were seen growing where nothing but a marshy wilderness existed before.

— We also regret to record the sudden death, a few days ago, at the Floors Home Farm, Kelso, of MR. WILLIAM SMITH, father of Mr. John Smith, Curator of the Royal Gardens, Kew. The deceased, who was in his 88th year, went to Floors in 1814, and had followed his employment there under three successive Dukes of Roxburgh, by whom he was greatly respected.

Law Notes.

HIGH COURT OF JUSTICE: QUEEN'S BENCH DIVISION (Before Mr. Justice Field): *Morgan v. Gordon & Co.*—This was an action brought by the plaintiff, a saleswoman in Covent Garden Market, against the defendants, the proprietors of the Grand Hotel, Charing Cross, to recover £36 6s. 6d., the value of vegetables sold to the defendants, who denied their liability.

It was proved that the goods in question were sup-

plied between May and June, 1881, on the order of a Mr. Hunt, who at that time was in the employ of the defendants, and the only question in the cause was whether he had their authority to pledge their credit. On the conclusion of the evidence for the plaintiff Mr. Grantham submitted that there was no case to go to the jury.

Mr. Willis contended that as these were goods used in carrying on the business of the defendants as hotel proprietors it must be assumed that Hunt had authority to order them either as a servant or a partner, as he had done before.

Mr. Justice Field said there was abundant evidence that he had authority to buy goods, but the question was had he authority to buy on credit.

Mr. Willis replied that if there was evidence that Hunt was a buyer for the defendants it must be assumed that he could buy on credit. He submitted there was evidence that Hunt was a servant of the defendants at the Grand Hotel.

Mr. Justice Field: There is no evidence of that. This is a very important action, as other actions depend on it, and a good deal turns on the authority of Hunt to buy on credit. There is no proof that he was in the service of the defendants.

A witness named Watson, in the employment of a salesman at Covent Garden Market, was then recalled, and deposed that on one occasion he called for payment of an account, and saw Hunt in the grill-room. The latter then went downstairs to his wife for the money, but as it was too little he took the balance out of the tills in the refreshment bar.

On this evidence his Lordship said he would not stop the case, but would assume for the present that Hunt had authority to pledge the defendants' credit.

The case was accordingly proceeded with, and evidence was adduced to show that Hunt, who had absconded, had always, while in the defendants' employ, been supplied with the money necessary for the purchase of all goods required in the establishment; but in cross-examination it was elicited that on certain dates their buyer, Hunt, was not provided with cash to pay for the goods bought.

On the conclusion of the evidence on both sides Mr. Justice Field summed up, and the jury found, in answer to questions left to them by his lordship—1st, that Hunt was expressly authorised by the defendants to buy in the market all such vegetables and fruit as the defendants required for their business; 2d, that dealing on credit was one of the known and usual terms of dealing in the market, and that the defendants authorised Hunt to buy in the market on credit, although originally their intention was to pay in cash; 3d, that Hunt was not expressly authorised by the defendants to buy on credit, but that the plaintiff had no knowledge of his instructions; 4th, that Hunt had not been sufficiently supplied by the defendants before making the purchases with cash, in order to pay cash for them. The jury further found that similar circumstances had previously occurred—that Hunt had pledged the credit of the defendants to the plaintiff, and that the plaintiff had given credit to the defendants.

On these findings the learned Judge gave judgment for the plaintiff for the amount claimed.

Answers to Correspondents.

ALTERNIFOLIOLUS, ALTERNIFOLIATE: M. H. We are not aware if these words were ever used in ordinary literature; even in botanical works their use is rare, botanists as a rule preferring to say of such plants as the common Cherry Laurel or the Oak, "Leaves alternate," not tree or shrub alternifolius, or alternifoliata.

BOOKS: Beginner, Botany for Beginners, published by Messrs. Bradbury, Agnew, & Co.—Ferns, Mr. B. S. Williams' Select Ferns and Lycopsids, price 5s. 6d.—T. F. R. The Culture of Fruit Trees, by M. Du Breuil (Lockwood & Co.); Simpson's Improved Pruning and Training of Fruit Trees (Gardner's Office). We do not know of any book dealing exclusively with orchard management.—J. Shambrook. You ought to have the Gardeners' Assistant, but if that is too expensive, get Mr. B. S. Williams' Orchard Growers' Manual, and Choice Stone and Greenhouse Plants; and Rivers' Rose Auctioneers' Guide, or any one of the many useful little books on Rose culture.

COLTSFOOT: M. H. What you send is the fragrant Coltsfoot, figured in Gard. Chron. February 2, 1878; not the common Coltsfoot.

CRIMSON THORNS: Capt. B. The one alluded to was Paul's Double Crimson, the finest of them all.

CUCUMBER BED: Amateur.—The safest plan would be

to use the slates over the tank, not butting them too closely. On the slates put a layer of rubble, and fill up the bed with fresh manure and leaves. On this place small hills of good soil, and as soon as all is warmed through put out the plants. You must be careful to keep the tank supplied with water: see p. 151 for another plan.

FRUITS: R. Warner. So far as we know, the only way of obtaining the two Apples is by getting grafts from Chiswick. The Currant is in the hands of Messrs. James Carter & Co.

FUNGUS ON IVY: Helena, Anglevor. The thick sooty deposit on the Ivy leaves is a fungus named Capnodium Podagraceum, almost peculiar to evergreen Ivy. The fungus is not an exhalation from the scale so abundant on the leaves sent. Scale and Capnodium frequently occur in company, and some persons are of opinion that the fungus is capable of extending itself with greater virulence where leaves have been weakened by scale, and where matter given off by scale insects is present. The Capnodium and scale (growing in company) are sometimes common upon blackened Oranges and Lemons in our markets. We have seen branches of Olive so blackened by an allied fungus that not a particle of green colour has been left visible. In a case like yours, where a very bad attack of scale is combined with an equally bad attack of Capnodium, no cure is known. H. G. S.

LAPAGERIA ROSEA: Lap. It will do best in the cool conservatory. Be careful to give it plenty of room, good drainage, and an abundance of water while growing.

NAMES OF FRUITS: Keynes & Co. Vicar of Winkfield, or Beurre Châtraine.

NAMES OF PLANTS: H. F. Morris. 1. Ilex Aquifolium medeolens; 2. I. Aquifolium heterophyllum acropetalis; 3. I. Aquifolium marginata; 4. I. Aquifolium aurea (gold-blotched Hedgehog); 5. I. Aquifolium ferox (Green Hedgehog); 6. Libocedrus chilensis.—R. K. 1. Pteris cretica albo-lineata; 2. Pteris serrulata; 3. Adiantum bipinnatifidum; 4. A. formosense; 5. P. Hagedornii. The Orchid is Calanthe vestita lateo-oculata. The Sidalceus are:—1. S. Poulteri; 2. S. apus; 3. S. stenophylla; 4. S. uncinata (cuesia); 5. S. Kraussiana.—H. J. We believe the flower is correctly named Cattleya Dominiana, but we have not a bloom to compare it with.—Symon. 1. Phlox grandidentata; 2. Goldfishia isophylla; 3. we are unable to name it in its present state. Please send again when in flower.

NOMENCLATURE OF VARIETIES OF CHRYSANTHEMUM: C. O. Undoubtedly where Latin names are used they should follow the ordinary grammatical rule. Erecta, superba, &c., as applied to Chrysanthemum are wrong, and, as you say, should be written erectum, superbum, &c. But it would be very much better still to avoid Latin names for these garden varieties, and to call them by some garden name such as Sun, Pompey, &c., which would lead to no confusion, and which would be understood in other countries as well as Latin itself.

ORANGE: J. M. Your Orange is peculiar in having the style still remaining attached to the top of the fruit; usually it falls before the fruit ripens.

PLANTS THAT WILL GROW UNDER TREES: G. R. Plant the London Pride, Saxifraga umbrosa, and by cutting it over once a year you will have a very nice carpet under the trees. Your other question next week.

PRIMULAS.—J. Cross. You have many competitors well ahead of you in your efforts to improve this flower. The blooms sent are for the most part small and rough, and consequently worthless; but there are a few among them worth saving, these being the rose and low-lime coloured ones, which are also very nice in form, and the pale tinted one especially of good substance.

ROOT DISEASE IN LYONS.—A correspondent sends us roots of Lyons, and when reported last March they had grown freely until May or June last, when the plant suddenly flagged, and the bloom-buds became small and insignificant flowers. The roots show large swellings, and on examination the corky outer rind is seen to be greatly thickened and to contain numerous bags of a soft, glutinous, nematode worms, such as those which occasion one form of the Cucumber disease. We recommend the destruction of the plants, and the use of fresh soil for any further cultivation.

THORN HDLDS: A. G. N. Your practice of cutting down the plants to the required length before planting them is the same as is followed by many successful planters, and has the merit of being thoroughly sound. By cutting the hedge to the required length last year, and when planting leaving only 2 or 3 inches above-ground, you get three or four shoots to each plant, close to the ground—the best of all foundations for a hedge.

** Correspondents are specially requested to address, post-paid, all communications intended for publication in the Editor's office to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

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CATALOGUES RECEIVED.

- E. G. HENDERSON & SON, Maida Vale, London, W.—Flower, Vegetable, and Agricultural Seeds.
BRINKWORTH & SONS, Reading.—Seed Potatoes and Vegetable Seeds.
WOOD & INGRAM, Huntington—Vegetable, Flower, and Agricultural Seeds.
WM. CUTLER, Seacroft, Leeds —Vegetable and Flower Seeds.
D. GILES MCKAY, North End, Croydon—Vegetable and Flower Seeds.
H. CANNELL & SOSS, Swanley, Kent—Illustrated Floral Guide for 1882.
WM. SAMSON & CO, Kilmarnock—Seed, Plants, Implements, &c.
W. M. PILLSBURY & CO., Chestow—Vegetable, Flower, and Agricultural Seeds.
F. UROUBART & CO., 11, Union Street, Inverness—Vegetable and Flower Seeds.
WM. KUMSAY, Waltham Cross, N.—Seeds for the Garden and Farm.
W. THOMPSON, Tavern Street, Ipswich—Choice Flower Seeds.
KELWAY & SON, Langport—Garden and Farm Seeds, Plants, &c.
THOS. MCKENZIE & SONS (Limited), 34, Dawson Street, Dublin—Vegetable and Flower Seeds.
HARRISON & SOSS, Leicester—Seed for the Garden.
G. E. ELLIOTT, 97, Bradford Road, Huddersfield—Vegetable and Flower Seeds.
SAMUEL FISNEY & CO., Newcastle-on-Tyne—Select Seed List and Amateurs' Guide.
JAMES FARRER & CO., 39, Pimlico Street, Bishopsgate, E.C.—Garden and Agricultural Seeds.
V. LEMOINE, Nancy, France—New Florists' Flowers.
DANIELS BROTHERS, Norwich—Illustrated Guide for 1882.
JAMES WM. MACKENZIE, 23, Upper Sackville Street, Dublin—Select Catalogue and Amateurs' Guide.
VILMORIN-ANDRIEU & CO., 4, Quai de la Mégisserie, Paris—Flower and Vegetable Seeds.
PATRICK EGAN, 80, North King Street, Dublin—Flower and Vegetable Seeds.
JAMES YATES, Stockport—Select Vegetable and Flower Seeds.
C. POCOCK, Wincanton, Somerset—Farm and Garden Seeds.
JOHN COCKER, 82, Union Street, Aberdeen—Vegetable and Flower Seeds.
CARDNO & DARLING, 80, Union Street, Aberdeen—Vegetable and Flower Seeds, Florists' Flowers, &c.
W. ATLEE BURFEE & CO., Church Street, Philadelphia, U.S.A.—Farm and Garden Seeds, &c.
RYDER & SON, Sale, Manchester—Greenhouse Flower Seeds.
SAMUEL MAY, Upperhead Row, Leeds—Kitchen Garden, Agricultural, and Flower Seeds.
SAMUEL YATES, Old Millgate, Manchester—Vegetable and Flower Seeds.
BEN. REID & CO., Aberdeen—Vegetable, Flower, and Farm Seed List.
CRANKSON'S NURSERY AND SEED COMPANY, Hereford—Select Garden Seeds.
SAMUEL HARTLEY, Huddersfield, near Leeds—Carnations, Peaches, and other Florists' Flowers.
JOHN PARKER, Brixton Road, S.W.—Kitchen Garden and Flower Seeds.

COMMUNICATIONS RECEIVED.—F. S. & Co.—W. L. & R.—J. V. & S.—A. F.—F. B.—M. Y.—W. E.—D. C.—H. & Son.—T. L.—D. T. E.—J. H.—W. H.—D. M. (many thanks for the seeds).—J. P.—J. D.—P. G.—Sir T. L.—Northern Gardener.—H. K.—A. B.—W. C.—W. D.—T. C.—W. L.—M. H.—G. M.—N. E. Dr.—B. S. W.—J. M. C.—T. C.—C. d'A., Florence.—Philemeis.

Markets.

COVENT GARDEN, February 2. We have little alteration to quote this week. Grapes are steadily improving, and Apples are in good demand. James Webber, Wholesale Apple Market.

Table with columns for Vegetables and Average Retail Prices. Items include Artichokes, Horse Radish, Lettuce, Cabbage, Asparagus, French Cos, Mint, Mushrooms, Onions, Parsley, Peas, Potatoes, Cauliflowers, Rhubarb, Salsify, Nettle, Small Spading, Squash, Tomatos, Kent Regents, Champion, Magnum Bonum.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, per bushel	2	0	10	0	0
Grapes, per lb.	2	6	0	0	0
Kent Cobs, p. 100	1	6	0	0	0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Schottlii, doz	18	0	0	0	0
Arbor vite (golden), per dozen	6	0	10	0	0
(common), doz	6	0	10	0	0
Azalea, per dozen	24	0	4	0	0
Hegonias, per doz.	6	0	10	0	0
Bouvardia, per doz.	12	0	2	0	0
Cyclamen, per doz.	12	0	2	0	0
Cypripis, per doz	6	0	10	0	0
Draecena terminalis	10	0	2	0	0
(viridis, per doz.)	12	0	2	0	0
Epiphyllum, per doz	18	0	30	0	0
Eunymias, various, per dozen	6	0	18	0	0
Evergreens, in var., per dozen	6	0	24	0	0
Ferns, in variety, doz	4	0	18	0	0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 blooms	0	3	0	6	0
Azalea, 12 sprays	1	0	1	0	0
Bougardias, per bun.	1	0	1	0	0
Camellias, 12 blooms	3	0	6	0	0
Carnations, 12 blms.	1	0	2	0	0
Cerastium, 12 bunches	9	0	1	0	0
Cyclamen, 12 blooms	0	3	0	6	0
Deutzia, 12 bunches	6	0	12	0	0
Epiphyllum, 12 blms.	0	6	0	0	0
Eucharis, per doz.	6	0	8	0	0
Gardenias, 12 blms.	12	0	2	0	0
Heliotropis, 12 sp.	0	6	0	0	0
Hyacinths (Roman), 12 sprays	1	0	2	0	0
(large), 12 spikes	6	0	0	0	0
Lapageria, white, 12 blooms	4	0	6	0	0
red, 12 blooms	1	0	2	0	0
Lily of the Valley, 7 (Fr.), p. bunch	7	0	0	0	0
Lily of Val., 12 spr.	1	0	2	0	0

SEEDS.

LONDON, Feb. 4.—Fair steady business is now passing in field seed. As regards value, great firmness is shown all round. Cable advices just to hand describe the Clover markets on the other side of the Atlantic as hardening. For Trefoil there is an improved sale of home-grown Alsike, white and red, the supplies keep coming. Ryegrasses continue to move upward. The late advance in Tares is more than maintained. For bird seed the sale is meagre. John Sharp & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.

At Mark Lane on Monday English Wheat, though not in large supply, barely supported the rates of that day's night, whilst foreign was in some cases *bid*, and *is* lower. Flour was quiet, without appreciable change. Good milling Barley was fairly firm, but grading Barley was weak. Beans and Peas, whilst quiet, were firmer. Maize on the spot was steady. For Oats the market was dull, and some rates slightly lower on the week. On Wednesday the supplies of home-grown Wheat were very short, and held out for steady value. In foreign there was hardly sufficient business to test quotations; the tendency was, however, against holders. Flour was a slow sale, without change in value. Barley, Beans, and Peas sold in retail quantity at Monday's rates. Oats and Maize quiet and unchanged.—Average prices of week for the week ending January 28.—Wheat, 45s. 3d.; Barley, 33s. 4d.; Oats, 25s. 4d.; For the corresponding period last year:—Wheat, 42s. 6d.; Barley, 32s. 5d.; Oats, 20s. 2d.

CATTLE.

At the Metropolitan Market on Monday there was not a large market of cattle, but an exceedingly dull one, with weaker prices. For all classes prices were lower. Sheep were also short, but sold slowly; the few choice small wethers, but without improvement. The few lambs at market sold badly. Cattle calves from scarcity brought full value. Quotations:—Beasts, 4s. to 4s. 8d., and 5s. to 5s. 8d.; calves, 4s. 8d. to 6s.; sheep, 3s. 4d. to 6s., and 6s. 8d. to 7s. 4d.; pigs, 4s. to 4s. 8d. On Thursday trade, without being active, was firm in tone. Both beasts and sheep were in demand, and ruled steady in value. Calves firm.

HAY.

Tuesday's Whitechapel Market report states that trade was dull, but with only moderate supplies prices were steady. Quotations:—Prime Clover, 120s. to 120s.; inferior, 75s. to 65s.; prime meadow hay, 100s. to 100s.; inferior, 55s. to 50s.; and straw, 30s. to 55s. per load.—On Thursday the supply was also the trade quiet, and prices unaltered.—Unaltered Market quotations:—Superior meadow hay, 120s. to 120s.; inferior, 70s. to 105s.; superior Clover, 120s. to 125s.; inferior, 70s. to 103s.; and straw, 48s. to 54s. per load.

POTATOS.

The Borough and Spitalfields Markets report state that supplies are moderate of both home-grown and foreign, but more than adequate to the demand. Quotations:—Kent Regents, 90s. to 100s.; Champions, 60s. to 90s.; Victorias, 70s. to 120s.; Rose of Sheldons, 110s. to 125s. per ton.—Commons, 2s. 3d. to 4s. 6d. per bag.

Government Stock.—Consols closed on Monday at 99½ to 100 for both delivery and the account. Treasury's figures were, for delivery, 100½ to 100½ and 100½ to 100½ for the account. Wednesday's closing quotations were, for the delivery, 101½ to 102, and 102½ to 103 for the account; and the same figures were recorded on Thursday.

FOR H.R.H. THE PRINCE OF WALES.

J. WEEKS & CO. have the honour to announce that we have supplied and fixed two of their new HYDRO-CALORIC COILS in the Grand Saloon, Sandringham. It is not too much to say, that these Hydro-Caloric Coils are constructed upon the best known laws of Hygiene, and combine the most perfect system of Warming and Ventilating in one operation. They are invaluable for the healthful comfort of Mansions and Public Buildings. The constant stream of fresh warm air which they introduce, without draughts, has a very salutary effect upon all kinds of plants, and renders them a valuable health-giving adjunct in Orchid, Fruit, Plant, and Forcing Houses.

For Particulars and New CATALOGUE of

CONSERVATORIES, HOTHOUSES, AND HOT-WATER APPARATUS, ADDRESS:—J. WEEKS & CO., HORTICULTURAL, WARMING, and VENTILATING ENGINEERS, KING'S ROAD, CHELSEA, LONDON, S.W.

CAUTION TO EXHIBITORS OF PEAS.

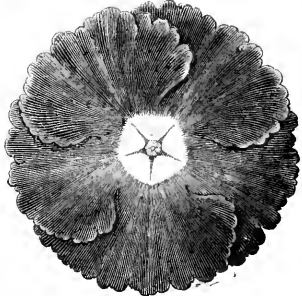
The New Peas, "Stratagem," "Pride of the Market," "Telephones," and "Telegraphs" true, as distributed by the introducers, are offered only in Sealed Packages, bearing the Trade Mark of JAMES CARTER & CO. Purchasers are hereby cautioned against spurious imitations.

THE QUEEN'S SEEDSMEN,
237 & 238, High Holborn, London, W.C.

WILLIAMS' UNRIVALLED STRAIN of PRIMULAS POST-FREE.

The Primulas I offer have earned a reputation for being the finest strains in cultivation by securing Prizes wherever exhibited, a fact which places their superiority and excellence beyond all question. Numerous unsolicited testimonials are received from all parts of the world, in which my Customers express in the most glowing terms the satisfaction my strains have given them.

The difference in price of packets applies to quantity only, all being similar in quality.



	Per packet—s. d.
WILLIAMS' PRIMULA SINENSIS FIMBRIATA	
DIETOR (New)	3s. 6d. and 5 0
Williams' Primula sinensis fimbriata alba	
magnifica (New)	3s. 6d. and 3 6
Williams' Primula sinensis fimbriata Chiswick	
Red (New)	3s. 6d. and 3 6
Williams' Primula sinensis fimbriata rubro-	
violacea (New)	3s. 6d. and 3 6
Williams' Primula sinensis fimbriata coccinea	
.. .. .	3s. 6d. and 2 6
Williams' Primula sinensis fimbriata, superb	
strain—Red, White, or Almond	3s. 6d. and 2 6
Williams' Primula sinensis fimbriata rubra	
magnifica (King of Primulas)	3 6
Williams' Primula sinensis fimbriata (Queen	
of the Whites)	3 6

For descriptions see ILLUSTRATED SEED CATALOGUE, which will be forwarded, post free, on application.

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Seed Merchant and Nurseryman,
VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

BEST SEEDS. AT STORE PRICES.

POTATOS.
MYATT'S ASHLEAF, 1s. per Peck.
SCHUMBLASTER and BEAUFY of HEBRON, 1s. 6d. per Peck.

All other Seeds at equally low prices.
Send for Priced CATALOGUE to

ROBEY & CO.,
115, 121, and 123, Market Hall, and 5, Great Western Arcade, Birmingham, and The Nurseries, King's Norton.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS, IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

BOULTON & PAUL, Horticultural Engineers, NORWICH.

CONSERVATORIES, ORCHARD-HOUSES, PEACH-HOUSES, GREENHOUSES, &c. Illustrated Catalogue, Twelve Stamps; Illustrated Lists, Post-free.



Independent Slow Combustion Boiler for Small Greenhouses.

TO HEAT BY HOT WATER; REQUIRING NO DRICKWORK.

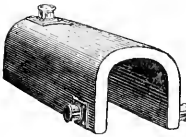
Specially adapted for small greenhouses: for quick heating or slow combustion. Quite portable, and will heat properly for twelve hours. Made with strong wrought-iron cylinder set in a cast-iron base, with fire-brick and sliding door. Only one-tenth the cost of heating by gas, and much more effectual. Steam from 2-in. cast sockets, 60° for feeding, and socket for smoke-flue.

Cash Prices—Carriage paid.

of Boiler complete, as shown in illustration, but exclusive of piping.

Size.	Total Height.	Diameter.	To heat 4-in. Piping.	Price.
1	27 in.	16 in.	40 ft.	£3 10 0
2	30 in.	16 in.	60 ft.	4 0 0
3	33 in.	16 in.	80 ft.	4 10 0
4	36 in.	16 in.	100 ft.	5 0 0

Plain Saddle Boiler.



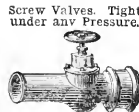
Plain Saddle Boilers are generally used for heating from 100 feet to 300 feet of 4-in. piping; above that quantity it is more economical to use our Check-end Boiler, as one of these, 3 feet long, will heat double the quantity of piping a 3-foot Plain Saddle will.

Size of Sockets.	Size of Boiler inside arch.			Heating Power for 4-in. Piping.	Price on application.
	Length.	Width.	Height.		
Fitted with three 2-in. Sockets.	18 in.	12 in.	10 in.	100 ft.	Prices on application.
	21 in.	12 in.	10 in.	125 ft.	
	24 in.	12 in.	12 in.	150 ft.	
	27 in.	14 in.	14 in.	200 ft.	
	30 in.	14 in.	14 in.	250 ft.	
	36 in.	16 in.	16 in.	300 ft.	



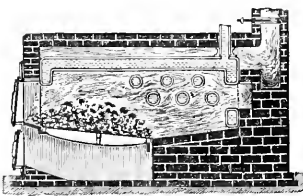
2 in. 1 s. 6d.
3 in. 1 s. 6d.
4 in. 1 s. 6d.

The whole of the working parts of these valves can be removed without disturbing or cutting the pipes.



2 in. 1 s. 6d.
3 in. 2 s. 0d.
4 in. 2 s. 0d.

Patent Check-end Saddle Boiler.

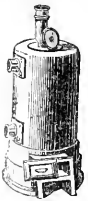


Check-end Saddle Boiler, simple and durable.

No.	Outside Length.	Outside Width.	Outside Height.	Cross Tubes.	Heating Power for 4-in. Piping.	Price: Boiler only.
1	33 in.	20 in.	18 in.	1	300 ft.	£3 10 0
2	33 in.	20 in.	18 in.	1	300 ft.	10 10 0
3	43 in.	24 in.	20 in.	1	750 ft.	15 0 0
4	43 in.	24 in.	24 in.	1	1000 ft.	16 0 0
5	43 in.	27 in.	20 in.	1	1250 ft.	20 0 0
6	53 in.	27 in.	24 in.	2	1500 ft.	23 0 0
7	53 in.	30 in.	27 in.	4	1750 ft.	26 0 0
8	63 in.	33 in.	24 in.	6	2000 ft.	35 0 0

The Phoenix Slow Combustion Boiler.

We claim for our Phoenix Upright Boiler the following good qualities, viz.:—It is made of the best materials; has no parts that are liable to failure; is provided with a flue that cannot be choked with fuel; will heat effectually the quantity of pipes stated with the smallest amount of fuel; can be easily regulated; and will hold fuel sufficient for keeping up the proper heat twelve hours; requires no brick-work, and takes up the smallest space of any boiler of its power.

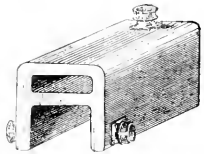


Sockets can be placed in any position.

Cash Prices—Carriage paid.

Size.	Total Height without Feed Hole.	Diameter of Boiler.	Heating Power for 4-in. Piping.	Price.
1	25 in.	16 in.	150 ft.	£5 0 0
2	29 in.	16 in.	200 ft.	7 0 0
3	30 in.	16 in.	300 ft.	8 10 0
4	33 in.	18 in.	400 ft.	10 0 0
5	36 in.	18 in.	500 ft.	12 0 0

The Terminal End Saddle Boiler.

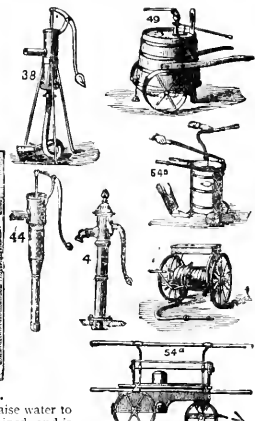
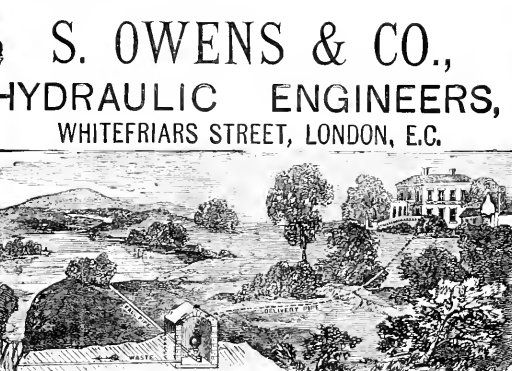
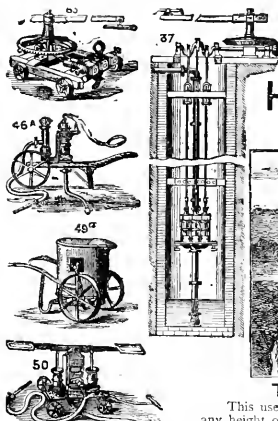


This Boiler is much used, and is one we can confidently recommend.

Total Length.	Size of Boiler.			Heating Power for 4-in. Piping.	Prices on application.
	Inside the Arch.	Outside Measure.	Height.		
30 in.	16 in.	16 in.	22 in.	27 in.	500 ft.
36 in.	16 in.	16 in.	22 in.	27 in.	750 ft.
42 in.	18 in.	16 in.	24 in.	27 in.	1000 ft.
48 in.	21 in.	18 in.	27 in.	30 in.	1300 ft.
54 in.	24 in.	18 in.	30 in.	30 in.	1600 ft.
60 in.	24 in.	18 in.	30 in.	30 in.	2000 ft.

Boilers made to suit any position for Baths, Harness Rooms, Lavatories, &c., &c. All sizes of Boilers given in this Advertisement are kept in stock, and are rated to effectually heat the quantity of Piping named with a minimum amount of fuel. All Orders amounting to 40s. Carriage Paid to any Railway Station in England and Wales; also to Edinburgh, Glasgow, Dublin, and Belfast.

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Price 3d., Post Free 3 1/2d.
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THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

- No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
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- No. 55b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS and CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GASWORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. Particulars taken in any part of the Country. Plans and Estimates furnished.

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PETUNIA GRANDIFLORA.—The finest strain in cultivation, which has been highly spoken of by the Editors of the following London Parks, where our Petunias have been grown.—Kensington Park, Kennington Park, Crystal Palace, Kew Gardens, and Chiswick; also recommended by all the English Horticultural Journals. Single, per packet, 2s.
HENDER AND SONS, Nursery, Mansmoad, Plymouth.

PELARGONIUMS.—Regal and other varieties, assorted in 60-pots, good stuff, want re-potting, 4s. per dozen.

DAHLIAS.—Pot roots, good varieties, assorted, 25s. per 100.
THOS. HEWITT, The Nursery, Southam, Wiltshire.

WILLIAM FLETCHER has a few thousands of offer of ALDER, 3 to 6 feet; SCOTCH FIRS, twice transplanted, 1½ to 2½ feet; HAZEL, 1½ to 2 feet, 2 to 3 feet; SPRUCE FIR, 2 feet; CHESTNUTS, Spanish, 1½ to 2 feet; DEUTZIA GRACILIS, per 100.
 Prices on application.

WILLIAM FLETCHER, Oatthorpe Nursery, Cheshire.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz., 12s. and 15s.; extra selected, for potting (specimens), 16s. per doz.
RODGER, McCLELLAN AND CO., 64, Hill Street, Newry.

TEA ROSES, on own roots, extra strong, out of 4½-inch pots, 4s. per 100, for cash. Now ready, Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

SPANISH CHESTNUT, 5 to 6 feet; SCOTCH, True Native, 2 to 2½ feet, stout, transplanted.
G. CHORLEY, Coaster's Nursery, Midhurst.

TRANSPLANTED LARCH, 2 to 3 feet, 13s. 6d. per 1000; ditto SCOTCH FIRS, 1½ to 2 feet, 16s. per 1000.
THOMAS HUNTER, Nurseryman and Florist, Barnard Castle.

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THOMAS S. WARE begs to announce that the Spring edition of his **HARDY FLOWERS' FLOWER CATALOGUE** for the present season is now ready, and includes, in addition to the above, most complete Lists of choicest varieties of Anemones, Delphiniums, Paeonies, Pansies, and Violas; Pentstemons, Pyrethrums, Dianthus, Foeniculis, Sweet Violets, Phloxes, &c. Post-free on application.
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Hale Farm Nurseries, Tottenham, London.

FOR SALE, DR. MACLEAN PEAS and **MAGNUM DONUM POTATOS**, true and good sample.
 For price, &c., apply to
F. AND C. MYATT, Offenham, Evesham.

TO THE TRADE.
PLUMS, dwarf-trained, Victoria, very fine, 12s. per doz.
ROSES, H.P.'s of the leading kinds, on Manetti, strong, 6s. per dozen, 40s. per 100.
APPLES, Maidens, strong, of the leading kinds, 30s. per 100.
QUICKS, transplanted, stout, 10s. to 20s. per 1000.
LARCH, 40s. to 60s. per 1000.
SPANISH CHESTNUTS, transplanted, 21s. per 1000.
 Apply to **WALTER C. SLOCOCK,** Galsworth 'Old' Nursery, Woking.

BLACK CURRANTS.—Several thousands of good 5-year old Bushes for Sale.
 Apply, **M. BOMFORD,** Pitchill, Evesham.

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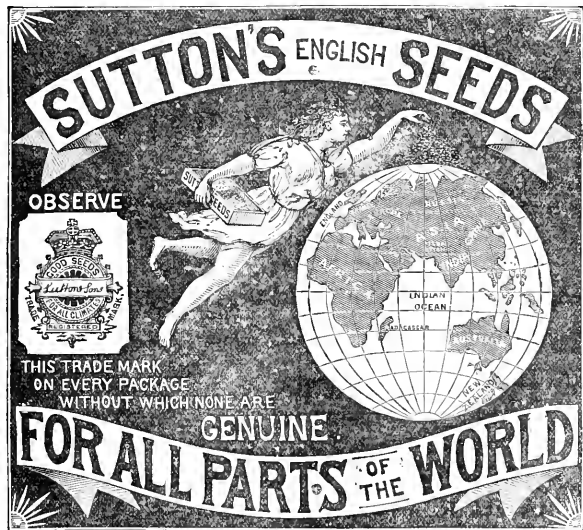
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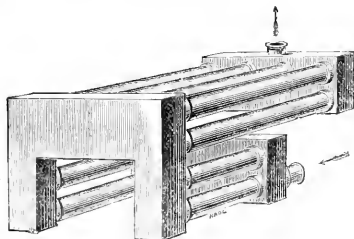
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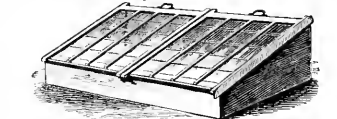


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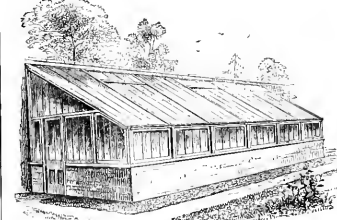
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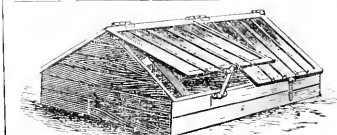
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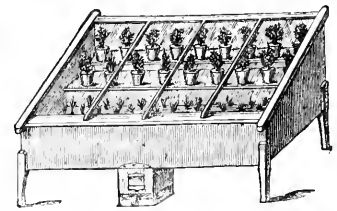


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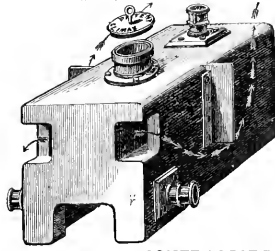
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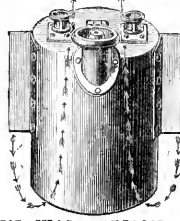
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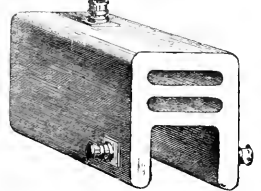
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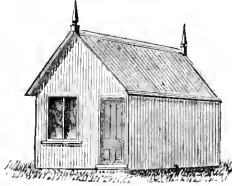
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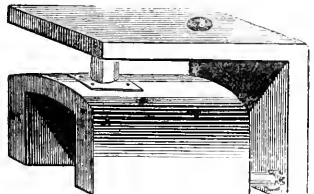
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SIMPLE, DURABLE, NEAT, CHEAP.

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—Will last for years, and is best superseding all other apparatus or contrivance for the purpose. Price 3s., 4s., 6d.; large size, 7s. 6d. each; packing extra.

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Spaced about 10 feet apart for guiding the wires on the wall.

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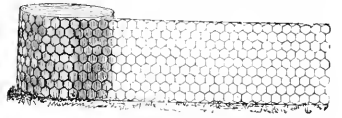
Length of Wall 20 yds. 40 yds. 60 yds. 80 yds. 100 yds.

No. 14 Gauge Wire	1 0	1 0	1 2	1 4	1 6
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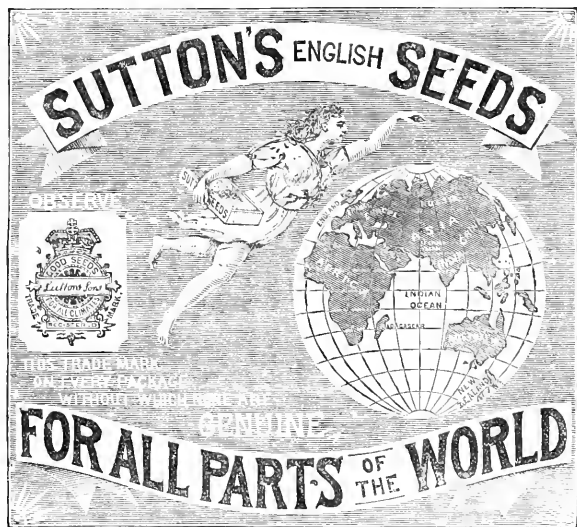
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Mixed Seed, 1s., 2s., and 3s., per Packet.

The *Journal of Horticulture* says:—"Messrs. Cannell & Sons' Single Dahlias are magnificent."

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CHOICE STOVE AND GREENHOUSE PLANTS.

JOHN H. LEY,
ROYAL NURSERY, LONDON ROAD,
CROYDON,

Begs to direct the early attention of purchasers this spring to his magnificent STOCK of PLANTS in classes enumerated below, all of which are offered at remarkably low prices, and are far superior to the usual Nursery stock, being young, clean, and quickly grown Country plants (as a visit to the Nursery will readily prove). Any one ordering a collection can send lists of sorts already possessed, when other distinct sorts only will be included. An enormous stock to select from in plants of all sizes.

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All packages gratis for cash with order only, to save Postage. Plants gratis to pay for carriage (smaller quantities same rates).

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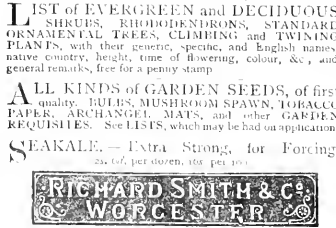
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A splendid assortment of the most showy, popular and beautiful varieties, including finest Double German Aster and Few-week Stock, Scarlet Linum, Plixo Drummondii, Double Zinnia, Mignonette, Fanny Sweet Pea, Nemophila, Insignis, Calliopis, Dwarf Nasturtium, Clarkia, &c.
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THURSDAY NEXT.

VALUABLE IMPORTATIONS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT, February 16,** at half-past 12 o'Clock precisely, by order of Mr. F. SANDER,

VALUABLE IMPORTATIONS of ORCHIDS,
 consisting of the extremely rare and magnificent **DENDROBIUM BRYMERIANUM, D. WARDIANUM ALBUM, D. GRIFFITHI WARDIANUM, D. CRASSINODE BARBERIANUM, D. FALCONERI, D. DEVONIANUM, D. THYRSIFLORUM;** a fine lot of dark-flowering varieties of **ODONTOGLOSSUM VEXILLARIUM;** splendid varieties of **O. ROSSI MAJUS;** a large lot of the beautiful **MORMODES PARDINUM** and other valuable importations.
May be viewed the morning of Sale, and Catalogues had.

AUCTION ROOMS and OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CATTLEYA LABIATA PERCIVALIANA
 (Rehb. f.)
TRUE AUTUMN-FLOWERING LABIATA.

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On view the morning of Sale, and Catalogues had.

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 AT STORE PRICES.
POTATOS.
MYATT'S ASHLEAF, 1s. per Peck.
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 All other Seeds at equally low prices.
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 AT MODERATE PRICES.

Write for our New Descriptive Catalogue, which contains all the most popular and profitable varieties to grow.

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HEREFORD.

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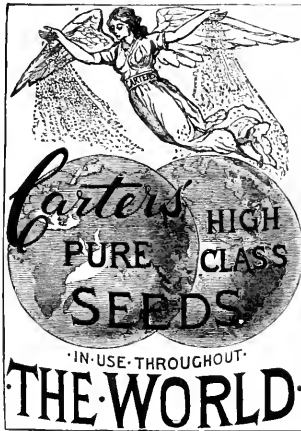
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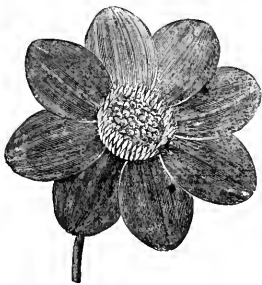
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Have obtained from THOMAS MOORE, Esq., of the Chelsea Botanic Gardens, the SEEDS saved from his

New, Distinct, and Improved Hybrids

of this fine decorative class of plants, and which have been figured and described in the *Gardeners' Chronicle* of October 22, 1881, and illustrated in the *Florist and Pomologist* for July, 1880. They comprise the following named and other crossed and intercrossed forms of the Coccinea, Gracilis, and Mexicana sections, and may be expected to produce New Sorts of great merit.

SCARLET GEM	PERFECTA	RUBY	SCARLET DWARF
YELLOW GEM	GLORY	RED CAP	YELLOW DWARF
COCCINEA	PAINTED LADY	LATERITIA	PRIMROSE
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MIXED SEED, finest hybridised [..	Per Packet—s. d.
Collection of 6 varieties, J. Veitch & Sons' selection 2 6
12 7 6
DAHLIA GRACILIS, saved from the finest hybrids 15 0
Fine for Bedding. Plant of dwarf bushy habit, with finely-cut foliage, and very free flowering. 3 6
SINGLE DAHLIA, finest mixed, saved from the large-flowered section 1 0

If sown in heat in February they will flower freely during the autumn.

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CARRIAGE PRE-PAID.

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Offer the following extra choice Seed:—

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.. Eastnor Castle, Green-flesh 1 0
ONION—Magnum Bonum 1 0
Zinnia Giant Yellow 1 0
PEA—Cubervell's Telegraph per quart 3 0
.. Marvel per quart 2 6
.. McLeen's Best of All per quart 2 0
TOMATO—Stamfordian 1 0
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122 6d.	1s. 2d.	1s. 11d.	1s. 2d.	1s. 4d.

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SEEDS: 1s. 6d., 2s. 6d., 3s. 6d., 5s. and 7s. 6d. each.

For descriptions of the above and other Select and Genuine SEEDS, POTATOS for Planting, and GARDEN REQUISITES, see our Illustrated Vegetable and Flower Seed CATALOGUE, which may be had free on application.

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This valuable New Pea is now being distributed by the undersigned, and can be obtained from all Seedsmen and Florists in the United Kingdom.

Price, per sealed packet, 3s. 6d.

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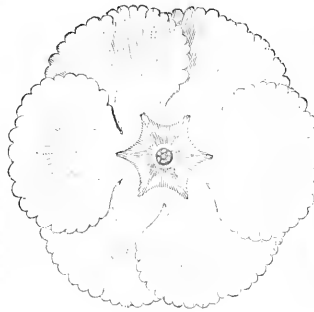
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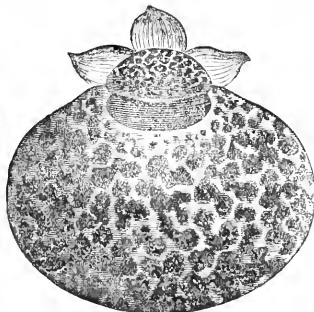
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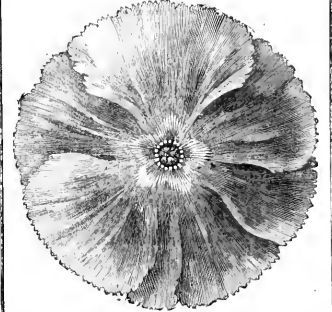
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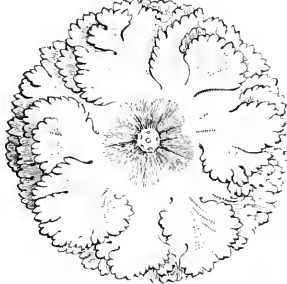
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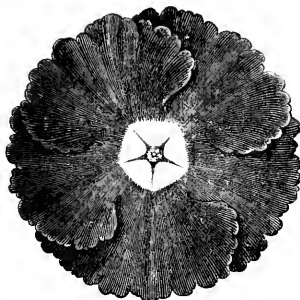
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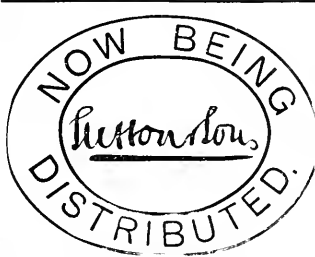


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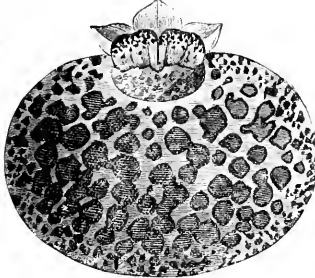
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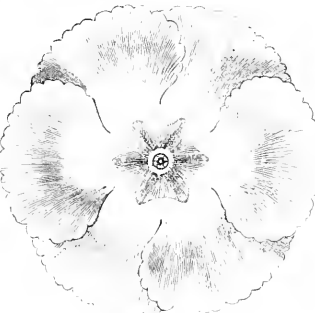
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THE **Gardeners' Chronicle.**

SATURDAY, FEBRUARY 11, 1882.

MEDICAL GARDENING.

IT is as curious as important to find that medical men and others who devote themselves to the study of the nature, progress, and modes of averting or remedying certain forms of disease, dependent upon the growth of humbly organised plants of extreme minuteness, find it necessary to cultivate the organisms in question, so as to be able to watch their career from the beginning to the end. The chief difficulty to be contended with is the growth of what we may term in this connection "weeds," that is, the spores or germs of plants other than those which it is desired to investigate. To exclude these ubiquitous growths is, it will readily be imagined, a delicate and difficult process, but one which it is essential to carry out, else numerous fallacies are sure to arise, and errors of observation to occur.

The next difficulty is to find some solution which affords nutriment to the plant—to find the right food for it, in fact. The most commonly successful fluids for this purpose are what we may term mixed manures, consisting of carefully-adjusted admixtures of nitrogen in some form or other, together with alkaline and phosphoric salts. The spores placed in some weak solution of this kind have to be retained continuously at a certain heat, varying according to circumstances, and which, with the appliances now at command in the laboratory, is an easy matter. Heat, light, or its absence, water and appropriate food, having been thus carefully adjusted, the organism grows just as a specimen plant would do under the coarser but still strictly analogous processes of the gardener. Then, having succeeded in isolating and in cultivating the plant, the next step is to make experiments by processes analogous to vaccination, to ascertain if the plant, when introduced in this way into the system, will produce the disease it is desired to investigate. This has now been proved in several cases, both among animals and in human beings, and it has, moreover, led to discoveries which furnish a means whereby these diseases may be in some cases mitigated, or their presence averted, just as in the vast majority of cases small-pox is staved off by successful vaccination and re-vaccination.

The treatment of wounds, whether accidental or inflicted of set purpose by the surgeon, has also been so much improved by carrying out these principles that certain operations, which the boldest operator dreaded to undertake, not from any lack of manipulative skill or from any mechanical difficulty, but from the operation of causes once thought beyond his control, are now successfully carried out. Amongst the most recent experiments of this nature are those of Dr. Thin on the cultivation of the fungus producing ringworm, and those on the organisms associated with, and perhaps causative of a peculiar form of baldness. These are matters which it may be thought concern medical men only, but that is a mistake—they concern us all, and specially the physiologist; while the gardener may not only see in the methods of observation and cultivation the refinement of fundamentally the same methods that he himself adopts in the cultivation of higher plants. The gardener, moreover, is directly concerned, as pointed out by Mr. Warrington and others, in the fact that the value as plant-food of the soil he uses is dependent, so far as nitrogen is concerned, on the conversion of inert insoluble salts into soluble nitrates by the agency of these minute organisms acting as yeast does in converting sugar into alcohol.

In view, too, of the vastness and universality of the beneficent results which may which have already accrued from such observations and experiments, both to animals and human beings, it is to be hoped that the common-sense of the people will rebel against the extremely ill-judged procedures of a few who, with the best intentions, would, if they could, prevent the progress of knowledge, and ensure the perpetuation and propagation of misery and disease.

New Garden Plants.

NEPENTHES LANATA.*

There has been, as we have already had occasion to mention, a good deal of confusion as to the true *Nepenthes Veitchii*, which, however, is well figured by Sir Joseph Hooker in his monograph in the *Linnean Transactions*. Among other plants misnamed, *N. Veitchii* the subject of this note must be included. By some oversight the plate in the *Illustration Horticole* below cited bears the name *N. lanata*, while the accompanying text is headed *N. Veitchii*, and the description given applies to that species. We lately met with the *lanata* (as figured) in the rich collection of Messrs. Veitch, and on comparing it with an unnamed wild specimen from Lobb in the Kew herbarium, found that the two specimens evidently belonged to the same species, and that, so far as can be ascertained, without flowers, the species is undescribed, though, as we have said, it is figured in the book already cited. We subjoin a technical description, but may here say that the plant is of rather vigorous habit; the leaves leathery, deep green, glabrous above, pale and thinly covered with blackish hairs beneath. The midrib is reddish and depressed on the upper surface, greenish and very prominent beneath. In form the leaves, which are more than 1 foot long by 2 inches in breadth, are oblong obtuse, gradually tapering at the base into a broad leaf-stalk. The tendril, like the pitcher, is thinly covered with coarse black hairs. The pitchers measure about 6 by 1½ inches, are cylindrical, greenish, not in the least ventricose, winged on the posterior side next the axis of the plant, the wings toothed and fringed; the mouth of the pitcher is ovate acute, prolonged anteriorly into a triangular neck; the peristome is finely and evenly ribbed, the ribs being ultimately of a reddish-brown colour; the lid is oblong or suborbicular, glandular on the under-surface, with seven or nine nerves, three or four on each side of the central nerve, which latter is prominent at the base, but becomes obscure towards the middle of the lid. As the pitchers are devoid of the brilliant colouring possessed by some others of this plant, it appears, has not found favour with growers, though we strongly suspect from the appearance of some of the hybrids that it has been used for purposes of crossing. In any case it is so distinct in the form and size of its pitchers that we would counsel collectors not to discard it. *M. T. M.*

NEPENTHES RATCLIFFIANA*, Hort. Veitch (fig. 28).

This is stated to be a hybrid between *N. phyllanophora* and *N. Hookeri*, and has light green leathery leaves, 12–15 inches long by 1½ inch wide, linear-lanceolate acute at both ends, with two or more parallel nerves on either side of the midrib, minutely serrulate, and with a rather long stalk. The pitchers are 5–6 inches long, by 2 inches wide, flask-shaped, green, spotted with red; wings ciliate broad or shallow, narrow at the base; mouth oblique, surrounded by a ribbed parti-coloured rim; lid about the size of the mouth, ovate, two-ribbed, glandular on the inner surface, and with a simple spur at the base. The pitchers are freely produced, and their bright colouring renders them very attractive. Our

illustration was taken in Messrs. Veitch's nursery at Chelsea. *M. T. M.*

NEPENTHES INTERMEDIA*, Hort. Veitch* (fig. 29).

Some objection may well be raised to several of the newer hybrid *Nepenthes*, on the ground of their too great similarity. This objection, however, is seen to



FIG. 28.—NEPENTHES RATCLIFFIANA.

* *Nepenthes lanata*, hort. Illust. Hort. (1876). tab. 26, quoad roscem; *N. Veitchii*, André in Illust. Hort., loc. cit. text. nec Hook. fil.; *N. villosa*, André, loc. cit. nec Hook. fil. — Folia coriaceis supra glabris subtus nigropilosis elongatis linearibus in petiolum latiusculum sub angustaculatum sensim angustatis apice rotundatis, nervo medio superiore rubente depresso subtus prominente piloso, nervis secundariis obscuris, acervis verticibus pilosis, 6 poli. long., 1½ lat., cylindrico-tubularibus, postice (quoad axim plantae) anguste alatis alis dentato fimbriatis, ore ovato antice in collum producto, peristomio angusto crebre sulcato-strato; operculo ovato suborbiculari ore minuto, subtus glanduloso 7–9 nervio, nervo medio infero crassiusculo, superiore obsolete — Borneo, Sarawak, Lobb. *M. T. M.*

be less valid when the living plants are seen, as woodcut illustrations, still less words, cannot convey the many shades of difference in habit, colour, and spotting which these plants possess. The present hybrid is not so much open to the objections above mentioned as some others, as its pitchers are distinct in form from most others. It was raised by Mr.

* *Hybrida* inter *N. Ratcliffianam* f. n. et sp. *Borneensem* indeterminatem.

Court in Messrs. Veitch's nurseries, between *N. Rafflesiana* and "an unnamed Bornean species with small spotted pitchers." Its handsome pitchers are very freely produced, and have much of the aspect of those of *N. Rafflesiana*, particularly in the long backward prolongation of the mouth. The pitchers, however, taper gradually from the centre upwards, which is rarely, if ever, the case in *N. Rafflesiana*. The stem is robust, covered with pale rust-coloured down; the leaves measure about 10 by 2½ inches, are coriaceous glabrous, except beneath, and taper to both ends. The main veins run parallel to the midrib. The pitchers measure at their full size about 6 by 2½ inches, and are of a green colour, spotted red. In form they are somewhat cylindrical, pointed at the base, slightly swollen in the middle, and tapering gradually towards the middle; the wings are broad, rounded at the base, fringed; the mouth is obliquely ovate, prolonged at the back into a column supporting the lid, as in *Rafflesiana*. The rim is flattish, rather broad, finely ribbed and particoloured; lid ovate obtuse, slightly hooded, but less so than in *N. Rafflesiana*, with two thick radiating ribs on the upper surface, and one central ridge-like prominence on the under surface. The spur at the back of the lid is shown as simple in the illustration, but in our sketch and notes taken from another plant perhaps, the spur is noted as branched, as in *Rafflesiana*. *M. T. M.*

DENDROBIUM CHRISTIANUM, n. sp.*

A new member of the old "*Nigro-hirsuta*" group. The old stems are well compared by Mr. C. Dorman with those of *D. infundibulum*. What I have at hand is cylindricato-fusiform, furrowed, very short (m. o.06), hairless. The young shoots, I am told, are covered with dark hairs. The peduncles appear one-flowered, whether constantly so we may learn later. The flower is very fine, ivory-white, with the base of the column and the disk of the lip cinnamon, so that it is most like the fine *Dendrobium Jamesianum*, named in memory of the late Mr. James Veitch. It is, however, smaller in all its parts. As a species it is totally distinct from all members of the "*Nigro-hirsuta*" group by its having a blunt angular chin, while all the species hitherto known had an extensoriform elongation of this part. This curiosity was imported from Siam by Mr. T. Christy, to whom it is dedicated with great pleasure, in consideration of his zeal in introducing plants from obscure regions. *H. G. Rehb. f.*

ODONTOGLOSSUM HISTRIONICUM, n. sp.

It is very reluctantly that I again propose a new name for a supposed hybrid sent to me by Mr. W. Bull. I would be the gayest variety of *Odontoglossum mulsii* I ever saw, were it not for its trifid lip and the unusually styliform erect or even, bent calli of the lip's base, including a certain *je ne sais quoi* in the appearance of the flower. The ligulate, wavy, acute sepals are light sulphur-coloured, with some brown transverse bars; the broader petals whitish, with light sulphur tops; the lip is trifid; the side laciniae are nearly square, oblong, yellow, with a reddish border, consisting of confluent spots; the middle lacinia is oblong-retuse, lobed, toothleted, wavy, partly with relaxed borders; the calli are styliform, and four on each side, one before the other, the anterior one lamelliform; the middle lacinia is light, more shining, yellow with a few brown spots, and streaky; the column is whitish with large brown areas; the wings are slit into many falcate laciniae; and the lip is unguiculate at the base, and adnate over the base of the column.

When looking at this plant (a fine piece of inflorescence being at hand with five flowers, each equalling one of a medium-sized *Odontoglossum triumphans*), I cannot help thinking of *O. cirrosium*. It may be that the trifid lip and the styliform calli came from that species, but there is little doubt that *Odontoglossum luteo-purpureum* or *O. Halli* have been in the play.

Such plants indeed cannot be regarded as the equiva-

* *Dendrobium Christianum*, n. sp. — Caulis teretifusiformis sulcatis; racemis unifloris (semper 3); flore speculato, teretibus natis; Dendrobium infundibulum, mento angustate (non extensoriforme); sepalis lateribus ligatis acutis, non carinatis, sepalo impari angustioribus; petalis oblongis acutis, labello a basi cuneato abrupte ciliato, lacinais lateribus oblique flabellatis, lacinia mediana obcordata carinulis teretibus naccatis depressis per medium intraculo-lamellosis; columna basi bene dilatata, quadrilobis, valvulis teretibus. — Flos ebracteata. Favis columnae et labelli discus cinnamon. Ex Siam imp. cl. T. Christy, cui oblectamentis dicatum. *H. G. Rehb. f.*

lents of well-pronounced species, but they require a name; and very gay, and curious, and rare additions they are to the collections. The collector may also indulge in the expectation that a great importation will never trouble his pleasure of possessing a *rarissima avis*. *H. G. Rehb. f.*

MASDEVALLIA LUDIEUNDA, *n. sp.**

This lovely *Masdevallia* has appeared in the famous collection of Sir Trevor Lawrence, having been

Granadan. It is very near *Masdevallia Estradæ*, but the tails are much longer, the bodies of the sepals are rounder, and the lip is distinctly pandurate. The outer perigone is light yellowish, with much darker tails. There is some light brown outside the sepals, the corresponding spots on the inner surface being purple, and a similar coloration exists on the upper part of the odd sepal, and on the lateral sepals, though I have a flower without that ornament. There is also sometimes a similar mark on the base of the lateral

MASDEVALLIA POLYSTICTA, *Rehb. f.*, VAR. CRASSICAUDA, *n. var.*

This is a curious variety, with much shorter and stouter tails, kindly communicated by Sir Trevor Lawrence. *H. G. Rehb. f.*

GLOXINIAS.

PROBABLY no stove-flowering plants have been improved so much of late years as the *Gloxinia*. The kinds grown some twenty or more years back, and then thought worthy of a name, are scarcely to be found in cultivation now. Named varieties used then to be the order of the day, sowing the seed and producing good flowering plants in 6-inch pots the same season was scarcely thought of, much more worked out in practice. My custom of late years has been to sow a pinch of seed (obtained from a trust-worthy source) early in January. When sown, the pot or pan should be placed in a brisk heat to germinate the seed quickly. When the young plants are large enough to handle easily, they should be pricked off in pans. This should be done before the plants become at all drawn, in order to keep them as dwarf and stocky as possible.

When again in want of a transfer they may be potted singly into 6's, and into larger pots as they may require it; this ought to be done before they become at all pot-bound. By thus doing, the foliage will be better developed, and a finer crop of flowers secured than if allowed to get at all starved in small pots. I find them do well on shelves near the glass when established and growing freely; slight shading is beneficial in hot weather. The moisture maintained here in the stove is rather in excess of their requirements, causing them to make foliage of a too succulent nature. We, therefore, find them do better either in the vineries or Peach-house, especially in the latter. If a pit is at disposal where they can be kept near the glass and slightly plunged, they will do exceedingly well, and soon grow into large plants.

For want of room last summer we placed a lot of seedlings (well established) into a cold frame at the end of May. The seed had been sown in January, and by the end of June the earliest were in flower; from that time onwards till the end of September a never-failing supply of cut blooms was maintained. These were chiefly used on the dinner-table in specimen glasses. The later ones were about that time placed in a stove temperature, where they gave a good supply during October. Some of the best specimens were arranged in groups of plants at various shows during July. The flowers of those in the cold frame were always of good substance, lasting well in a cut state.

When out of flower we keep them in the late vinery, and gradually withhold water. Here they are safe, while the late Grapes are hanging till the first week in January, a slight heat being always kept in the pipes. When this house is thrown open the *Gloxinias* get moved to somewhat warmer quarters. The bulbs of two and three years' growth are selected for the first potting for the earliest bloom, the rest are potted as time can be spared, and brought on at intervals. When in full flower they are used in quantity for conservatory decoration, lasting a long time in perfection. This I attribute to growing them under the treatment previously described. Single plants look exceedingly well on the dinner-table or in the drawing-room, where they are always appreciated. The erect flowered section are (all points considered) the most useful. The semi-erect kinds are also good and very distinct, looking well in specimen glasses. The maculated or spotted kinds (chiefly erect) are very beautiful, and have been greatly improved upon the last few years. These latter ones have one decided point in their favour—they travel far better than the others when on the plant, though perhaps more quickly sensible to the want of water than those of greater substance when they are cut from the same.

They all thrive well in a soil composed of good fibrous peat two parts, turfy loam one part, and silver sand with a little bone-meal one part. Give good drainage, on which a few half-inch bones may be sprinkled in the absence of the bone-meal. Pot firmly and water freely when again established. Any bulbs that may be somewhat shrivelled should be soaked while in tepid water before repotting. Watch closely for any signs of yellow thrips; where any of this pest is seen, remove the plants that are infested, and take means to check it either by syringing or fumigation. Liquid manure may be given twice a week with advantage when the plants are showing for bloom. *James Hudson, Gunnersbury House.*

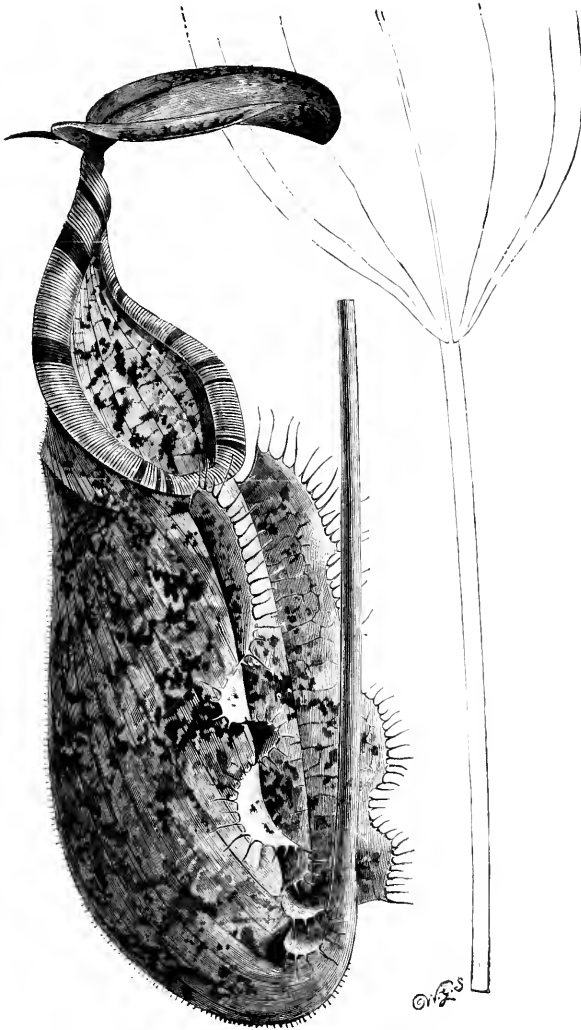


FIG. 29.—NEPHTHES INTERMEDIA: PITCHERS GREEN, WITH DA'K RED SPOTS. (SEE P. 178.)

introduced by Mr. F. Sander, of St. Alban's, along with *Masdevallia Shuttleworthii*. Hence it must be *Neo-*

**Masdevallia ludieunda*, *n. sp.*—Affinis *Masdevallie Estradæ* perigonio externo patulo; sepalis prope ad basin fissis; laciniis oblongis longe caudatis; caudis quater lacinas superantibus; tepalis pandurato ligulatis apice obtusangulis; lacinula supra basin inflexa; labello pandurato apice reflexo; carinulis obscurissimis quinis, lateralibus minutissimis; columna basi utrinque umbonata. Flos pallide flavescens caudis multo obscurioribus. Sepala intus in parte superiori purpurea; nunc tamen lateralia non ita picta; sed ima basi tantum. Tepala pallide

sepals. The small ochre petals are oblongo pentagonous, with an inflexed angle over the anterior base. The lip is pandurate, lightest ochre-coloured, with a reflexed apex, the centre of which is mauve-purple, and adjacent is a mass of small spots. It is a sweet thing. *H. G. Rehb. f.*

ochracea. Labello ejusdem coloris; apice inflexo purpureo; punctis minutis ejusdem coloris circumstantibus. Columna alba macula utrinque juxta foream maculisque minutis utrinque in bucca basos. *H. G. Rehb. f.*

THE TONGA PLANT.

(EPIPHEMUM MIRABILE, SCHOTT.)

"TONGA, the specific for neuralgia." Such is an advertisement of Messrs. Allen & Hanbury's that has now been before the public for many months past. Tonga is a vegetable drug, and the material from which it is prepared is stated to consist of a mixture of bark and fibrous matter, the botanical origin of which was for some time unknown. A few months back, however, an interesting account of the plants producing this drug was published in these columns (see *Gard. Chron.*, xvi., p. 110), where it is stated, upon the authority of Baron von Mueller, that Tonga is a product of *Premna taitensis* (Verbenaceae) and *Rhaphidophora vitensis* (Araceae). This account was communicated by Mrs. Clendinning, and with it she also sent specimens of the Tonga plants, which were presented by the Editor of the *Gardeners' Chronicle* to the Kew Museum. In the *Report of the Royal Gardens, Kew*, for 1880, published towards the end of last year, it is stated that Mr. E. M. Holmes, curator of the Museum of the Pharmaceutical Society, also arrived at the conclusion that *Rhaphidophora vitensis* was probably one of the plants from which Tonga is in part derived, and that Mr. C. W. Hansen, whilst in Fiji, was enabled to confirm this determination as correct, and to add that he (Mr. Hansen) believed the other plant that enters into the composition of Tonga to be *Premna taitensis*.

We have thus evidence from two independent sources, that the drug Tonga is a product partly derived from *Premna taitensis* and partly from *Rhaphidophora vitensis*; and now that we know this, it is interesting to find that one of these plants, and that most probably the one to which the reputed medicinal virtues of Tonga are due, has been in cultivation in this country during the past four or five years. For upon seeing the specimens of the Tonga plants sent by Mrs. Clendinning, I immediately recognised the Aroid as being identical with a plant cultivated by Mr. W. Bull, of Chelsea, of which I had dried specimens for the Kew Herbarium.

As this plant is involved in great confusion botanically, I think it better that I should here give some details concerning it, reserving fuller particulars, unsuitable for these columns, for another opportunity.

Mr. Bull's plant was introduced from the Fiji Islands by way of the Botanic Garden at Sydney, New South Wales, and it has behaved exactly as described in Mrs. Clendinning's note (though I may here observe that this mode of gradual development and change of form in the leaf, as described below, is by no means rare in the groups of Aroids to which it belongs). When first received the stem was very slender, about $\frac{1}{2}$ inch thick, and the leaves were very small and quite entire, but upon being allowed to creep up a wall or some other support the stem rapidly thickened upwards until it became about 1 inch in diameter and produced leaves, which with the gradual thickening of the stem by degrees passed from their small entire state to a larger and more and more divided form, until finally they became pinnatisect, and including the petiole were from 2 to 3 feet in length. In June, 1878, the plant flowered and a specimen of it was brought to me to name. I did not dissect it with any special care at the time, but a rough dissection showed that there were but about two basal ovules in each ovary, and therefore it would be either a species of *Epipheum* or of *Monstera*, most probably of the former; there was however no specimen in either genus in the Kew Herbarium that would match with it, and it was not compared with the genus *Rhaphidophora*, since that genus as at present understood has a more or less completely two-celled ovary with numerous ovules in each cell. Had I compared it with that genus I should doubtless have discovered its identity with *Rhaphidophora vitensis*, Schott, a typical specimen of which is in the Kew Herbarium, and with *R. pinnata*, Schott, which is the same plant. Though Engler in his monograph of the order (*DC. Monog. Phanerog.*, ii., p. 244) places *R. pinnata* as a synonym of *R. pertusa*, Schott, with which, of course, it has nothing whatever to do, whilst *R. vitensis* is made a variety of the same species. At the time it was thought that Mr. Bull's plant might be *Monstera dilacerata*, Koch, with which the leaves of a young state of growth agree well, even to the small pellucid dots and perforations scattered along the region of the midrib; but, according to Koch's description of that species in the

Wöchenschrift, xiii., p. 33, it cannot be the same plant.

The Tonga plant itself is an ornamental climber of rapid growth, with bold dark green pinnatisect leaves in the adult stage, and large inflorescences, resembling those of a *Monstera* or *Rhaphidophora*. It is a very suitable plant for training up pillars, trunks of Palms, Tree Ferns, &c., or the back wall of a stove; and besides its ornamental character it is specially interesting for the manner in which the plant changes in appearance as it develops from its juvenile state with small entire leaves, to its adult flowering state with large pinnatisect leaves; as well as for its medicinal qualities, which appear to have long been known to the natives of the countries the plant inhabits, since Rumphius in his *Flora Ambonensis*, vol. v., p. 459 (where at t. 183, f. 2, a very good figure of the plant is given), states that the natives of Java and Baly cook "the horns" (terminal buds of flowering stems) a little over a fire, bruise them and squeeze out the juice, which is given to lean and feeble horses and cows, and it is said to cure them and bring them into a fat and healthy condition. The internal substance is pounded and used in the form of a poultice as a remedy for sprains. It is also used as a dentifrice to whiten the teeth, the heart or internal substance being chewed with Pinanga and chalk. Cows feed upon the leaves, especially during the hot months when the fields are destitute of grass; they seem to be very fond of them, and also of the stems, as they are not acrid. Altogether the Tonga plant appears to be a rather useful one, all the more so considering the order to which it belongs, whose members are more noted for their doubtful and poisonous qualities than for their good and useful ones.

The following is a description of the Tonga plant, chiefly compiled from Mr. Bull's specimen, omitting here the full synonymy:—

EPIPHEMUM MIRABILE, Schott, *Genera Aroidorum*, p. 79.—Stem climbing, in juvenile plants slender, about $\frac{1}{2}$ inch thick, in adult flowering plants about 1 inch thick, clothed towards the apex with the persistent fibrous remains of the scale-leaves.* Smallest leaves of juvenile plants, with a petiole $1\frac{1}{2}$ — $1\frac{1}{2}$ inch long, vaginate for about half its length, and a lamina $1\frac{1}{2}$ — $1\frac{1}{2}$ inch long, $\frac{1}{2}$ — 1 inch broad, obliquely cordate-ovate, acute or shortly cuspidate, entire, without perforations; as the plant gets older the petioles elongate and the lamina increases in size, becoming obliquely oblong-ovate, or lanceolate-oblong, acute or shortly acuminate, with small perforations or pellucid spots, mostly arranged along the sides of the midrib: from being quite entire these gradually pass to a more and more pinnatifidly segmented form, until the adult stage is reached. Petioles of adult leaves stout, 8—15 inches long, including the $1\frac{1}{2}$ — $1\frac{1}{2}$ inch long geniculum, convex on the back, channelled down the face, and vaginate nearly up to the geniculum. Lamina $14\frac{1}{2}$ — 20 inches long, $7\frac{1}{2}$ — 12 inches broad, shining dark green, oblong or elliptic-oblong in outline, acute, cordate or subcordate at the base, more or less oblique, pinnatisect nearly to the midrib, and having numerous small perforations and pellucid spots scattered along the region of the midrib, but not confined to that part; segments varying from 4—10 in number on each side, but more numerous on one side than on the other, straight or somewhat falcate, all except the lowest of about, equal breadth throughout their length (usually $1\frac{1}{2}$ — 2 inches broad), apex truncate or somewhat convexly truncate, the upper edge produced into an acuminate point; the terminal lobe more or less diamond-shaped, much larger than the rest. Primary lateral nerves 2—3 in each of the basal segments, one only up to the centre of the other segments, or sometimes two or more, when two or more segments are united into one, spreading, running out straight almost to the margin, and then curved into the acuminate point; midrib and nerves rather impressed above, very prominent and rounded beneath. Peduncle 4—9 inches long, terete. Spathe $4\frac{1}{2}$ — $4\frac{1}{2}$ inches long, ovate, boat-shaped, shortly cuspidate-acute, green outside, puce-coloured inside. Spadix sessile, much shorter than the spathe, cylindrical obtuse, green, about two-thirds of an inch thick. Ovaries cuneate, sub-hexagonal, truncate, one-celled,

* If I understand the descriptions aright of the various authors who have described this plant I think they mean to imply that these persistent fibres are the remains of the veins of the foliage-leaves; but this is not the case, for they are the remains of cataphyllary leaves, which are not developed until the plant flowers, and accompany a change from a monopodial to a sympodial mode of growth of the stem, exactly as occurs in *Philodendron*, for example P. Simsii.

with a septiform placenta projecting one-third across the cell, bearing two ovules, one on either side at its base (rarely only one ovule); stigma sessile, linear.—Schott, *Prodrum Aroidarum*, p. 358; Engler, in *DC. Monog. Phanerog.*, ii., p. 249; &c.

Widely distributed, inhabiting Java, Sumatra, Baly, Amboina, Timor, Fiji Islands, Tropical Australia, and in the Kew Herbarium is a specimen of what I take to be the same species from Whampoa, China (Hance, No. 15,600). *N. E. Brown, Herbarium, Kew.*

THE FLORA OF CENTRAL ASIA.

[So many plants are now reaching us from Central Asia, through the zealous endeavours of Russian naturalists, that the following account of the geography and flora of the region, taken from Dr. Kegel's paper in the recently issued part of the *Ata horticulturalis Petropolitani*, may be valuable for reference, particularly as so little is known in this country as to the geography of the district. The German original is accompanied by a valuable map of the region. Ed.]

The flora of Central Asia contains, besides numerous indigenous species, a large number of naturalised forms. I say "naturalised" species, because it appears that of the original native species of Central Asia only very few have spread to the north and west of Asia and Europe, from whence the naturalised forms probably came. The salt steppes and sandy wastes of the lowlands lead us to infer that even at the beginning of the present epoch, also during the diluvial period, Central Asia was a great inland sea, out of which the mountains protruded as islands, until the bulk of the waters found their discharge through the basin of the Ob, and partly also through that of the Amur—broke through the mountain ranges, and left behind the salt and sandy wastes, which still produce a tolerably abundant flora of salt marsh plants, and which at the present time furnish important obstacles to plant immigration.

A striking example of this is seen in the fact that no species of *Rhododendron* or *Lilium* is found in Central Asia, while in Caucasus, Altai, Baikal, Dauria, on the north slope of the Tibetan Alps, and especially in the Himalayas, many species of both genera are found. On the other hand, Central Asia is the headquarters of various species of *Tulipa*, *Allium*, *Eremurus*, *Elymus*, &c., and also of the *Salsole*. In considering the distribution of plants in Central Asia, with the exception of those of the steppes, we may specify two large, and as far as the flora is concerned, very distinct districts—West and East Turkestan. In West Turkestan I include the district from Fort Turkestan, in the north (44° $20'$ N. lat., 65° $40'$ E. long.) beyond Tschimkent as far as Taschkent (41° $29'$ N. lat., 69° $21'$ E. long.), and including the Aral and Caspian steppes to North Karatau and the west slopes of the west or Taschkent Altatau range. Then further south as far as Chodscent (40° $17'$ N. lat., 69° $25'$ E. long.), and the south-west slopes of Altatau or the mountains of the boundary river, to the Mogol-tau and to the eastward-lying mountains of Sir Daria, and the mountains of Kokan and the district of Lower Naryn. Then further in a south-west direction from Taschkent to Dschisak, with the South-west Karatau to Khiva and Turkomania; finally, as far as Samarkand (39° $56'$ N., 66° $50'$ E.), and the Sarawchan valley to the source of that river and to the high mountains south from Kokan and Margalan to the Alai plateau and Bokhara (39° $47'$ N. lat., 64° $25'$ E. long.).

Notwithstanding the great variety of the plant forms of this locality, amongst which the plants of the valleys represent a mild climate, and mountain plants an alpine and high-alpine flora, these two districts agree in this—that their flora partly resembles that of Caucasus and East Persia, partly that of Afghanistan and the Himalayas, and only on the north frontier is it similar to that of South Russia as far as the immigration of the plants is not checked by the sterile wastes. West Turkestan, however, produces other series of plant forms than East Turkestan (considered according to my definition of the district and not according to that fixed by ordinary geographers who take Nuldscha as the most westerly point of East Turkestan) (about 43° $58'$ N. lat., and 81° $11'$ E. long.). The mountains of West Altatau, or the Alexander chain, extending south as far as Upper Naryn from

Lake Issyk-kul (between 42° 12' and 42° 20' N. lat., and 76° 15' and 78° 12' E. long.), and in a westerly direction from Wernoje (43° 29' N. lat., 76° 59' E. long.), intercept the passage of the flora to the districts of East Turkestan, as I define it; these comprise the mountain ranges round Lake Issyk-kul (Alatau transiliensis, Kungeri-Alatau, Terskei-Alatau); then in the south-east the Thian-Shan Mountains with a very uniform flora, the Termidik or Akburtasch Mountains between the Tekes and Ili rivers, then the Ilihal and the mountains lying to the north of the Tli which surround Lake Sairam (80° 59' E. long., 44° 31' N. lat.), and extend further north under the name of Dschungarischen Alatau. The north-west boundary of East Turkestan is Siebenstromland, between the upper course of the Ili River and Lake Balkasch; the northern boundary is the Tarbagatai range; in the north-east are the deserts and plains lying round Lakes Ebinor, Alakul, Ulungus and Saissanor, which form a boundary, and the flora of which is exactly corresponding to that of Mongolia. Lake Ebinor is, indeed, within the Mongolian territory, and the eastern boundary from Kuldsha is formed by the Irenchaburg chain, which unites East Turkestan on the east with the alps of Kasch and Kunges, and in the plateau of Juldus with the eastern slopes of Thianschan. The flora of this district of East Turkestan includes on one side that of the mountains of South Siberia (Altai, Baical district), partly that of Western Mongolia; yet an important number of the plants of South Siberia pass over only as far as the northern frontier mountains of the Dschungari range, few reach to the Sairam Mountains, and fewer still to Thianschan, where, in place of which, similar indigenous species are found. The immigration of the plants of the south-west goes through Caucasus and Persia to the mountains of West Turkestan, but the majority of the plants of Central Europe have emigrated over South Russia along the South Ural, and through South Siberia to East Turkestan without reaching West Turkestan by passing over the sterile Aral steppes. Purely northern species of the arctic zone are very rarely found in the alps of Turkestan, and while the mountains of South Siberia contain or turn back many more northerly species, very few of the high alpine plants of Central Asia are found until the arctic zone is reached. The great Central Asiatic inland sea appears formerly to have hindered this migration of the flora, while the arid deserts of the present day serve the same purpose. On the other hand, many universally distributed plants, whose seeds have been dispersed by wind, water, birds, &c., over wide areas, flourish in Central Asia; and many of the commonest European weeds which spring up amongst rubbish and by roadsides have possibly been carried originally from Central Asia to Europe through the medium of caravans. Thus in particular we find in the mountains of Turkestan, growing on passes at an elevation of 8000 feet, amongst alpine plants, *Chenopodium album*, and the shores of Lake Issyk-kul produce a marsh flora differing in very few respects from the marsh flora of Central Europe.

GROWTH OF THE LEAVES OF VICTORIA REGIA.

THE Berlin *Monatsschrift* for November contains the record of a series of observations, by Dr. O. Drude, on the growth of the leaves of the Victoria Regia, a plant that has been the subject of much investigation. In consequence of the rapidity of the growth of its leaves Dr. Drude chose this plant for investigating the phenomena of intermittent variations of growth. "By intermittent or jerking variations of growth" (*die stossweise Veränderungen des Wachstums* of Sachs) we would designate the interrupted effect of growth in length commonly exhibited by an internode, stem, or leaf in short intervals. This branch of biology has hitherto not been the subject of much study, owing partly, no doubt, to the difficulty of obtaining trustworthy results. To measure the growth of slow-growing organs at intervals of one minute it is necessary to employ an instrument (auxanometer), the movement of the arms of which is enormously magnified; but Dr. Drude was able to obtain measurements of the leaves of Victoria Regia by magnifying the actual growth only eight times. And Dr. Drude believes, assuming that the same physiological principles hold good for plants of slow and fast growth, that he has obtained more trustworthy data for generalising than pre-

vious investigators. Two auxanometers of Sachs' *Zeiger am Bogen* type (see Sachs' *Lehrbuch*, edition 4, p. 799, fig. 480—arc-indicator of the English edition) were employed. These were connected with the leaf by means of thin platinum wire running over freely moving rollers—the one indicating the longitudinal growth of the whole petiole, and the other that of the whole leaf. The difference between the reading of the two gave the growth of half of the blade, as the petiole is nearly central. We have not space for the full particulars of the manner in which the instruments were tried and the experiments conducted, but the following explanation will render the results intelligible. Readings were taken every five minutes, uninterrupted during a period of thirty-six hours, commencing August 4, at 4 P.M., and concluding August 6, at 4 A.M. The temperature of the water and air was recorded simultaneously, or rather immediately after each reading. During the course of the experiment the leaf attained its maximum rate of elongation, and grew slower towards the end. The auxanometer was graduated in millimetres (a millimetre is about $\frac{1}{25}$ of an inch); and the total elongation of the petiole during the experiment, as deduced from the division of the indications of the auxanometer by eight, was 281.8 millimetres; of the lamina, from the centre or apex of the petiole to the notch at the morphological apex, 284.8, or nearly the same. The hourly means were respectively 7.8 and 7.0 mm., from which the considerable elongations of the five minute readings may be inferred. The following are the readings for two hours on August 5:—

Time.	Growth of lamina in degrees of auxanometer (each $\frac{1}{8}$ mm. of actual growth).	Time.	Growth of lamina in degrees of auxanometer (each $\frac{1}{8}$ mm. of actual growth).
MID-DAY, 12h. 0 m.	7.6 mm.	1. 1. 1 h. 0 m.	8.0 mm.
5	7.5	5	7.3
10	5.9	10	7.7
15	7.0	15	8.1
20	7.1	20	7.0
25	7.1	25	7.5
30	11.1	30	4.6
35	8.7	35	12.6
40	7.7	40	10.7
45	9.0	45	8.8
50	14.5	50	6.7
55	10.7	55	6.0

The actual elongation for the first hour was about 13.8 mm.; for the second, 12.3. The following are the readings for 1 hour and 40 minutes during the night of August 6:—

Time.	Growth of lamina in degrees of auxanometer.	Growth of petiole in degrees of auxanometer.
A.M. 1 h. 45 m.	6.0 mm.	6.0 mm.
50	6.0	3.5
55	6.0	3.5
2 h. 0	7.3	3.4
5	8.4	2.3
10	10.0	4.0
15	15.0	2.2
20	10.2	2.8
25	10.0	4.4
30	14.2	5.9
35	12.0	4.2
40	9.8	3.0
45	7.2	3.5
50	6.5	4.5
55	6.4	2.6
3 h. 0	4.3	4.4
5	6.0	6.0
10	4.5	5.0
15	4.7	4.4
20	4.5	2.7
25	4.5	4.2

The foregoing example shows the greatest bound in growth observed during the experiment. One of the results of this experiment is that the fluctuations from five minutes to five minutes is greater than that previously observed from hour to hour.

HELLEBORES.

AMONG hardy plants few are more showy and useful than the Hellebores, blooming as they do at a time of year when flowers are very scarce, especially in the open, and were it not for these Christmas Roses we should have to search borders in vain for a blossom, but with a clump or two of them in a sheltered sunny position the weather must be bad indeed during the depth of winter if there are not some flowers to cut, for in spite of snow or frost they continue to push up and expand. This season they have been remarkably fine, for not only have the blooms

been abundant, but they have been almost equal in purity to the Eucharis, and were the Hellebores stove subjects they would no doubt be as much cultivated and as highly thought of as that well known favourite, but being hardy and easily cultivated they are not often met with in gardens. This want of appreciation for such useful subjects is to be regretted, as with a little of the means and labour that is now devoted to others, greenhouses and rooms might often be kept gay at a comparatively trifling cost.

Not only is the Christmas Rose very fine in borders, but it forms an excellent pot plant, and is well adapted for the embellishment of windows, where, if kept with plenty of water, it flourishes and looks quite at home. The flowers, too, are of great value for cutting, as they dress well and last long in water. The way, I think, they look best is in low bowls or vessels of that kind, filled with fresh green wood-moss, and associated with a few red Camellias or spikes of *Schizostylis*, as the bright colours of these contrast well with the white, and set off the Hellebores to the greatest advantage. They also blend well with Violets, and a good way of using these with them is to have the plants, if small, and by placing a few leaves of the Hellebores around the sides of the bowl or dish a very natural group may be formed.

If Christmas Roses are required for cutting, the best way is to have them on a border under the shelter of a wall, where if the flowers are desired early they can be protected by placing a frame or some old lights over them, which will not only help to forward them considerably, but cause the blossoms to come much more refined and pure in colour. Without shelter or protection of some kind the outer petals are often stained, and the flowers being low down, get splashed with dirt, but with a covering they escape this disfigurement, which stains and spoils much of their beauty. Isolated clumps in borders can always have a bell or handglass over them, but however covered it is essential that they have some air left on to keep them from damping. As Hellebores are fond of good soil, the bed or border in which they are to be grown should be properly prepared by working into it, at a good depth, a dressing of leaf-soil and a little thoroughly rotten manure. These will not only enrich the ground, but keep it open and porous—a matter of great importance with Christmas Roses, as they have very large fleshy roots that cannot ramify freely unless conditions are favourable.

Where they do best without much preparation is on the margins of Rhododendron beds in peat, which they like much, and which need only be just broken up at the time of planting to give them a start. The situation also suits them, as during the summer they are fond of a little shade and make all the more growth under its influence. This being so it is always advisable to have those required for lifting to put up for furnishing greenhouses, or for the embellishment of windows, planted where they can be so favoured, as the quantity of blossoms they yield depends almost entirely on the amount of foliage they make, for without plenty of healthy fine leaves, strong plump crowns are quite out of the question. To help them in their growth during spring and summer they should, when the weather is dry, have a good soaking of water or liquid manure, and it is a good plan to mulch over the bed or border they are in, as the mulching keeps the soil cool, and maintains a more uniform condition of moisture.

To have them a little established in pots before they bloom they should be lifted early, that is, by the end of October, and be potted in light rich soil and well watered to settle the same about the roots, and then stood in frames and kept a little close to bring them gradually on. Many think Christmas Roses slow and difficult to increase, but if taken at the right time they are not so, as they may be divided readily, and every piece with a crown and a few roots will grow. To effect a division and make the most of the old plants the best way is to dig them up and shake or wash every particle of soil away, so as to see clearly where a separation may be made, when they may easily be pulled apart without risk or injury to the hearts. The proper season to do this kind of work and replant is between this and April, as by making the severance just as they begin to start the wounded parts quickly heal over without suffering injury from rot. The most desirable kinds of Hellebores to cultivate are *H. niger*, and its larger variety, *H. niger maximus*, which has finer leaves and much larger flowers, and is the best for cutting from, as the blooms are very bold looking and have longer stems. *J. S.*

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—As we may soon expect bright sunny days, accompanied with chilly winds, more than ordinary care will be required in admitting air during the next two or three months to prevent cold draughts from passing through the houses, as no class of plants are more quickly affected for good or evil by ventilation than Orchids. During the cold season it is always advisable to tack a piece of thin canvas or perforated zinc under the ventilators; this effectually prevents a large volume of cold air from going direct on to the plants, and also tends to conserve the moisture in the house, which is a great consideration when free ventilation can safely be indulged in. Many have recommended that Orchid-houses should be almost hermetically sealed during the winter season. Our practice is to have a constant change of air taking place—little or much, according to the state of the weather, and our East Indian house is generally open night and day 2 or 3 inches the whole length of the house, but this free ventilation could not safely be indulged in if we had no canvas under the ventilators, as stated above. Another practice we object to so early in the season is suddenly closing the houses during sunny weather, and at the same time damping them down. This sudden excitement should be avoided for the present, as it cannot be maintained till a later period of the season, and any sudden fluctuations of temperature at the present time will only render the plants less able to stand against a spell of cold sunless weather, which may yet be in store for us. We are now busy putting the Mexican-house in order, clearing out all old material from under the stages of the house and putting in clean fresh fibre. We are not troubled with many insect pests in this house—a few white-scale on some of the Cattleyas; these if carefully cleaned at the present time will keep free for some time to come. Every plant in the house will be sponged over, to clear the pores of the leaves and stems, and thus put them in the best condition for taking advantage of the genial atmosphere that should surround them. In re-arranging the plants all that are in growth, such as *Lælia purpurata* and *Cattleya crispa*, should have light positions assigned them in a warm part of the house; while *Cattleya Skinneri*, now at rest, should be placed in the coolest and driest corner. The earliest Pleiones that have been treated to a little extra warmth to start them will now be better arranged with the Cattleyas, and when the season gets warmer the cool-house will suit them best. *Dendrobium cambridgeanum* and *D. chrysanthum* that have made growth quite rapidly enough in this house up to now will be moved into warmer quarters. *Oncidium Forbesi* and *Odontoglossum hastifolium* are right for potting; other plants in this house will be top-dressed, and dealt with freely or otherwise according to the state of the material about their roots. The blinds should now be got up on all the houses, not so much to check the sun as to keep down excessive temperatures. *J. Roberts, Guimershury.*

A NEW WHITE PHALÆNOPSIS.—Messrs. Hugh Low & Co. had in flower at Clapton, early in the week, a very fine novelty, in the shape of a clear white form of *Phalæopsis Schilleriana*, and which is believed to be the first that has been seen. The sepals, petals, and labellum are pure white, the crest of the lip yellow, and the side lobes white, with yellow spots on the upper portion. It is a very pretty introduction, and has been sent to the learned orchidic Professor, from whom we shall no doubt soon hear more.

LYCASTE SKINNERI, VAR. DELICATISSIMA.—From Mr. Lee, Leatherhead, comes a flower of the lovely *Lycaste Skinneri* var. *delicatissima*, more than 5 inches across, the outer segments nearly 1½ inch at their widest, of firm substance, white, suffused with a delicate pink; the petals, lip, and column pure white. There is, as in very many other Orchids, a central tongue-shaped projection from the lip, which, from its position opposite the column, may be the third stamen of the inner row of those organs, as Robert Brown thought, or it may be a mere outgrowth from the lip. Study of the mode of growth of

the flower from its earliest stages could alone decide that point.

ODONTOGLOSSUM CRISPUM VAR. SULPHUREUM. This is a variety of *Alexandra*, with medium-sized flowers of a pale sulphur-yellow, almost entirely unspotted, the lip clear canary-yellow, especially at the base; the crest on the lip may represent a barren and branched stamen, just as the crested wings to the column almost certainly do.

ODONTOGLOSSUM CRISPUM FASTOSUM.—This variety is not inaptly named *superb* (*fastosum*). A flower before us from Mr. Lee's collection is some 3 inches across, the three outer segments lanceolate, with revolute margins, white, with a broad central stripe of rich lilac, and with a few large circular brownish-lilac spots; the petals resemble the outer segments in form, but are more crisped and waved at the margins, and pure white, with the exception of one or two brownish-lilac spots. The lip is white, with a few large brownish spots in the centre, and an irregular row of smaller ones parallel to the margins, near the base. The crest is yellow, with brownish-red stripes.

ODONTOGLOSSUM ANDERSONIANUM VAR. LOBATUM.—Flowers 2½ inches across, outer segments linear-lanceolate, whitish, with numerous chestnut-brown bars and blotches; the petals are somewhat broader, with smaller blotches; the lip is deltoid, lanceolate, prolonged into a long point (acuminate), white, with a central brown bar, yellow at the base; the crest is also yellow, with a few brownish stripes.

ODONTOGLOSSUM WILCKEANUM.—Flowers 3 inches across, three outer segments broadly lance-shaped, wavy at the margins, pale yellow, with large transverse bars and blotches of light brown, petals similar to the outer segments, but broader and with smaller blotches; lip more than half the length of the petals, broad at the base, expanding near the free end in a roundish way extremely, very pale yellow blotched with brown, and with a fierce hedgehog-like crest. From Mr. Lee.

ODONTOGLOSSUM PESCATOREI MACULATUM.—Flowers 2½ inches across, sepals and petals lanceolate, white, with a faint blush of lilac, lip oblong at the base, with two lateral short erect oblong entire lobes, the central portion expanding into a broad horizontal two-lobed limb, with a short point between the lobes. The lip is white, with lilac spots; the crest of the lip yellow, with lilac stripes. It is curious to see how closely the side lobes of the lip, which, by the way, are much more marked than they are in the nearly allied *crispum*, and the side lobes of the column correspond in form.

PHALÆNOPSIS STUARTIANA VAR. PUNCTATISSIMA.—A queenly flower from Mr. Lee's collection. The three outer segments are oblong elliptic, the upper one pure white, the two side ones white where overlapped by the petals, but where not so greenish, thickly dotted with carmine-red spots. The lip has a narrow white stalk, the blade of the lip being divided into three distinct lobes, two lateral erect or ascending obovate, yellow at the base, elsewhere white and spotted; between the two side lobes is a thick yellow crest or callus, looking like an air-cushion with a division down the centre, the centre lobe of the lip is rounded at the base, narrowing a little toward the end, the extreme part of which branches into two very narrow pointed segments, like the fluke of an anchor.

SOME RARE ORCHIDS AT MR. BULL'S.—There are two things which the immense quantities of Orchids that of late years have been introduced have established—the almost unlimited extent to which they vary in a state of Nature, and also the extent to which the hitherto so-called species (if such they in all cases really are) intercross naturally. This is especially observable in the *Odontoglossums*. Of late many have made their appearance which so clearly exhibit characteristics in colour and form—the latter most reliable—of having originated from distinct species, as to leave little doubt of their being natural hybrids. Of some of these, although pretty and highly interesting, it must be confessed that, from the cultivator's point of view, they are no advance upon the kinds from which they spring. In exception of this Mr. Bull has lately bloomed several splendid sorts that, in addition to being wholly distinct from

anything previously seen, are most beautiful. One, which has the appearance of being the offspring of *O. crispum* and *O. hystrix*, forms a fine spike—a small plant having nine flowers on a single raceme; the flowers are large, and arranged in close and regular order; the ground-colour is ivory-white; three-fourths of the inner surface of the lanceolate sepals is covered with an unbroken blotch of reddish-crimson; the ovate lanceolate petals heavily spotted with the same colour, with a large yellow blotch on the base of the labellum, which also is ovate lanceolate, and tapering to a long point—a grand flower. Another, equally distinct, has very large, massive flowers disposed at greater intervals on the spike; the length and breadth of the petals and sepals are unusual; the ground-colour is deep, clear primrose-yellow, spotted and barred with reddish-crimson. In the case of both the above plants the bulbs and leaves are very distinct in appearance; the leaves especially are large and thick, with much more substance in them than this section of *Odontoglossum* generally presents. To these may be added a form of *O. illustre*, more distinct than many species are; in this the sepals and petals are unusually broad and massive, so much so as to give it the appearance of an exaggerated *O. Andersonianum*; both sepals and petals are heavily marked for three-fourths their length with deep red, the lower portion spotted with bright crimson; the ground of the entire flower is pale straw colour. A very large number of *O. cirrosum* are in bloom, several of them being remarkable for the size of the flowers, with the purity of the white ground colour, and the intensity of the bright red spotting. Amongst other *Odontoglossum* bearing hundreds of spikes in different stages of development the following were blooming in quantity:—*O. Hallii*, *O. Andersonianum*, *O. Pescatorei*, *O. pulchellum majus*, *O. tripudians*, *O. Kossii majus*, *O. gloriosum superbum*, *O. triumphans*, *O. nebulosum*, *O. emines*, *O. maculatum erosum*, and *O. cordatum*. Of *O. crispum* there are endless varieties, from those with heavily spotted flowers to others that are pure white, or white suffused with pink; in one example the whole of the flowers composing the spike are pure white, except the right hand lower petal of each bloom, which is deeply tinged with pink, giving it a singular appearance. In another form the flowers are almost circular, pure white, with the base of the lip pure yellow—a lovely variety. Of *Lycaste Skinneri* many fine varieties, one with sepals and lip pure white, whilst the whole of the surface of the petals is deep unbroken crimson. The beautiful *Dendrobium crasinode Barberianum* was in fine condition, the intense deep purple marking on the points of the sepals and petals on the purest of white grounds gives the flower a most chaste appearance. Near it were several examples of the rare *Coleogyne cristata alba*, a lovely flower without a tinge of colour on the pure white. *Oncidium cucullatum purpurascens*.—Of this there is an unusually beautiful variety; the whole of the surface of the sepals and petals is deep reddish-brown, whilst four-fifths of the labellum is covered with the darkest purple spots. *Lælia albidia gemma* has flowers possessing more than double the size and substance of the ordinary type; sepals and petals for three-fourths their lengths from the extremity deeply suffused with deep pink—a distinct and handsome flower, much superior to the ordinary variety.

ODONTOGLOSSUM CRISPUM.—It has been stated that the varieties of this fine cool Orchid, recently introduced, are not so good as those sent into the country ten or a dozen years ago; and the belief is held by those who have had a good opportunity of judging. It may be that the earliest collectors in the field selected the best varieties; indeed, we have a dozen plants from one of the first of Messrs. Veitch's importations, and they are certainly distinguished for great breadth of the petals and sepals, but I have seen some splendid varieties amongst the recently imported plants, notably in Mr. Bull's collection at Chelsea, and in that of Mr. Bockett at Stamford Hill. Mr. G. F. Wilson, of Weybridge Heath, has also some fine varieties, and the large importations sent into the country during last season have been distinguished at least by the splendid bulbs and the largest masses we have yet seen. *J. D.*

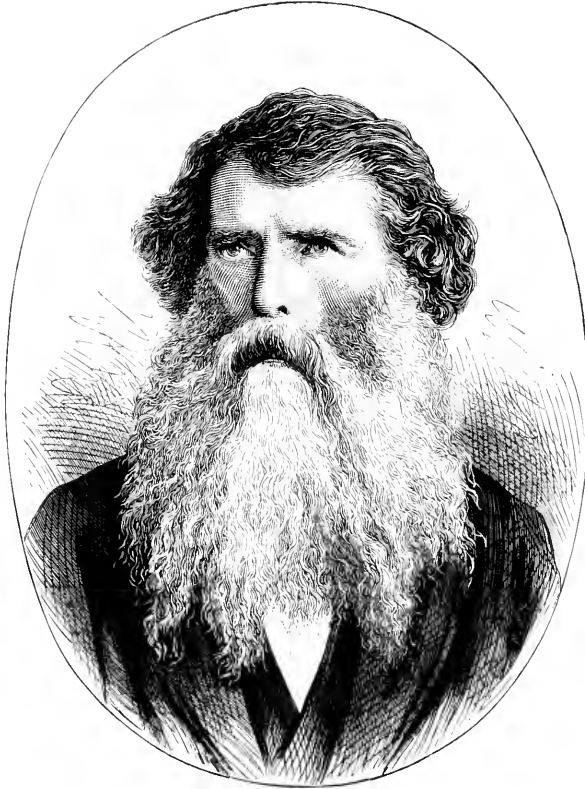
ANGRECEUM FRAGRANS.—I observe mention is made in *On and Off Duty* of *Angreecum fragrans*. This species grown in England at present under this or any other name? *H. E. C., Liverpool.*

CHARLES NAUDIN.

We are privileged to lay before our readers the portrait of a distinguished Frenchman, as well known to horticulturists as to botanists. For several years M. Naudin was connected with the Jardin des Plantes, and was associated with his friend, M. Decaisne, not only in his official duties but also in the publication of various works on botany and botanical horticulture, which have made the names of the two friends familiar to all French and very

to physiologists and cultivators. For several years M. Naudin cultivated and made experiments on some 1200 Cucurbitaceous plants belonging to various species and varieties, which by his observations and experiments he was enabled to range under three species, each presenting very numerous and often analogous variations. The description and classification of the endless series of Gourds, Cucumbers, and Melons, are extremely remarkable, and valuable for cultural purposes were it only for the practical hint obtained, that in the case of such plants as the Melon and

a felicitous choice to select M. Naudin as the superintendent of a garden so rich in rare and interesting plants collected and studied by MM. Thuret and Bornet. The glories of this garden have been chronicled in these pages at various times, and several illustrations have been given from the exquisite photographs of M. Bornet. The garden at Antibes, under its present management, is a sort of *succursale*, or branch establishment to the Jardin des Plantes at Paris, though it must be admitted that the branch establishment is, as far as gardening



CHARLES NAUDIN.

many horticulturists of other nations. As a botanist, M. Naudin is best known by his elaborate monographs on the Melastomaceae and Cucurbitaceae. He has recognised the necessity of cultivating the objects of his study whenever circumstances permitted, and has been an exclusively herbarium botanist only when he could not do otherwise. In this manner he has obtained an insight into the range of variation, the general habit and life-history of plants, impossible to be obtained from the study of dried specimens only, however well prepared. His experiments and researches on hybridisation have been so numerous and thorough that they have been of the greatest service

Cucumber, it is better and more profitable to endeavour to improve existing kinds than to introduce new kinds from other countries.

M. Naudin retired from Paris some years ago to take up his residence at Collioure in the Eastern Pyrenees, and in the propitious climate of that region devoted himself to the collection, cultivation, and study of plants from all climates that will thrive in that region, paying strict attention at the same time to meteorological phenomena and their relation to plant growth. On the death of M. Thuret, and the acquisition, by the French Government, by gift, of the noble garden at Antibes, it was

concerned, far more attractive than the parent. M. Naudin aims at maintaining in the lovely but trying climate of this part of the Mediterranean region a veritable garden of acclimatisation, if the word may be permitted, and gladly receives seeds and plants of tropical or semi-tropical species for experimental culture. At the present time M. Naudin is specially interested in collecting and studying the numerous species of Eucalyptus, not only from the point of view of the botanist, but also from that of the economist. Every facility is given to students of any nationality to pursue physiological, botanical, or horticultural studies.

FRUIT NOTES.

Early Cherries.—"J. S." has omitted three excellent early Cherries from his list—*Belle d'Orleans*, *Early Purple Guigne*, and *Early Lyons*. The first I have had on an E.S.E. brick wall for the last twenty-four years; it is productive and good. The two latter I have only grown in pots in a cold orchard-house. *Early Purple Guigne* was in perfection on June 3 last. I then sent it as the principal table ornament at a large public lunch, and it was admired by all who saw it. The fruit (110) were all consumed at the table, so the quality was well proved. *Early Lyons* is good and fertile; it is perhaps ten days later than *Early Purple Guigne*, which with me is a trifle earlier than *Wesler's Early Black*, to which I can give a most excellent character. *P. Bonole*.

Pears Ripening Prematurely.—A question asked by many this season is, What is the reason of my Pears keeping so badly? What answer can be given? *Winter Nelis*, one of our best Pears, which is generally in use in January and February, went all rotten early in December. *Ne Plus Meuris* were all over by the middle of January, though they usually last out until the end of March. *Bergamotte d'Esperen*, an excellent late Pear, which often keeps well through March, was over by the middle of January. *Sussette de Baye*, a very fine Pear, went like a ball of flour by the end of December. It did not rot as other Pears have done, but became soft and floury; it has often kept with us through March. Many other Pears might be named which have gone the same road. *D. Lumsden, Flore-hain Hall Gardens*.

Apple, Isle of Wight Pippin (syn. Orange Pippin).—This very excellent Apple is one in which, I fear, many of your readers are not acquainted, owing probably to the fact of its being rarely seen or heard anything of anywhere except in the Southern Counties and the island from which it takes its name. Wherever it is grown, and succeeds, it is almost certain to become a great favourite, and for this reason it is not unworthy of being brought before the notice of your readers. It is too small ever to become a popular market variety, but for favour alone it is not too much to say that for a first place it would run a "neck and neck" race with *Ribston* and other well-known kinds—indeed, I know of persons who infinitely prefer it to a *Ribston*. Description:—"3 size, 1 quality; November to January; round; skin yellow, covered with russet, and highly coloured with orange and red next the sun; stalk very short, set in a shallow, round, even cavity; eye set in a slightly sunk-in basin; flesh firm, juicy, with a fine aromatic flavour." On a chalky soil the tree is a strong grower and free bearer. *J. H.*

Late Pears.—In the remarks Mr. Carmichael makes on late Pears, I can fully endorse what he says in favour of *Bergamotte d'Esperen*, which is the very best late kind we have, and one that invariably does well here, but which this season, like most others, is behaving very strangely, as the fruit was not only in long before its time, but has spotted and rotted to a very serious extent. *Josephine de Malines*, too, usually good with us, have all turned mealy, and though we have at least a couple of bushels, fine in size and handsome in appearance, I do not think that I could pick out enough for a dish at all fit for table. *Glou Moreau* went much in the same way, as also did many other sorts, the best among the numerous varieties we have being *Passe Colmar*, which is one of the sweetest, most juicy, and valuable winter Pears in existence. What made these esteemed fruits so bad was the wet, unless autumn, for though they swelled out and looked remarkably clear in the skin, they were very watery, and full of crude juice within. This was only a natural result of the want of solar heat, without which Pears are sure to be deficient in quality. Mr. Carmichael asks if any one has ripened *Beri Mai*, in answer to which inquiry I may say that we had it fairly good two years ago, but it is of that hard, unmelting nature of flesh that I think it will never be worth much for dessert. We have about a bushel of it now lying on the fruit shelves, and shall therefore be able to see how it turns out again when the season becomes more advanced. In appearance the fruit bears a close resemblance to an undersized *Uvedale's St. Germain*, from which it was most likely raised. *J. Sheppard, Wellesbourne*.

The Flower Garden.

WHERE plants for bedding-out are required on an extensive scale much will depend upon spring propagation, and preparation for this purpose should be made at once. As the season has been altogether favourable for the purpose many of the stores of plants or cuttings struck in the autumn are already in a condition to afford cuttings, and if such is not the case they should at once be introduced to an increased temperature, to bring them forward as soon as possible. Amongst these may be specified *Alternanthera*, *Coleus*, and *Fresina*, and similar soft-wooded tender plants. At the same time store pots of autumn-struck cuttings of such things as *Heliotropes*, *Salvias*, *Cuphea*, and *Ageratum*, that are required for mixing with the plants in the herbaceous borders, which, being of a hardier constitution, should be shaken out and potted off at once, either to furnish a further supply of cuttings if required, or to be well pinched back occasionally to make stocky plants later on.

SUBTROPICAL PLANTS.—A first sowing of seeds of the various subtropical and fine-foliaged plants should be made at once, as their season at the best is but a short one, and the earlier they can be brought into established plants the better; they comprise *Kicinus* or *Castor-oil* plant, of which *K. Gibsoni* and *R. sanguinea* are desirable varieties, together with the more robust growing sorts for extensive places, as they all require ample room for development, and must also be amply fed at the roots with very liberal supplies of manure, the richer the better. The great beauty of all these so-called subtropical plants consists in an imposing appearance, and to attain this they must have very liberal treatment at the roots and a clear space above-ground to exhibit their true character; so treated, the *Solanums* in their varieties are very grand and effective; so are *Wigandias* noble plants if liberally treated; so also are *Ferdinanda* eminens and *Eucalyptus globulus*. Among the dwarfier sorts, *Chamepitys diacantha* and *C. Casablanca* may be grown into very effective plants by beginning in time and giving liberal treatment. *Erythrina cristata-galli* is very interesting, but not showy—its chief beauty is its scarlet blossoms, like bunches of coral; with many others, the propagation of which by seeds cannot be commenced too soon now. *Cannas*, too, may be grown from seeds, but as the roots are easily kept through the winter, many will prefer to part them: potting them off singly, and placing them in a heated structure for a time—under the stage will do—until they begin to grow away, when they may be shifted to a greenhouse temperature, and gradually be hardened off.

DAHLIA roots should be looked over, and sorts that are found to be scarce introduced into a genial moist heat for the supply of cuttings; these should be carefully broken off and inserted singly in thumb-pots as soon as they are from 2 to 3 inches long; avoid too close a temperature, or they will be drawn up weak. Seeds of the beautiful and very valuable single sorts should be got in at once; the general crop may be sown in boxes, and potted off as soon as they are ready, but very choice selected seeds would be better sown singly by placing them upright in small pots; these will become well established, and make strong plants. Any superior roots saved from last year may be propagated as above.

HERBACEOUS BORDERS.—Should the mild weather continue the regulation of the plants in the herbaceous borders by reducing the size, weeding out coarse and ineligible sorts, enriching the soil and digging over the borders neatly with a narrow and sharp spade may be commenced at once; large clumps should be greatly reduced in size. As these plants are much liable to injury from slugs, a good dressing of soot before digging will be found very useful. Soot is a good fertiliser as well as inimical to the slugs, but it must not supersede a good dressing of well decomposed manure, as, when borders have to sustain the exhaustive process exercised by a great number of plants, many of them gross feeding, in a limited space, they must be well fed. *J. Cox, Redleaf*.

The Orchard House.

SINCE I wrote the note on p. 51 it has been colder, inclining to frost; and, what has been much worse, thick fogs night and day. And such fogs! If we had been so unfortunate as to have had any trees in flower it would have been safe to predict that in such an atmosphere not a blossom would have set; indeed, in this, being so close to London, lies our difficulty, early in the year. The days of bright sunshine are so few that great pains are required to get a good set, owing not so much to the low temperature as to the dull, cloudy, and often foggy weather. The only way is to keep the glass clean, to ensure a dry atmosphere, and to keep up the temperature by artificial heat, especially by day. The temperature is kept in motion by the hot-water pipes, and prevents the moist, stagnant air settling amongst the blossoms, which always proves fatal to them. If the earliest trees are not yet in blossom, I would advise that they should not be pushed on too fast; rather, as previously advised, maintain the night temperature below than above 55°. Up to the time of the buds opening a moderate degree of moisture in the atmosphere is desirable. Look over the branches, especially the young wood, and if there are any of the aphid tribe on them it is best to fumigate the house with tobacco-smoke. In the late house the trees are still at rest, although the flower-buds are steadily becoming more prominent. The trees were removed into the house from the plunging material out-of-doors about three weeks ago. Artificial heat is not necessary for them at this time, as a little frost could do no harm, but in our case it is necessary to keep up the temperature a few degrees at least above the freezing-point, as we find our heated structure very convenient indeed for wintering *Pelargoniums* and other plants that are not hardy. See p. 51 for other cultural directions. *J. Douglas, Loxford, Hford.*

The Pine Stove.

REPORTING may be done any time this month as occasion permits. It is, however, best not to delay the operation too long, as an early start gives the plants time to make a large sturdy growth. Before potting the soil should have the chill taken off it, and the finer particles sifted out. To each barrowload of good fibrous loam put one 8-inch pottful of half-inch crushed bones and bone-dust in equal parts, with a 6-inch pottful of well prepared charcoal about the size of pigeon's eggs; this keeps the soil open and sweet. The soil should be in a good medium state as regards moisture, and if the shifting has to be done outside, a mild fine day should be chosen. Reporting requires great care and discrimination, so that the plants or roots are not injured, and the work is carried out with method. Have sufficient help at command to ensure the work being got over quickly, to prevent the plants from being chilled by keeping them about too long. Clean pots and perfect drainage are indispensable. When the plants are knocked out of the sucker pots, remove the lower leaves carefully; put the required quantity of rough loam in the bottoms of the fruiting-pots, beat it well down and then place the plant in its proper position, so that the ball is not moved again. Place the plant well down in the pot, and gradually work the fresh material round the old ball; this should be firmly rammed down, but see that the rammer does not injure the roots. By placing the plants well down they take a firm hold of the soil, but if potted shallow the plant becomes loose in the pot—a very undesirable thing, which cannot afterwards be remedied. It is also essential that no loose soil should be allowed to get into the centres of the plants during the potting. When the operation is completed plunge them thickly together for a time; this will economise space, and the plants can be allowed more room afterwards. Keep them in a bottom-heat from 55° to 90°; if plunged in fermenting materials 5° more, but these limits should not be exceeded at the base of the pots. If the rooted suckers have been kept during winter at or near the temperatures I have indicated the above bottom-heat will suit them; but if on the other hand they have little or no bottom-heat, with low temperatures, start them with 10 less for bottom-heat, as too great a change in temperature is apt to make the plants bolt instead of inducing them to start into fresh growth. The sizes of pots for Pines,

Black Jamaicas, and other small varieties should be 11 inches; for Smooth Cayennes, Charlotte Rothschilds, and other large varieties, 12 inches. If the plants are grown in old or dark structures the sizes used may be 1 inch less respectively, viz., 10 and 11 inches, to suit the varied conditions in which they are grown. I have used 13-inch pots here for eleven years for the large varieties; as they require less frequent watering, but at the same time careful watering is a point never neglected. This is, however the largest size I have used, and 16-inch pots have not been used by me, as was stated in mistake by a recent writer in a contemporary on Pine growing here. *D. Wilson, Castle Hill, Devon.*

Grapes and Vineries.

THE earliest house will now be ready for thinning, and in some cases thinned, if the Vines broke freely. When thinning is completed give the border a thorough soaking with tepid manure or guano water at a temperature of 85°. Stop all the laterals at one leaf if there is room for the foliage without crowding, but if not pull them clean out, leaving only sufficient to cover the trellis thinly all over. If there are any surplus bunches take them off at once before they swell much. If any red-spider appears sponge the leaves with clear tepid water. Do not sulphur the pipes while the skin of the young berries is tender, or it will cause them to rust and spoil their appearance. Keep the evaporating pans filled with weak manure-water, and damp paths and borders with tepid water several times daily. Give air early in the day, increasing it as the temperature rises, and close early in the afternoon; still keep the night temperature 65°, with a rise of 10° by day. Attend to fermenting material on the outside border, as advised in last Calendar. Succession Hamburghs started early in January will now be showing bunches, and must have the temperature steadily increased until it reaches 65° by night, with a rise of 10° by day. Examine the border, and if dry water with clear tepid water. As soon as the bunches can be seen disbud them, going over them carefully and leaving the best placed shoots and bunches. Muscats started on January 1 will now be breaking fast, and can be kept at a night temperature of 65°, with a rise of 10° by day. Increase the temperature steadily as growth advances until it reaches 70° when they are in bloom, with a rise of 10° by day; attend to disbudding as soon as the bunches can be seen, and keep a moist healthy growing atmosphere. If a house of Hamburghs was started as advised in my last Calendar, only use sufficient fire-heat to keep the temperature 55° while the weather is mild; a few degrees less, if frosty; keep the rods well syringed to induce them to break regular. If any borders of late houses require top-dressing or remaking, it must be done at once, using material as previously advised, and mulching the border with manure to protect the roots. Keep late houses as cool as possible by having the ventilators open night and day (except in severe frost) to give them all the rest possible before starting. Do not let them get dust-dry at the roots, but give them an occasional watering. I always give the inside borders a good soaking with cold water after the Vines are pruned, and that is generally sufficient until they are started. This is a good time to start houses containing young Vines, as there is time for a good season's growth, and to get the wood well ripened in autumn. Let the leaders go to the top of the house without stopping, but the side shoots must be kept as for older Vines. Do not over-crop if it is the first year, six bunches on each Vine will be sufficient. Pot Vines swelling their fruit must have liberal supplies of manure-water at the roots and a moist healthy growing atmosphere. Late Grapes hanging in the fruit-room keep at a temperature of 45°, filling up the bottles with soft-water as required. While this mild weather lasts very little fire-heat will be required, only a little to dispel the damp. Put in Vine-eyes, either in pots or on turf. If for planting permanent Vineries, I think those put on turves are the best. Make a good hotbed of dung and leaves in a heated pit, where they will be close to the light, and then turn the turves grass-side downwards, and insert the eye in the centre of the turf with a little sand. Keep the temperature about 55° at first, and increase it as growth advances. Water them whenever dry, and syringe early in the afternoon. *Toshina Atkins, Locking Gardens, Wantage.*

The Hardy Fruit Garden.

THE planting of fruit trees has been greatly facilitated by the open season we have experienced, and will be in most cases completed. Those trees that were planted against walls in the autumn will now have settled into their places, and may be finally nailed in, but those more recently removed should be allowed as long a time as convenient for settlement of the soil before being firmly nailed in position. Maiden trees planted with the intention of forming pyramids may now be cut back to a height of 2 feet, if they have formed no laterals; where, however, they have a fair furnishing of shoots the leader can be cut to a length of eighteen inches above the highest of the side-shoots, and the latter may be slightly shortened if it is considered necessary to encourage their extension rather than the formation of the bloom-buds which mature at the points of unpruned shoots. Label all newly-planted fruit trees before the names become illegible, using some permanent form of label that will yield its information for years. Where a conspicuous label is not wanted, a satisfactory plan is to have numbers stamped on strips of lead, with corresponding entries in the fruit-book.

The formation of new fruit gardens and orchards is often undertaken without due consideration being given to the selection of a suitable site. On many estates it is not possible to have any choice of subsoil, but in most cases advantage can be taken of shelter afforded by adjacent woods, or from elevated land answering the same purpose; and land that can be easily and effectually drained can generally be chosen in preference to that less favourably situated as to outlet. Where possible select a position having a good shelter to the north while gently sloping to the south-east, so as to catch the earliest of the sun's rays before they become too powerful, nothing being more detrimental to blossom covered with hoar-frost than hot sunshine suddenly bursting upon it. The elevation of the district has not, generally speaking, so much influence on the success or failure of fruit crops as the local relative position as to altitude of the particular site. Select in all cases where choice can be made the middle portion of an incline, to avoid the exposure of the fruit to wind on the upper part, and the colder stratum of air and late hoar-frost of the bottom. Fruit gardens formed upon light or thin soils are most suitable for being planted with bush and pyramidal trees on dwarfing stocks, which on such soils speedily yield a good return, but will probably become exhausted before standard trees planted on deep or heavy soils will have reached such a degree of fruitfulness as to be remunerative.

Form of training, and selection of stocks for fruit gardens, are, therefore, plainly matters of consideration for the individual planter, in which the character of the soil should have proportionate attention to the requirements as to speedy returns, or the no less commendable object of the ultimate improvement of the estate by leaving an established orchard of large trees for the supply of the next generation with good fruits. Frequently paddocks and small fields, already in a high state of cultivation, exist in eligible situations overlooking low-lying gardens that are unsuited for fruit culture. It is not yet too late to plant, where soil and drainage are all that could be desired, and it certainly is not expedient that we should remain so dependent upon an imported supply of fruits as we now are, if it is possible, by a judicious selection of site, stocks, and varieties, to grow them at home.

Heading-over of established trees of varieties of Apples and Pears that are considered unworthy of cultivation may be proceeded with, and scions of sorts that it is desired to increase should be taken off at once, and be inserted in earth where they will not become dried; the base of a wall with a northern aspect is a suitable position, where they will be retarded until the stocks intended for their reception are ready for them; and care should be taken to label each sort as soon as cut, to prevent mistakes and future disappointment. *Ralph Crossling, St. Fagan's, Cardiff.*

WOODEN WALLS.—"H." does well in recommending wooden walls. Let me persuade him to try Bigareau Napoleon cherry for a north aspect. I planted a tree of it on the north boarded end of a building twenty-four years ago. It produces magnificent fruit, delicious in flavour. Next to it is a Jefferson Plum.

Of this the crop is only light, but the fruit is very fine and good. On the brick wall of a house facing nearly north I have a Black Tartarian Cherry which succeeds admirably. Last year, thanks to the absence of wasps, it hung several weeks later than I have ever had it before, and was exhibited in fine order at a local show on September 9. It is a Cherry of first-rate quality. The tree has been blossoming more or less since the beginning of December, so that I am afraid my chance of a crop this year is poor indeed. The situation is about 52° 35' N., 3° 10' W., in a hilly country on the Upper Silurian formation, and about 450 feet above sea-level. The Bigareau Napoleon is about three-quarters of a mile distant, on the Lower Silurian, and about 400 feet above the sea. *Philomela.*

The Kitchen Garden.

WHEN TO SOW ONION SEEDS.—Whether from good cause or from force of habit gardeners generally make a point of sowing their Onion seeds from the first to the second week in March. Why this particular time is chosen has never been clearly defined, unless, presumably, it is not considered safe to sow the seeds before. If we could always rely upon the state of the weather being favourable at that particular date, and the ground in proper order to receive the seeds, there would be little cause for complaint; but the contrary is often the case. There is often a spell of favourable weather during the month of February—frequently towards the middle of the month—when the ground is in capital order to receive seeds if it is properly worked, but for some unexplained reason the majority of us wait until the month of March arrives, and then, if it is wet overhead and the ground is sloppy, we grumble all the while until it ceases to rain and the earth becomes dry. But it does not appear to occur to us generally that we have not made hay while the sun shone; in other words, we allow a favourable period to pass when we might have got through an important ground operation, for no sufficient reason. It is as safe to sow Onion seeds in February as it is in March if the ground can be got in proper order. Frost does not harm Onion seeds. Why, then, do we wait? It appears to me the explanation is simple. We have been accustomed to sow at a certain date, and we cannot depart from the old custom. The advantage of early sowing is shown in early growth and thoroughly ripened bulbs, which keep better and are better flavoured than the produce of later sown crops. *W. H.*

NOTES ON VEGETABLES.

A GOOD POTATO.—When one considers the quantity of new Potatoes that have been put into commerce during the last decade or so, it would reasonably be supposed that out of the number there would be some of superior excellence. But is it so? My experience, after testing about forty kinds, is that the older sorts still hold their own in quality against their later rivals; and were it not for the liberal prizes offered for as many as twenty-four varieties by the different Potato societies throughout the country, many of the newer kinds would rapidly go out of cultivation. The only new Potato we intend to retain and grow in any quantity is Covent Garden Perfection, which is a good Potato, and the best we know for a gentleman's table after the Ashleafs are over. The next best among the new ones are Woodstock Kidney, fine in quality, but a poor cropper; American Purple is good in quality and a fair cropper, but rather small; Vicar of Laleham, fine in size, and a splendid cropper, but not equal in quality to its parent, the Victoria. *Solanum.*

JAPANESE BURDOCK.—The National Horticultural Society of France has been discussing the value for culinary purposes of the roots of a Japanese Burdock (Lappa). The plant is nearly allied, if not identical, with our common Burdock, and the variety in question has been "educated" by the Japanese till the roots have become fleshy and eatable. It does not appear, however, to have found very much favour, though very likely this is a matter that a little use will soon alter. In appearance the roots are like Salsify. From the rapidity with which they grow and their easy culture, they are certainly worth a trial.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Feb. 13	Sale of Imported Orchids at Stevens' Rooms, and Japanese Lilies, &c., at the Mart, by Frothinger & Morris.
TUESDAY, Feb. 14	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 4 P.M.; Annual General Meeting, at 3 P.M.
WEDNESDAY, Feb. 15	Sale of Lilium auratum Bulbs, at Stevens' Rooms.
THURSDAY, Feb. 16	Linnæan Society meeting, at 8 P.M.
FRIDAY, Feb. 17	Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY, Feb. 18	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

It is greatly to be hoped that the opportunity afforded by the forthcoming exhibition of means for ELECTRIC LIGHTING, at the CRYSTAL PALACE, will not be lost for testing the effects of the electric light on the growth and development of plants. With such facilities as will then exist at the Palace it would be almost criminal to allow the occasion to pass unutilised in this way. Power will not be wanting, and the directors of the School of Gardening, aided by the advice of practical gardeners, might readily devise a scheme whereby some practical results might be obtained. The fundamental facts have been proved, now it is necessary to institute strictly comparative experiments with due regard to cost and to the requirements of practice, so as to ascertain to what extent and under what circumstances the electric light may be made useful to horticulturists. For strictly scientific purposes the experiments would have to be carried out with great nicety and under most exacting conditions, but, for strictly practical purposes, experiments of a more rough-and-ready kind, and conducted under circumstances which might vitiate the results looked at from the abstract point of view of pure science, would answer their purpose. Whether successful or not in the main object, the results could not fail to be serviceable in some way or another, as failure would be but little less valuable than success.

We know that plants will grow under the light, we know that the actions associated with, if not dependent immediately on, their green matter (chlorophyll) take place as they do under the influence of sunlight. Now, we want to know, further, whether the whole series of changes and transformations which occur in a plant as it grows from the seedling state to maturity and reproduction will manifest themselves under the electric light. In all probability they will, but the matter requires to be confirmed, and specially, as we have said, from the point of view of the practical horticulturist. Patient experiment and careful adjusting of light, heat, and moisture are requisite, the relations varying with the kind of plant to be cultivated, the particular object for which it is grown, the local conditions, and the relative cost. But all these are points which the forcing gardener already takes into consideration, and in experiments with the electric light he would only have to avail himself of the self-same principles of action which guide him in forcing his Vines or his Cucumbers. And think of the possibilities! What is it that gives the richness and aroma to so many fruits? Not heat alone; not moisture alone; but these in combination with light; and for the special purpose just indicated the light is of the greatest importance. It is recorded of a traveller who visited Arabia to see the famous Mocha plantations that he was specially struck with the pure air and cloudless skies of the district. "Light," says he, "would seem to be poured upon the country in an uninterrupted flood, and the excessive stimulus thus communicated to all the functions of vegetation contributed to the perfect elaboration of those delicate and subtle principles upon which the aroma of the coffee depends." The same holds good with theme, the quinine, the aromatic oils, the spices, the resins, the caoutchouc, and count-

less other products which render plants valuable in one place, where they find the conditions suitable for them—valueless even where they are capable of growing at all, in another, where the conditions are unsuitable. We can furnish heat, moisture, food, skilled supervision, and management, and we all know and take pride in the triumphs effected by their agency. Our control over light has at best hitherto been fitful and imperfect. Is it always to be so? We trust not; and we look to the promoters of the forthcoming Electrical Exhibition, or whatever authority it may be, to avail themselves of the present opportunity and push on vigorously this most important inquiry.

At the same time, we must not overlook the fact that the results lately obtained in Paris are not wholly satisfactory. From the experiments lately made under the superintendence of M. DEHERAIN it appears that the electric light, under certain conditions, is injurious rather than otherwise, but that the evil effects are counteracted by the interposition of transparent glass. Plants in the open air exposed to the influence of the electric light alone have continued to grow during two months and a half, but the germination of seeds has not been favoured, nor has the maturation of adult plants been hastened. The results were obtained under the arc lights; it remains to be seen whether better results can be obtained with the incandescent lights, now becoming so popular for domestic purposes. Again, the Paris experiments have been so far exacting that they have not been made with a view of supplementing the sun's action when that was not available, as would be the case in practical gardening, but the plants have been continuously exposed to the electric light and to none other. The results, if not fully satisfactory, are by no means hopeless.

— *BOMAREA CONFERTA*.^{*}—We are now enabled to give a portrait of this magnificent species, of which we gave a full description in our number for September 10, 1881, p. 330. The illustration (fig. 31) is taken from a sketch of Mr. CARDEK, verified by comparison with specimens gathered by him near Bogota, as well as by HARTWEG at Pinchincha. The flower-stems, both outer and inner, are rich crimson. The roots have oblong tubers, similar to those figured of *B. Shuttleworthii*. The plant was introduced by Messrs. SHUTTLEWORTH, CARDEK & Co., who have lately put it into commerce.

— GLASGOW BOTANIC GARDEN.—We understand that the directors have accepted the tender of Messrs. JAMES BOYD & SONS, of Paisley and London, for the erection of the new range of glass. We should also add that the Messrs. BOYD designed the range, and that a special feature in its construction is that only Teak wood is to be used. We hope shortly to publish a view of it.

— *SENECIO SPATHULIFOLIUS*.—In the current number of the *Journal of Botany*, Professor BABINGTON figures and describes this plant, at one time confounded as a variety with *Cineraria integrifolia*. It was originally gathered in North Wales and at Holyhead, but recently Mr. BACKHOUSE has met with it in North-west Yorkshire. The same species is in cultivation in the Cambridge Botanic Garden. By the way, should not the name be written *spatuliformis*, without the *h* and with the *i*?

— NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—The Council of this Society is composed for the present year of the following members:—President, M. Lavallicé; Vice-Presidents, MM. Hardy, Jamin, Malet, Prillieux and Burelle; Secretary, M. Duvièvre; Assistant-Secretary, M. Verlot; Secretaries, MM. Delamarre, Chataenay, Chagarraud, and Millet; and Treasurer, M. Maurice Vilmorin, of the well known firm of Vilmorin, Andreux & Cie. Amongst the other members of the Council we notice

the following names known in England:—MM. Truffaut, Sen., well known for his Asters; M. Thibaut, nurseryman of Sceaux; M. Margottin, Sen., of Bourg-la-Reine; M. Albert Truffaut, and M. Moser, the two nurserymen of Versailles. Editor of the *Journal*, M. Paul Duchatre. The Society will, we are told, hold three shows this year, two of which will be partial shows, and one a general show, so as to enable intending exhibitors to show in the course of the year all sorts of plants and fruits. The first show will take place from March 30 to April 3 inclusive; this show as well as the second partial show—the exact date of which is not yet fixed, but will be between October 15 and November 15—will very likely be held in the Hotel or house of the Society itself, 84, Rue de Grenelle, St. Germain, Paris, unless they take place like the big show of the season (between May 15 and June 15) in the Pavillon de la Ville, Paris; which building English visitors will remember stood in the very centre of the Paris International Show of 1878. It has been rebuilt behind the Palais de l'Industrie between the River Seine and the Palace. It is close to the place where the show of last year took place, and the pavilion is surrounded by a pretty garden. We are glad to see that this Society seems at last to be waking up to its business, viz., to spread the love of flowers throughout Paris and France.

— PLANTS IN FLOWER at FERRIÈRES.—A fine specimen of *Draecena Goldiana* has been in bloom in the houses at Ferrières. Amongst the newer Orchids that have been in flower also in the same establishment are *Bollea celestis*, with two large well shaped and beautifully coloured flowers; *Odontoglossum hebraicum*, a long spike with six or seven large flowers; and *O. tuckerianum*, something in the way of *O. Andersonianum*. *O. crispum* is coming nicely, but unfortunately with the Orchids of all sorts at this place, they are no sooner open than they are cut up for floral decorations, so that there is never such a grand show of flowers as there might be if the flowers were left on the plants some time.

— THE MYCOLOGICAL SEASON.—One of the effects of the present mild winter is the long continuance of the mycological season, and many rare or new species of Agarics have occurred. The neighbourhood of Sibbertoft, which in general is very deficient in fungi, has this winter been peculiarly prolific. In addition to one or two new species we have had *A. sideroides*, *A. hebes*, *A. obsoletus*, and yesterday only (Feb. 6) *A. Persoonianus* of PHILLIPS was found. The figure of this species in *Gard. Chron.* 1881, p. 874, does not show how the stem arises from the little bulb, as is figured by PERSSON, though he takes no notice of the attached globular bodies. The structure of these is not cellular, as in *Sclerotia*; but they consist of fascicles of threads curling about in every direction. They are densely tomentose, and it is hoped that as the place of growth is marked we may have a better opportunity of ascertaining their nature. Fungi seem equally abundant in the south of England. From Shanklin, in the Isle of Wight, we have received the short-stemmed form of *A. corrigis*, figured by CORDA under the name of *A. viscidus*. Mr. RALF has sent from Penzance an enormous specimen of *A. revolutus*, KICKX, which is clearly only a form of *A. salignus*. Not only are fungi abundant, but of extraordinary size; *A. excisus* and *A. rugosus* in our combs so large as to be scarcely recognisable, while *Coprinus aratus* is many inches across. We take this opportunity of calling attention to the work of BRESADOLA* on the fungi of Trent, which is following admirably in the steps of Dr. COOKE's excellent illustrations. Signor BRESADOLA's figures have been authenticated by M. QUELET, and we are, therefore, surprised to see an admirable figure of *Hyphophorus Wynnie* appear as *Clitocybe xanthophylla*, BRES. It is perhaps doubtful whether Bulliard, tab. 38, which is not noticed by FRIES, is not the same species, though the gills are more crowded. *M. J. B.*

— CHINESE PRIMULAS.—Of the fine quality of the strain grown by Mr. TOMKINS, of Birmingham, we have had evidence this week in some superb blooms of a bluish-white, deeply-fringed variety of large size and great substance; a very showy rose-purple, beautifully serrated, and with an attractive

* *Bomarea conferta*, Benth., *Plant. Hartweg.* (t846), p. 252; Mast, in *Gard. Chron.*, Sept. 10, 1881, p. 330.

* *Fungi Tridentini novæ vel non delineatæ descriptæ et iconibus illustratæ.* Fasc. I., tab. xv., figo. Tridentini, J. B. MONANI.

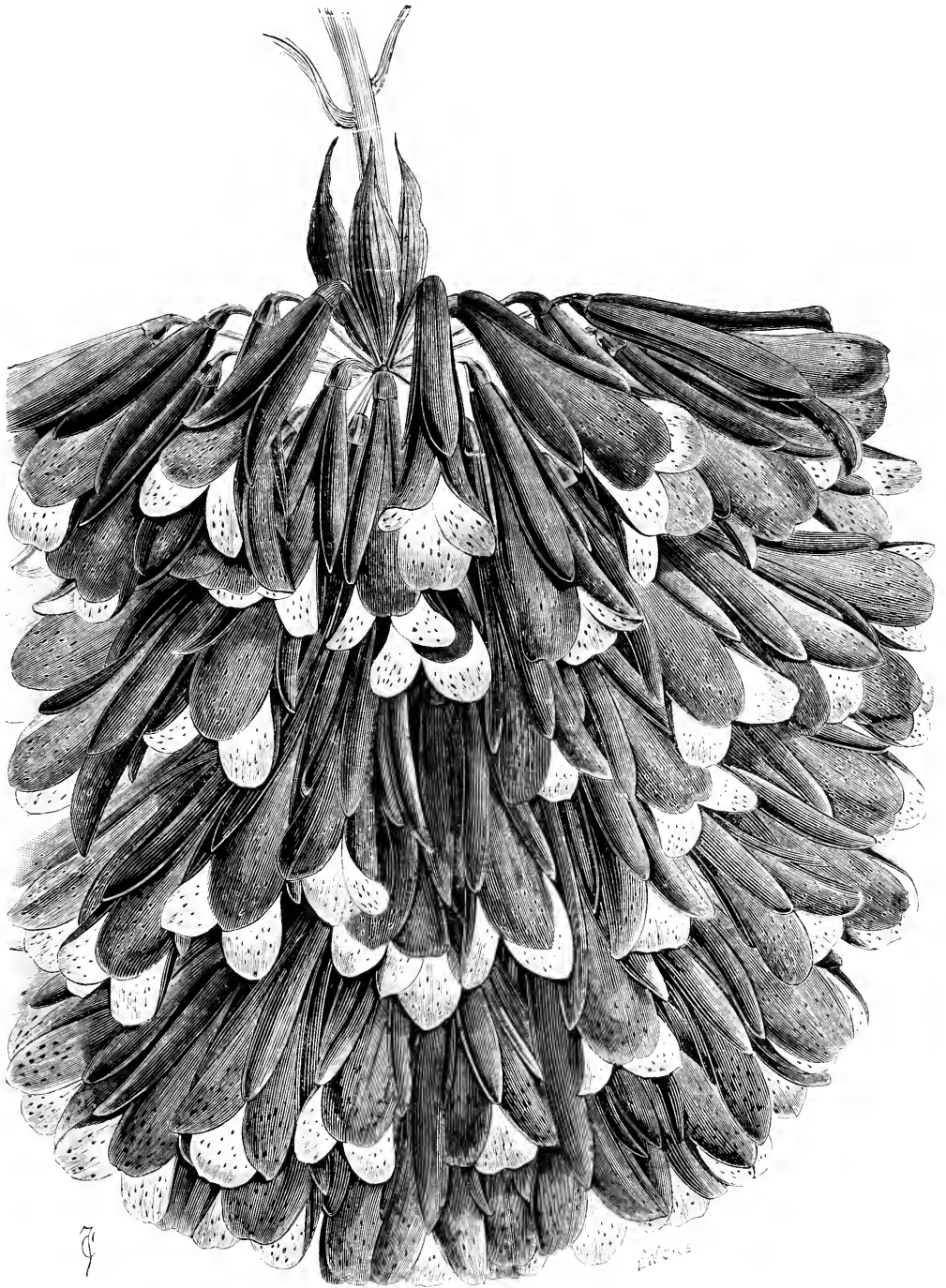


FIG. 31.—*BOMAREA CONFERTA*; INFLORESCENCE NAT. SIZE: FLOWERS CRIMSON. (SEE P. 186.)

lemon-yellow starry centre, and a good red flower, which appears to be the result of crossing the Chiswick Red on a larger flower, with a view to obtain size. It is not so good as Swanley Red, but running closely in the same direction.

LIVERPOOL HORTICULTURAL ASSOCIATION.

—The annual general meeting of this Association was held on Saturday last, in the lecture-room of the Free Public Library, Liverpool, a large number of members being present. The chairman of the committee, Mr. J. RICHARDSON, of the Botanic Gardens, presided. The Secretary, Mr. E. BRIDGE, read the third annual report and statement of accounts, which showed that the income for the year, including a balance from previous account of £234 8s. 10d., had been £1266 4s. 10d., and the expenditure £921 19s., leaving a balance at the credit of the Association of £345 5s. 10d. The progress made during the year had been satisfactory, 150 new members having been added to the roll, this being an increase of fifty over the previous year. The subscribers and members now number 712. The Patrons and Vice-Presidents were re-elected; Mr. J. HUGHES, the Mayor, was elected Hon. President; Mr. W. B. HALLIDAY was re-elected Hon. Treasurer; Mr. W. BLOMFIELD, of Aigburth, was elected Sub-Treasurer; and Mr. J. GLOVER, of Gateacre, Secretary. Thirteen members were elected on the committee to fill the vacancies of retiring members.

—A PROLIFEROUS HYACINTH.—Mr. AGGISS, gardener to the Earl of EFFINGHAM, Tusmore Park, Bicester, informs us that he has a bulb of Hyacinth *Fiancée Royale*, bearing nine good spikes of flowers.

—SMOKE ABATEMENT EXHIBITION.—The visit of the deputation appointed by the city authorities of Manchester has resulted in a decision to transport the chief exhibits from South Kensington to Manchester, and open a general exhibition of smoke-preventing appliances there upon a site offered by the Corporation for the purpose. A meeting of the exhibitors at South Kensington was held on Thursday, when the chief firms agreed to transfer their exhibits, and it was arranged that negotiations should be at once opened with the London and North Western and Midland Railway companies as to the necessary railway facilities.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

—The annual general meeting of this Association will be held on Wednesday next, at 4 P.M., in the Board-room of the Royal Society for the Prevention of Cruelty to Animals, at 105, Jernyn Street, S.W., the Baroness BURDETT-COUTTS, President of the Association, in the chair.

—HARDY FLOWERS.—There are far too many gardens in which good hardy flowers are largely neglected, and where in such a season as is the present their loss is greatly felt. When the weather is so soft and open, yet so dry and pleasant that walks may be taken in the garden with frequency, it is specially disappointing to those who love flowers to find their beds and borders so barren that scarcely a flower of any kind is to be found, and that little that is more decorative than green leaves is to be gathered. And yet there are other gardens where the culture of hardy plants, and specially early blooming ones, is a strong feature, that are now almost gay if such a term may be applied to the effects created by many lovely early flowers. The scarlet *Anemone fulgens* is singularly bright, and flowering freely. Others of the *Coronaria* family are in good bloom. Early Crocuses and Snowdrops are out in flower, and making bright tufts and carpets of flower. Double Daisies in several colours, early Pansies, bright yellows, white, and blue; Polyanthus and Primroses in many and various colours, early Forget-me-not, late Hellebores, the bronzy-flowered *Atrorhena* especially; these and many others furnish bright gems all about gardens where hardy flowers are cherished. Our more modern fashion of providing big masses of glowing colours when the sun rides high and pours down its rays with almost painful force is not one to be encouraged. It is then that cool refreshing tints are most welcome. But just now a little patch of colour, even though it be of scarlet *Anemone* or yellow Crocus, is as valuable as will be an entire bed of scarlet *Pelargoniums* or yellow *Calceolarias* in July. If more widely cultivated the little patches of

hardy flowers that just now look so pretty might be masses, and be not merely pretty, but truly beautiful. With winter flowers abundant within the greenhouse, and the beds and borders gay with early hardy ones, the too often long dull winter months are robbed of their dullness, and the season of flowers is made perpetual.

—*PHENOCOMA PROLIFERA* BARNESII.—Not many hard-wooded plants are of much interest at this season, except to "specimen men" who have to be watchful of their treatment until the days lengthen and grow brighter. The subject of this notice is, however, an exception to the general rule. It is a fine plant, quite aglow with flowers open and opening, and is in the collection of F. A. DAVIES, Esq., Angelsea House, Surbiton. The plant is in fine condition, having made its growth early last autumn, with the result above stated. The side growths are also forming flower-buds, so that it promises to be worth looking at for many a month to come.

—*ACACIA LONGIFLORA*.—This plant is now finely in flower in Mrs. DUNWICH's conservatory, Allbury House, Surbiton, where it has a very rich effect as a conservatory climber. The plant is growing in a 12-inch pot, but notwithstanding its restricted root-run, it has made flowering shoots 18 inches in length which are of a bright golden-yellow, and are found most useful for cutting to arrange with other flowers. But it is as a climber that the plant is particularly recommended; planted out in a bed of moderately rich compost it would extend itself rapidly, and its long golden flower wreaths would make a very fine show in any large conservatory with *Camellias* and other kindred plants.

—THE WEATHER IN FRANCE.—The weather this winter has been unexceptionally mild until now in and round Paris. There has been scarcely any frost, only 8° Centigrade below freezing point several times, but plenty of dense heavy white fogs in the country, and black ones of course in Paris itself. A few miles from Paris the sun was not seen for nearly a month. Ice gathering has not yet been attempted.

CARNATION SOUVENIR DE LA MALMAISON.

—There is no pot variety in cultivation more sought after for supplying cut flowers than this, the queen of all Carnations. It is seldom included in the lists of very early forcing kinds, such as *Allegatière*, *Miss Joliffe*, and *La Belle*, nor is it, indeed, desirable at any time to subject it to a very high temperature. It is the best and safest way to bring it forward very gently. That it will force, however, is proved beyond a doubt by Mr. HINNELL, gr. to F. A. DAVIES, Esq., Angelsea House, Surbiton, who has a collection of it coming into flower in an ordinary forcing-house, and who has been cutting blooms of it for some time past.

—*GREVILLEA THIELEMANNIANA* is one of the most elegant of greenhouse plants. In the Cambridge Botanic Garden it has been singled out for special admiration by many from among the *Hyacinths*, *Primulas*, and other popular decorative plants. Unlike many of the genus it makes neat little specimens in small pots, loaded with pendulous racemes, and would probably be suitable for table decoration. It is attractive from its gracefulness, the leaves being so finely divided, and the flowers also peculiarly shaped and delicate in colour, almost like that of forced *Rhulabar*. It is the *G. Trevisi Bot. Mag.*, t. 5837, and is a native of Western Australia.

—THE METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 15th inst., at 7 P.M., the following papers will be read:—"Notes on Experiments on the Distribution of Pressure upon Flat Surfaces perpendicularly exposed to the Wind;" by C. E. BURTON, B.A. F.R.A.S., and R. H. CURTIS, F.M.S. "The Principle of New Zealand Weather Forecasts;" by Commander R. A. EDWIN, R.N., F.M.S. The electrical thermometer, lent by MESSRS. SIEMENS BROS., for observing the temperature of the air at the summit of Boston Church tower will also be exhibited.

—*BEGONIA ROZLIL*.—This species is now flowering in the Cambridge Botanic Garden, and though but little known is an extremely fine one. It

appears to be an ally of *B. nitida*, but is larger and more robust, and has flowers of crimson or scarlet colour. This makes it very effective. It is so distinct that those who know *Begonias* cannot fail to be struck with its character. We announced this species from Mr. E. BENARY, of Erfurt, at p. 566 in our issue of vol. xi., 1879. It is there said that the buds appear in October, and if so it flowers over a considerable part of the year, flowering, as it certainly does, also in May and June, as well as at the present time. The flowers, it was said, would be of great utility for bouquets, if not too odorous. These Cambridge specimens prove it as durable as any other species. It is a native of Mexico.

—*AZALEA AFOLLO*.—There are so many richly coloured varieties of this highly useful class of plants now in cultivation that it may seem almost invidious to single out any individual variety for special commendation. The variety above mentioned is, however, so extremely pure and delicate in colour that one may justly bestow a word of praise upon it without detracting in any way from the claims of other varieties upon our attention. The flowers are a clear pure white with pink stripes, and young plants produce flowers of immense size, which have a magnificent effect in a show-house or conservatory at this season.

—*NEPHROLEPIS DAVALLIODES* FURCANS.—Wherever a collection of Ferns is grown it should include a plant or two of this lovely species, which is a fine exhibition plant, and has few equals in point of attraction in the fernery. But this is not the season for exhibitions, nor is it so much the object to notice the especial merit of the plant in that sense as it is to recommend it as a basket-plant. As a basket Fern in winter it is exactly what is wanted, having beautiful cut fronds of drooping habit; in fact, a plant designed by Nature to fit a basket without artificial manipulation.

—HYGROSCOPIC PLANTS.—The remarkable hygroscopic properties exhibited by *Anastatica hierochuntica*, a Cruciferous plant, commonly called the Rose of Jericho, are familiar to many persons; but there are several other less known plants, inhabiting the same region, that possess the same properties in a no less degree, notably some Compositae. The most noteworthy of these is *Asteriscus pygmaeus*, a plant abounding in the plain of Jericho, which is inundated in winter. It has also been collected in Baluchistan and in the Algerian Sahara. Although in all the old works to which we have access, *Anastatica hierochuntica* is invariably given as the Rose of Jericho, DE SAULEY and MICHON, in their *Catalogue des Plantes observées en Syrie et Palestine*, question the accuracy of this determination, and suggest that *Asteriscus pygmaeus* (*Saualeya hierochuntica*) is the true Rose of Jericho. We are reminded of this circumstance by a record of this plant having been exhibited by Dr. ASCHERSON before the Botanical Society of Berlin. We do not know who first recorded the hygroscopic properties of *Asteriscus pygmaeus*, but DE SAULEY and MICHON's notice is the earliest we have seen. The plant in question is a practically stemless annual; and within a rosette of narrow leaves is seated a head of flowers; or sometimes there are several closely clustered together. When the plant has attained maturity, the leaves and bracts of the involucre dry up and persist; and so long as they are dry, they are tightly closed over the head or heads of ripe achenes. But on the application of water they spread out almost instantaneously, according to DE SAULEY and MICHON. On this account, and because they found this plant in abundance on the plain of Jericho, whereas they did not meet with *Anastatica* there, DE SAULEY and MICHON were led to believe that the *Asteriscus* is the plant known to the ancients as the Rose of Jericho. In support of this view it is stated that the *Asteriscus* and not the *Anastatica*, is represented in the arms of several French families dating back to the Crusades. It may be that both plants bear the same popular name in the same or different districts. In any case *Anastatica* grows in the plain of Jericho. Dr. ASCHERSON showed that the hygroscopic movements of *Asteriscus* are much more rapid than those of *Anastatica*, and though not as instantaneous as stated by DE SAULEY and MICHON, they open within ten minutes of being immersed in water. Another hygroscopic Composite from the same region is *Gynarrhena micrantha*—a very singular

plant, but structurally and in appearance. Like *Asteriscus pygmaeus*, it is an almost stemless plant, but it bears a large dense cluster of heads instead of usually only one. BOISSIER states that it is often buried in the moving sands, the tips of the bracts only indicating its presence. Many other plants that inhabit countries where the rainfall is very small possess hygroscopic properties in some form or other. Thus, in the large genus *Mesembryanthemum* the valves of the seed-vessels open and close under the alternate influence of wet and drought. Another property possessed by some, at least, of these plants is the rapid germination of their seeds when exposed to moisture and heat. The seeds of *Anastatica*, for example, will germinate in less time than common *Cress*. Dr. ASCHERSON incidentally called attention to the biological antifeed offered by *Carlinia acaulis*, in which moisture causes the bracts to close over the flowers, whereas in dry weather they are spread out and expose the flowers—an adaptation to the same end by a different means, to meet the exigencies of a different climate.

— *ACACIA DRUMMONDI* IN SMALL POTS.—Plants that bear a moderate degree of exposure and are not susceptible to much injury from a low temperature, are never too plentiful in the early spring months, from January to March. In this *Acacia* we have a flowering plant of considerable merit for all ordinary decorative purposes, but especially as a window plant, either by itself or in groups among other plants. Its peculiar foliage of rich glaucous hue is at all times pretty, and its appearance is of course enhanced when the plant is in flower. It flowers so freely in a small state under very gentle forcing, that gardeners and market growers should not ignore it as they generally do. There is no reason why a plant, which is looked upon as a good conservatory shrub, should not be grown of convenient size for indoor embellishment of all kinds, and the horticultural public would readily welcome a change which would in a slight degree relieve the sameness of material that now finds its way into the horticultural market.

— LINNEAN SOCIETY.—The papers to be read at the meeting on Thursday, February 16, at 8 P.M., are:—1, "Potato Disease and the Theory of Fungoid Parasitism," by A. STEPHEN WILSON, 2, "The Shells of Aden," by Lieut. J. F. COCKBURN.

— THE OLD DOUBLE WHITE PRIMULA SINENSIS.—It is not always that the law of the survival of the fittest applies to garden plants, or rather the law is artificially interfered with; but in the case of this fine old subject it does appear likely that it will long survive the newer double varieties of recent introduction, handsome as they undoubtedly are. For the past twenty years we have had, if not frequent, at any rate a fair addition of new double forms to our lists, culminating in Mr. GILBERT'S fine batch, but for habit, endurance, freedom of bloom, and great usefulness, none of them can claim such individual characteristics as the foregoing as they are seen summed up in the old double white. Mr. BARKON has now in flower at Chiswick a batch of plants that illustrate in a remarkable degree all the fine characteristics attributed to the double white *Primula*. What new variety of any colour furnishes a tithe of the bloom on individual plants? The blossoms of the new types are certainly larger and more symmetrical in shape, and used individually are of good service in bouquets and button-holes, but it is difficult to cut useful trusses of bloom as from the double white. The fact that the new varieties are but sparingly grown, while the old is grown more than ever, is another test of its greater popularity, and something must be said on the point of habit. How seldom one sees good plants of Mr. GILBERT'S new varieties. Those who grow the old double white to perfection can scarcely produce any thing like respectable specimens of the former. It may be that they have been somewhat severely propagated to get stock, and this frequently leads to constitutional debility. This may right itself in time, if the varieties remain long enough in cultivation to obtain greater vigour. Even then the wonderful profusion of bloom on the part of the old double white will make a popular plant, likely to survive several generations of gardeners.

— *LIBONIA PENNOSIENSIS* x.—This plant is not nearly so well known as the commoner variety, *L. floribunda*, which is a much taller grower, but is

not nearly such a bright flower for cutting as *L. pennosiensis*. Both require similar cultural treatment, but the latter will be found the most useful for basket or vase work. It also makes a very neat border plant for front rows of greenhouses arranged alternately with white Tulips of the Valley.

— A PRETTY WINTER COMBINATION.—This was formed on the front of a mansion by planting the red-berried *Pyracantha* against the semi-columns, or more prominent parts of the building, and a green-leaved Ivy against the panels. It will be observed that the *Pyracantha* has this season generally borne a rare crop of berries, that stand out in vivid aspect against the dullest weather and the most laden sky. The Ivy employed should not be too robust a grower or too large in the leaves, and which should be kept within bounds by careful manipulation, taking care to have it as fresh and green in winter as possible, when some leafy favourite of Nature on walls gives an agreeable contrast to the naked branches of deciduous trees. *Juniperum nuditiform*, *Cydonia japonica*, and the bright berried *Pernettya* might also be employed in association with Ivy, but give us the *Pyracantha* for choice.

— LOCAL CONDITIONS IN RELATION TO THE EFFECTS ON PLANTS OF THE SEVERE WINTERS OF 1879-80 AND 1880-81.—The uncertainty of the effects of frosts of the same intensity has often been recorded, and it has been ascribed to various causes. Yet after all it is very dangerous to generalise on the subject, as the experience of the last two winters shows. We can safely say that the frost killed certain trees and shrubs, but often we cannot define the conditions under which they would not have been injured, or if injured, not killed outright, by frost of the same intensity. How often has it happened that of a number of individuals of the same species, intermixed and apparently equally vigorous, and under precisely the same conditions, some are killed, some more or less injured, and some remain uninjured. Of course, although the conditions are apparently the same, and the degree of vigour apparently the same, yet differences must exist, and each case can be differently explained. It is well known the two seasons named were very disastrous in Paris and its environs. M. PISSOT, the Conservator of the Bois de Boulogne, has a very lengthy article on the losses sustained in the Bois, specially examining the local conditions, &c., in which he refers to the *Revue d'Arbiculture*, which will interest some of our readers, but it is too long to give even a summary here.

— GEONOMA SCHOTTIANA.—This is one of the best of Palms for decorative purposes and furnishing generally. It is handsome, graceful in habit, and withal a plant that the most fastidious taste could hardly take exception to. Plants for decorative purposes have to be taken at a certain stage of growth, their real beauty is to be enjoyed to the full. The plant in question is often disposed in a small state, as well it might be, for it never develops its real leaf beauty until it is well grown in a 32-pot.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending February 6, issued by the Meteorological Office, London:—The weather during this period has been characterised by overcast skies and dense fogs and mists, which very little rain has fallen. Temperature has been a few degrees above the mean for the season in Ireland and Scotland, equal to the mean value in the south-west, west, and north of England, and slightly below it elsewhere. The maxima varied from 48° in "England, E.," to 55° in "Ireland, S.," while the minima ranged from 21° to 28° over England, 27° to 30° in Scotland, and 32° to 34° in Ireland. Rainfall has been much less than the mean in all districts. Bright sunshine shows a very slight increase; the percentages varying from 32 in "England, S.W.," and 27 in "England, E.," to 7 in "Scotland, W.," Depressions observed:—The barometer has continued highest in the east and south-east parts of our area, while a few depressions have passed northward or north-eastward outside our westward and northern coasts. The wind during the first two days was fresh or strong in force, but afterwards continued moderate or very light. In direction it was generally from between S.W. and S.W., but towards the end of the period it became very variable, especially in the east and south-east.

— GARDENING APPOINTMENTS.—Mr. W. J. GARDINER, late of Broxbournebury, Hert's, has been engaged as Gardener to A. DOUGLAS, Esq., Chilstone Park, Sandway, Kent.

JOTTINGS ROUND SURBITON.

GLENCAIRN, the residence of J. H. Bryant, Esq., Surbiton Hill, is noted for its extensive ranges of fruit-houses, many of which are erected on Rendle's patent system, and produce excellent crops of fruit. The principal display of flowers is in a vinery where the Vines are at rest. The plants are grouped upon a stage running parallel with the back wall of the vinery and consist of samples of the double flowering Peach, with its large double blossoms so charming for cutting in mid-winter; a fine show of *Azalea mollis*, and other early *Azaleas*, *Spiræas*, *Primulas*, *Hyacinths*, *Lilæes* (Percy) forced in small pots, *Epiphyllums*, and large plants of *Imanophyllum* miniatum. Such a choice collection of flowers gathered together in a cool fruit-house is highly creditable at this season, and shows what can be done by a practical man by the exercise of intelligence and forethought. There are several small plant-houses in which there are what gardeners commonly call "choice lots"—something to surprise your neighbour when he comes to visit you, and perhaps to yield no small pleasure to the cultivator as well. There is one plant which is a very fine example of its kind, an *Anthurium Scherzerianum* over 4 feet in diameter, and with leaves 14 inches long, and more than 3 inches in width. This plant is said to be "Daines' variety," and is a specimen far too good to be long kept in obscurity. That graceful Fern-like plant, *Paulownia thalictroides*, is grown for training round baskets of flowers—a purpose for which it is eminently adapted, but the plant is not common enough in our gardens, at any rate in large gardens where there is much furnishing to be done, and not over-much to do it with. *Rogiera cordata* is coming into flower, and there are several *Orchids* producing flowers in abundance, which hang gracefully among Ferns of the greenest green, and bordered with *Gloxinias* in flower, mosses and Ferns of the dwarf Maidenhair type, and small foliage plants, rare of their kind and beautiful to look upon.

ANGLISEA HOUSE.—This garden is chiefly notable for its collection of specimen plants, the property of F. A. Davies, Esq., which are well known at some of the leading exhibitions round London, but especially in the neighbourhood of Surbiton, where they are grown. The best specimens consist of hard-wooded *Ericas*, of which *E. tricolor dumosa* is over 5 feet in diameter, and is in fine form for exhibition. The plant flowers about May, and a photograph of it shows what a picture it must be when in bloom. Among other specimens I noticed a noble sample of *Erica Cavendishiana*, *E. ventricosa coccinea* minor, said to be the finest plant in England, except one in the collection of J. F. Greswolde Williams, Esq., of Worcester; *E. Lindleyana*, *Darwinia tulipifera*, *Erica Bothwelliana*, *E. tricolor* Wilsoni, *E. Afioni* Turnbulli, and *Dracophyllum gracile*. The collection is altogether in superb health, as also *Azaleas*, a choice selection of specimen and half-specimen Ferns, and *Orchids*. In the *Orchid*-house many plants are in flower, including *Zypetopetalum Mackayi*; *Lælia* anæther, with from seven to ten spikes on a plant; *Oncidium*s, *Phaius* Marshalli, and several *Dendrobium*s and *Cypripedium*s. The conservatory is bright with *Azaleas*, *Deutzias*, *Epacris*, and other spring flowers, clearly showing that the specimens do not receive all the attention. The collection has been under the management of Mr. Hinnell for many years, and great credit is due to him for the skill and pains he has taken in cultivating the plants, many of which have been nursed by him from their infancy.

ALBURY HOUSE.—This is one of the most charmingly designed and situated of suburban gardens, the seat of Mrs. Dunwich, Surbiton. The approach to the house is spacious, and as trim and neat as hands can make it. The shrubs bordering upon the drive are of the most select kind, but the principal objects are two fine berried *Aucubas* upon either side the front door, planted in grass. These plants have in former years borne large clusters of berries which, when coloured, have been delightful objects to look upon, the variegated leaves of the plants being large and healthy, showing off the clusters of rich coral-red berries with good effect. The boundary walk curves naturally, and the trees and shrubs are so disposed as to give privacy, shelter, and an artistic appearance to the whole arrangement.

Where it has been found necessary to block out unsightly objects the trees or shrubs employed for the purpose have been chosen of the graceful type, thus combining the useful with the ornamental. For example, where a shrubby border has been raised, and hardy or common plants have been used to break the force of the winds, a zig-zag row of the graceful *Pinus excelsa* is planted in front on the grass lawn, leaving the walk intervening between the shrubbery and the more ornamental plants. Farther on in a corner of the grounds seclusion and shade are provided by a handsome weeping Ash trained umbrella-shape—a perfect model of its kind. One might enlarge upon the skill displayed in many quarters of the grounds, but suffice it to say that the garden is bright in variety, and contains many examples of choice shrubs. The flower plots, too, and the terrace garden, afford sufficient scope to have spring and summer flowers in any variety without disturbing the balance of parts or the unity of the arrangement as a whole. The conservatory is large, relatively rather too large in proportion to the extent of the place. It adjoins the house, and is gay with *Acacias*, *Camellias*, *Azaleas*, and other seasonable flowers; stands for pot plants are fixed round the sides of the building, and in these the choicer kinds of flowers are arranged in groups, chiefly in pairs to match—*Primulas*, *Cyclamens*, and *Echeveria pulverulenta*, which is a perpetual bloomer throughout the winter. The fruit and plant houses are faultlessly arranged and equally well kept; there is not a brush out of place, much less a plant, in this trim, well-kept garden. A group of *Carnations* (*Souvenir de la Malmaison*) struck me as being very well done in 6-inch pots, grown upon single stems, each bearing half a dozen flowers at the opening stage. Winter-flowering *Begonias*, *Felargoniums*, as, indeed, stove and greenhouse plants generally, are well grown in successional order, and in sufficient quantity to keep up a regular and constant display of flowers and plants for general decorative purposes, which is the prevailing fashion now-a-days in every private garden. The fruit-houses yield heavy crops annually, and hardy fruits and vegetables are also successfully grown, and of approved quality. *Visitor*.

WHITCHURCH RECTORY.

MR. NORMAN has his favourites near at hand, for adjoining his study, from which leads a door, is the first *Odontoglossum*-house—a lean-to, some 60 feet in length, facing northwards, filled principally with *O. crispum*; Ferns growing on rockwork cover the back wall. There is a stage about 4 feet wide running round the front and half-way along the back. On this stage there are about 1500 examples of *O. crispum*; many of them are large plants of some years' growth; the bulbs on some of the specimens are from 4 to 5 inches long, and correspondingly thick; the foliage is bright green, with a metallic blue, indicating the best condition of health. Suspended from the roof are about 60 good-sized baskets of *Masdevallias* of the *chimera* and *bella* type. I noticed also half-a-dozen fine plants of *M. chimera*, represented by the collector to be the true variety; it differs from the ordinary form in having the terminal threads of the sepals much larger, and the flowers of a brighter colour.

Here, likewise, is a very extraordinary variety of *Masdevallia*, which Mr. Norman calls the *gnat*, or *M. culex*; the flowers have not yet been subjected to the opinion of the great authority in Orchid nomenclature, Professor Reichenbach. It is always in bloom, and throws a long, branching, thread-like spike, which bears flowers on every branch, the flowers having a life-like resemblance to a large spotted gnat. They are suspended on stems no thicker than a thread, and all but invisible. This is a very curious plant, and I suspect quite new. Mr. Norman informed me that it was imported from the United States of Colombia. There are also good baskets of *M. Vesperalis*, the singular flowers of which resemble the face of a bat; *M. Nycteria*, *M. tovarensis*, &c. Over the central path is trained a good specimen of *Lapageria rosea*; it is grown in a large pot, and its stems run over the path. Under the stages, as well as over all the walls of this house, Ferns luxuriate and grow in abundance.

From this I passed into the show-house, which is furnished with plants in bloom all the year round. *Masdevallia tovarensis* was here well-flowered, and many other winter-blooming plants. Preceding on-wards there is another house entirely filled with *Odontoglossum*

crispum in fine health. There are not less than 3000 plants in this house, many in bloom, amongst them being some extremely beautiful varieties, with spikes of from twelve to fifteen flowers; in one plant the individual blooms were $\frac{3}{4}$ inches across. As known to cultivators, this *Odontoglossum* is remarkable for the endless variety of form and markings in its flowers, so much so that it is almost impossible even in a large collection like the one under notice to find any two alike in every respect. The texture of the flowers, which makes them so enduring, their purity of colour, and the variety of marking in all the parts renders it one of the most charming and popular of all the Orchid family. It is also a plant so easy of cultivation that its popularity is likely to increase, and the demand for it to become still greater than it already is.

We now come to a span-roofed house with a centre table and a stage all round. This house is occupied by *Odontoglossums* and cool-growing *Oncidium* of many kinds; as also *Masdevallias* in variety, noticeable amongst them being a few plants of *M. Reichenbachiana* which first flowered with Mr. Norman in 1875. This is the only collection I believe in which it has appeared; it was shown by Mr. Norman at a meeting of the Royal Horticultural Society, South Kensington, and certificated. Its flowers are of the most fantastic shape, bearing a resemblance to a stork with its head and bill resting on its breast when seen in front: the colour is yellow, orange, and red. There are also a few plants of the true *M. elephantipes*, introduced by the New Plant Company, Colchester, of which Mr. Norman holds the stock; *M. ignea* or *coccinea*, in large masses in bloom, one specimen having over thirty flowers; *M. infracta*, *M. Wagneri*, *M. trochilus*, very fine—leaves, including peduncle, 14 inches long by $2\frac{1}{2}$ inches broad, and with a large flower-stem; *M. Shuttleworthii*, bearing six flowers; a fine variety of *M. Harryana* and *M. Veitchii*: these occupy one side of the house. *Oncidium macranthum*, many varieties with large spikes, *Odontoglossum triumphans*, there is also in bloom the variety of *O. luteo-purpureum* scepterum, introduced by Mr. Sander; and *O. polyanthum* has flower-spikes. This plant will always be scarce, it is most difficult to import alive, and difficult to establish when imported. Many thousands have been imported of late years, but few have survived the ordeal of the long journey. In this house *Maxillaria grandiflora* was blooming; it is as beautiful as *Lycaste Skinneri* alba.

In the next house are some good plants of *Cymbidium eburneum*, with spikes containing three and four flowers each. These have been grown with the *Odontoglossums* and are in the best of health; it is not long since this Orchid was here grown with the Cattleyas, it is now found that its proper temperature is with the *Odontoglossums*. *Dendrobium Wardianum* is grown under the same conditions, and is quite as successful; *Coclogene cristata* is also here in fine masses with large bulbs, and bristling with flower-spikes. Then comes another span-house filled from end to end with healthy plants of the popular *Odontoglossum crispum*, the stock of this species alone consisting of from 7000 to 8000 plants. In this collection I was much struck with the very large number of hybrid varieties of *Odontoglossum*, varying in colour from light primrose to rich dark yellow, and spotted in every conceivable way. They are principally natural crosses between *O. crispum* and *O. gloriosum*, and are very interesting.

From this we enter the vinery. The three favourite varieties of Vines grown here are Tynningbame Muscat, Black Alicante, and Victoria Hamburg: these supply fruit from September to Christmas. In this house there is a centre bed, 20 feet by 12 feet, which is filled with two large plants of the old white *Camellia*, in excellent condition, 10 feet high, and covered with flowers.

The Cattleya-house has a sunk path and stages on both sides. It is kept damp in winter as well as in summer, the sphagnum on the plants being just wet enough to maintain its verdure. The night temperature is about 60°. I noticed that the pots were crocked nearly to the surface, and that the peat-fibre and moss used did not exceed 2 inches in thickness; the roots of the Cattleyas and *Laelias* were growing through it, and penetrating amongst the crocks and round the outside of the pots freely.

There are some fifty plants of *Cattleya gigas*; many

of them bloomed last autumn, and are now at rest; their foliage was all that one could desire. *C. Imperialis*, a variety of *C. gigas*, and *C. Normanii* are also here. *C. Dowiana* is represented by about forty examples, some with from seven to ten leads, several having flowered in the autumn. Two plants of *C. exoniensis*, the finest of Mr. Domy's hybrids, were in bloom, one with white segments, and the other of a dark colour. Here, also, were several small plants of the autumn blooming variety of *C. labiata*, which is very beautiful, and now scarce. Mr. Norman is a well-known admirer and successful grower of Cattleyas, and in his collection are many of the new varieties introduced recently, which we hope to hear a good account of at no distant time. In addition to these are many rare Cattleyas, including several of the *C. speciosissima* section, amongst which are *C. Bassettii* and *C. Dawsonii*, both extremely scarce. There are some select varieties of *Phalenopsis*, which are now showing large branching spikes; and there is likewise a selection of the East Indian species, but the collection consists principally of the cooler and intermediate kinds.

There is one feature which I ought to refer to before I close, which is, that in preparing the peat for potting, every particle of earth is shaken out of it, and nothing but the fibre is used with sphagnum. Of this mixture only a thin layer is employed; beyond this the pots are wholly filled with drainage material. With the different varieties of Orchids so treated the best results ensue, and I have scarcely ever passed through a collection in better cultivation than this. Mr. Cowley, who has for some time had charge of it, is to be congratulated on his success. A matter especially noticeable is that the plants, with their pots, the stages on which they stand, and everything in the houses collectively, evince such scrupulous cleanliness and order as are rarely met with, and which doubtless contribute in no small measure to the general healthy state of the stock. Since last I saw them the stages in the various houses have been raised nearer the glass, so as to afford more light to the plants—a condition which for many years, when referring to the cultivation of Orchids, as well as almost all other plants, I have never failed to urge the necessity of. *T. B.*

HANGING BASKETS.

Of these it may almost be said that they are going out of fashion, and yet, when well planted and carefully looked after, they are objects of beauty, and have a special fitness of their own in a conservatory. It is now so much the practice to plant greenhouses with creeping plants which, like *Cobaea scandens*, *Tacsonia van Volxemi*, and others of like character soon cover the inside of a house, and droop their shoots in natural and elegant festoons, that hanging-baskets are scarcely needed, and yet they fulfil a very useful service. In corridors and halls of dwellings where there is sufficient light and warmth to keep the plants in good condition their presence is in harmonious contrast with the surroundings.

The great thing is to plant judiciously, using subjects that will stand well in such places as permanent objects. At this season of the year, when there are plenty of Hyacinths, Tulips, *Begonias*, and other winter and spring flowering plants in blossom, some pretty designs of a temporary character can be formed, and when first planted should be hung up in a temperate house for a few days before being taken into the dwelling. More enduring arrangements can be formed of such plants as *Ficus elastica*, *Aspidistra Ludia variegata*, the hardier *Dracenas*, the common Creeping Jenny, variegated *Saxifrages* of prostrate or pendulous growth, and others too numerous to mention. The selection of subjects must depend on the position the basket is to occupy, and the degree of warmth and light generally present. Gas, too, has to be reckoned with, and this, while only less injurious to foliage, is very hurtful to many flowers. As hanging wire baskets are constructed with movable zinc bottoms to hold moisture and prevent it from dropping on to the floor, there is no reason why a hanging-basket should not occupy a handsomely furnished room.

A little experience is an excellent teacher as to the proper selection of plants. Many schedules of prizes of horticultural societies contain a class for a hanging-basket of plants, and when the tent or building in which the show is held is sufficiently elevated, a line of handsome hanging-baskets is an attractive feature.

It sometimes happens that no provision is made for suspending these baskets, and they have to be fixed in position as best they can. The managers of a show should always provide strong cords with which to suspend the baskets over a strong rafter in the tent, taking care to have them on the same level and not on too great an elevation. It should always be a condition of a competition of this kind that the baskets be filled at least a month before they are exhibited. In the absence of any such condition exhibitors will fill their baskets in a very effective manner and with great taste the day before the show is held. The result is, that if the weather be hot and drying, the plants, turned out of their pots, and the soil reduced, occupying an elevation in the hottest part of the tent, soon flag and become unsightly objects by evening.

When baskets are temporarily filled in this way it should be done with plants growing in pots, so that no flagging can ensue. Of all hanging-baskets probably none can compare for effectiveness and continuity of display with those filled with *Achimenes*, which Mr. Speed cultivates at Chatsworth with such marked success. They are none the less successes on account of their great size, and this is quite in keeping with the houses in which they are suspended. A hanging-basket of *Achimenes* might prove a good feature in a schedule of prizes.

A NEW VARIETY OF PEZIZA AURANTIA.

PEZIZA AURANTIA, Fries., is one of the best known because one of the commonest and most beautiful species of fungi, never failing to attract the attention of all who love woodland scenery. It is very constant in its general characters, but is apt to vary a little in shape, owing to its often crowded condition, causing two or three individuals to interfold in such a manner that they may easily be taken for one. Though the cups are often oblique, the one side outgrowing the other, the normal form is that of a saucer, with a somewhat undulating margin, as represented by Bulliard, in his excellent figures F, A, H, plate 474. The colour of the disc varies but little, ranging from bright to dull orange.

The most constant character is found in the sporidia, which are invariably elliptical, and coarsely asperated, often possessing a projecting, oblique spike at each extremity. My friend, Mr. C. B. Plowright, of King's Lynn, has sent me fresh specimens of this species, presenting a feature I have never before observed in the hundreds of specimens I have hitherto gathered. The microscopic hairs of the margin, seen best in young specimens, described by Fries in these words, "Margine primo subtiliter villosa," which are nearly colourless in the common variety, are in these Norfolk specimens nearly black, forming a dark margin to the cups. These hairs are very obtuse and stout, dark brown by transmitted light under the microscope, having three to four septa. They spring from comparatively large cells, the walls of which are also dark brown.

I cannot detect any morphological difference between Mr. Plowright's specimens and the common form of *P. aurantia*, but the black-brown hairs form a conspicuous character even to the naked eye, and which, therefore, deserves to be noted. We propose to distinguish this variety thus—*Peziza aurantia*, Fr., var. *atro-marginata*, Ph. and Pl.

In looking over some of our older English authors I find that *Peziza aurantia* appears to have attracted notice at a very early date. In Dr. Christopher Merrett's *Pinax Rerum Naturalium Britanniarum*, 1667, at p. 43, I find the following:—"Fungus rotundus scartatinus odoratus. At Church Leung, Worcestershire," which I take to be *P. aurantia*. The agreeable odour of this species reminding one of *Cantharellus cibarius*, Fr., the colour also of which is similar, and may have some connection with the odour, is a very striking character. The species described on p. 42 as "Fungus rotundus superne convexus et translucidus coloris succini, in Mr. Morgan's garden" may be *Peziza vesiculosa*, Bull, and the other immediately following:—"Et alter coccineus coloris, in St. James's Park, in the winter time on old decayed trees" is probably *Peziza coccinea*, Jacq. W. Phillips, *Shrewsbury*.

TRADE MEMORANDUM.

CAN any one oblige us with the present address of Ambrose Knight, who in November last resided at Wallyheat, near Dudley?



HOME CORRESPONDENCE.

Root-space for Vines.—Readers of the horticultural journals who read them with the intent to practise all the teachings therein recorded must surely sometimes be in a state of great perplexity, seeing that what one writer this week advises another is just as likely to condemn in the issue of next week, and yet both writers have doubtless given a faithful record of their own practice on the subject in question, and though the writer of this (being a practical gardener) may not be considered a disinterested person, he ventures to express the opinion that his compeers are far too honourable a set of men to, knowingly at all events, attempt to mislead any one. If such be the fact, and it is, how shall we reconcile the discrepancies, contradictions, and the constantly recurring record of contrary opinions and practice? Why, simply by the use of brains. To read what one says and does is all very well, but if unaccompanied by thinking for oneself such reading will prove of little avail; happily there are few gardeners that can be placed in this last category, hence their differing practices ending as a rule in results of equal merit. These remarks were suggested by a paragraph in the notes on "Grape Growing at Wheatstone," p. 78, which runs thus:—"The older Vines, some of which have been in between twenty and thirty years, are mostly in borders of ordinary size, that is, with a considerable space wherein the roots can extend, whilst those that have been planted more recently have borders unusually limited in extent—not more than 6 feet wide by 4 deep—beyond which the roots cannot get," and yet the crops of fruit from both examples of borders have been satisfactory. To a superficial thinker a very natural thought on reading this would be, If from 6 feet borders I can get the same amount of Grapes as from 20 feet, it is surely not worth my while to be at the trouble of making borders of the greater width. Nor is it, provided that—ah! easily led friend, that "provided" should be your finger-post directing you to, as it were, re-measure the two borders: they are made differently, and treated differently, that is, each according to what is required or expected of it. For instance, it would be unreasonable to suppose that any one would think of restricting the roots of Vines to 6 feet and not use means to feed them more liberally than in the case of those in larger borders; and equally unreasonable would it be to expect root-restricted Vines to continue for as long a period in a vigorous state as those that had, comparatively speaking, unlimited root-space; but by varying the treatment to the wants of each just as good Grapes can be grown in one way as in the other. Having tested both ways, and that with a fair amount of success, we give preference to the larger borders, solely on the question of labour and materials; could we have these without stint then unhesitatingly we should adopt restricted borders and go in for high feeding and frequent renewal of Vines. Precisely the same rules are applicable to inside *versus* outside borders, but it may be added that the former are now generally admitted to be the best for very early and very late Grapes, for the obvious reason that extremes of weather cannot affect them. *Vitis*.

Boxwood Labels.—A few weeks ago I recommended Boxwood labels, and a week or two afterwards a note appeared from a correspondent saying that he found them generate mildew. I am sorry to say that I too now find this to be the case, but only when the labels are used in a frame or house; on those used in the open air, which have been out for many weeks, I can see no trace of it. Still I am unwilling to give up the use of these labels in pots without further trial, and I am told by an authority on such matters that soaking the labels for a few days in a weak solution of chloride of zinc will effectually prevent their ever generating any mildew. *C. Wolley Dod, Edge Hall, Malpas*.

Abutilons in Tubs.—Perhaps there is no flower cultivated during the winter months that is of more service to the florist and bouquetist than the *Abutilon*, especially the white variety, *Eoule de Geige*. What is useful to the florist is equally useful to the private gardener, though it is doubtful whether the latter is as ingenious as the former in manipulating flowers and turning them to good account. But it is some-

thing to possess them in abundance, and this the ingenious florist can manage to accomplish in an unpretentious way, which sometimes evokes the admiration of critics. It is well known that *Abutilons* make marvellous growth when planted out, and bear flowers in proportion to their foliage, but the florist wants quantity rather than size, and so he steers a middle course in his system of cultivation. I lately saw two fine plants growing in tubs quite a picture of white flowers, and as large as an ordinary-sized *Camellia* bush. The bottoms had been knocked out of the tubs, and the plants were rooting in the border underneath. The tubs had been in common use, and were practically valueless except in so far as they answered the florist's purpose in restricting the vigour of the *Abutilons*. *W. Hind*.

Early Strawberries for Market.—"Market Gardener, Darlington," in search of a very early Strawberry, had better try *Doncan*. I planted in the open some of this sort in February last year, and its fruit was ripe five days before that on my established plants of *Black Prince*, for many years past my earliest, and five days at the beginning of the season is a very great advance. With me *Vicomtesse d'Artois* is little earlier than *President*. *Philobolus*.

Magnesium Salts: Their Influence on Vines.

—A case of considerable importance in Vine culture has just occurred here, which, I think, will be found generally interesting to the readers of this journal. A gentleman, possessor of a valuable system of vineries, became alarmed at the condition of the Vines in two extensive hothouses. The Vines in these two houses had yielded excellent crops last season, and being young, well grown, and vigorous, high hopes were entertained. The Vines were started earlier than usual, but not earlier than is the custom with some growers here; at present they show a fair amount of foliage and a promising crop. The week before last the gardener (a most intelligent and successful one, and thoroughly up to his work) noticed that the Vines began to flag, the leaves drooped and the whole appearance gave evidence of root mischief. The roots were bared and it was found that the root-fibres were softened and decaying. It was also evident that new rootlets were forming but these lacked the usual vigour and would not succeed in taking the place of the decaying ones. The gardener at once saw that the mischief was in the borders, but was conscious of no fault in their treatment. Just at this time he noticed that the steaming trays were producing clear crystals, and that they formed rapidly. He then suspected the water which was being supplied to the Vines, and procuring a sample from the tanks and some crystals from the trays hurriedly brought them for an opinion. I found the crystals to consist of clear deliquescent masses containing a large percentage of chloride of magnesium. The tank water contained small quantities of lime, potassium and sodium salts and large quantities of magnesium salts, the water giving very heavy magnesium precipitates without concentration. The cause of the mischief being thus indicated, no time was lost in washing the borders with pure water, followed by suitable dressings of chemical manure, with the effect, I am glad to say, of a decided improvement, but it is still too early to speak of ensured success. Having done all in our power for the Vines, a visit to the estate and analyses were undertaken with a view to discover the source of the magnesia. The following are the facts elucidated and conclusions arrived at. As regards the water supply:—(a.) The estate is within 200 yards of the sea. Every breeze and gale covers the glass-houses with marine saline deposits, and these, of course, find their way into the tanks with the rain. This, of itself, cannot be the source of the magnesia, common salt being present in too small a proportion. (b.) The water from a well (supplied to the houses and tanks by a steam pump) was found to contain only the equivalent of 3 grains of oxide of magnesia (MgO) per gallon. (c.) A natural spring dripping from the face of the rock and collected in a narrow pond formed the third supply, which was used occasionally only. This was tested *in situ*, and gave decided indications of magnesia, of course without concentration. This had been supplied to the steaming tanks on the morning of my visit, and from thence I obtained concentrated water, which gave precipitates of magnesia. The Vines have inside borders, which are provided with bottom pipes. The tanks are two in number, and are warmed by waste heat as follows:—The first is built behind a boiler-house, and becomes heated to from 56° to 60° F. The second (of much greater capacity) is warmed by the hot-water pipes in its house, but this source of heat can be used as required. The moderately warm water thus obtained is used on the inside borders, and last season the system proved an unprecedented success. The water from the tanks contained, on the discovery of the mischief, quite ten times the amount of saline matter of any

water on the premises, hence I conclude that a gradual concentration takes place, until at last the water is strong enough to be injurious. It must not be forgotten that no rain has fallen for three weeks, therefore nothing interfered with the concentrating process. The preventive is evidently the periodic examination of the tank-water, and if necessary the emptying of the tanks. The underlying rock is metamorphic; the wells in the district are all more magmatic than the remainder in the island. *Adolphus Cellens, Guernsey.*

Vines and Camellias in the same House.—It can hardly be said to be anything new to grow Vines and Camellias in the same house, but perhaps two more profitable crops cannot be grown together, in which the cultivation of the one does not interfere with the wellbeing of the other. At Ashley Park, the seat of J. S. Sassoon, Esq., Walton-on-Thames, Surrey, Mr. Sutton has been cutting Camellias since last August from plants trained upon the back wall of a viney, and also from others planted out in the body of the house. The display of flowers does not appear to diminish, every day bringing forth a fresh supply of open buds. The Vines are of course planted in an outside border. Admitting that the viney is occupied the whole year with the Vines and Camellias, the latter being planted out, it is more than doubtful whether an equal return would be obtained by any other arrangement. There is a front stage over the hot-water pipes, which is convenient for stowing bedding plants in winter, but, with this exception, the Grapes and Camellias are the only crops which can be attempted to be grown in the house. The present would be a good time to proceed with such an arrangement. Whatever Vines are to be forced or whether they are only to be partially assisted with fire-heat the Camellias should be planted in time to be started along with them in order that both may keep their growth together, and by the time the Camellias require shade the Vine leaves will supply it free of cost, and as they colour and drop in the autumn light will be again admitted in sufficient quantity to assist the flower buds to develop at a rapid rate. The duration of the blooming season is prolonged because of the additional growth the plants make when planted out, and in houses that are forced a little early the flowers come in at a season when they are most valuable. Mr. Sutton, who is an excellent fruit and plant grower, speaks highly of the system, and the results as seen under his management bear out his words to the letter. *H. Z.*

Strelitzia Regina.—I was pleased to note a short paragraph at p. 86 referring to this somewhat singular and interesting old Cape plant. From the fact of its introduction from the Cape of Good Hope in the year 1773, and its naming in honour of Charlotte, Queen to George III., of the house of Mecklenburg-Strelitz, it may also be said to have some claim to be regarded as a historical plant, and as one which is worthy of cultivation in the most *recherché* collection of stove and greenhouse plants. In the gardens of T. Isherwood, Esq., Springfield House, Leywood, Manchester, there may be seen at the present time a grand old specimen with seven spikes; last year it bore five spikes, and four in the preceding year. When a plant flowers for a few years in succession like this, it is evidently receiving the right treatment, and doubtless many of your readers who are not quite so successful in flowering it as Mr. Sylvester, the gardener at Springfield House, may be glad to become acquainted with his *modus operandi*. The secret of success in this case—as in countless numbers of others—is in a nutshell, so to speak, and is as follows:—Cool temperature but full exposure to the sun's rays at all times; plenty of water overhead and at the roots (except in the period not exceeding a fortnight in the year of compost being needed than good fibry peat mixed up with plenty of potsherds and silver-sand. It may also be remarked that the plant in question is put into a cool viney in August; there it remains until the flower-spikes appear, then it is removed to the conservatory. From this it will be seen that the words "full exposure to the sun's rays" must be taken in a comparative and not in a literal sense, as there is a slight amount of shade afforded by the leaves of the Vines. *H. Z.*

Sparmannia africana.—I was much pleased to see this useful old favourite taken notice of in your last issue, and would advise all who have a conservatory to keep somewhat respectable during the winter months to give it a trial, and I am sure they will be pleased with it beyond their expectations. It is most easy of cultivation, and is not at all particular as to soil, but a mixture of good fibry loam, leaf-soil, and well decayed manure, with an addition of some coarse sand, seems to suit its requirements as well as anything. It should have an abundance of drainage, and also an abundant supply of water at the roots, and liberal additions of liquid manure during the flowering season. It flowers profusely in 48 or 32-sized pots, but is far more effective when grown on to large specimens, say in 10 or 12-inch

pots. We have a large plant here, about 8 feet high, which has been in flower since November, and even now it seems only at its best, and as there are still a large quantity of unopened flower-buds we may reasonably expect it to flower on for the next four or five weeks. The flowers are not very serviceable in a cut state, but for associating with *Chrysanthemums* and especially *Camellias* in the adornment of a conservatory, especially a large one, during the winter months I know of a no more useful plant. *The Fraser, The Gardens, Gordon House, Isleworth, February 7.*

Mice in Gardens.—The field vole (*Arvicola agrestis*), to which allusion has been made by Mr. Dod (p. 119), has been very troublesome hereabouts during the past winter, and in spite of the almost entire absence of snow has in some instances done irreparable damage by barking shrubs, &c. In the month of November I saw what would have been a beautiful house of late *Chrysanthemums* but for these cut depredators, whose apparent liking to these plants led them to nibble almost every plant to such an extent as to render them useless. They have also a particular fancy for gnawing the hearts of Lettuce and Endive. I would recommend Mr. Dod to try the old-fashioned figure-of-four trap as a means of assisting his wensels to rid him of these tormentors. I have seen them caught in this way. A cat will sometimes do good service towards their extirpation, having seen as many as five and six dead ones on a morning lying about that had been caught during the night. *E. Morgan, The Brits, Harrow-on-the-Hill.*

Blackbirds and Slugs.—With reference to the note in your journal for February 4—"Blackbirds and Slugs"—I notice in Montague's *British Birds*, edited by Newman, that the author states:—"The blackbird's food is chiefly worms and shelled snails; these last are most dexterously broken against a stone in order to get at the animal. All kinds of insects and fruit are also eagerly sought after." In the latest edition of Virell's *British Birds*, edited by Professor Newton, the author writes:—"The food of the blackbird is considerably wider than the season. In winter it will resort to the farmyard, and vie with the sparrow in its diligent search for scattered grain and seed. In spring and early part of summer it feeds on the larvae of insects with worms and molluscs; as the season advances it exhibits a great fondness for fruit, and its constant visits to the garden are apt to bring upon it the vengeance of the short-sighted gardener. When, however, the enormous number of insects, slugs, and snails—injurious to vegetation, and eaten by the blackbirds throughout a great portion of the year—duly considered, it is pretty plain that the value of the fruit consumed during a few weeks only is counterbalanced by the services performed." In my school-days I used to keep blackbirds; their chief food was worms—I don't think I ever gave them berries or snails, but fruit, especially Cherries and Strawberries, of which they are very fond; neither have I ever noticed blackbirds eating snails; for this reason, perhaps, they are shy birds, and like shrubberies, &c. Thrushes will eat any number of snails in confinement. I have placed a snail flat stone in their cages, and the snails—the birds will seize them, knock their shells against the stone, which is soon broken, and the contents as readily devoured. I suspect blackbirds would do the same in confinement. *John Colebrook, 13, Whitby Street, Lothians Square, S. W.*

Quick Hedges.—I see in your last issue an inquiry as to whether it is right to cut down quickset at the time of planting, so as to make a good hedge. Allow me to say that from experience I do not think it desirable to do so, as the plants generally break readily if thus treated. The plan that I have adopted to answer best is to let them have one year's growth before cutting them down. Plant now, and cut them down with a sharp knife in a year's time. Keep them free from weeds, and stir the soil round them three or four times during the year, and they will break much stronger and make a good hedge in less time than those cut down when planted. *John Charlton, Stammer Vale Nursery, Tinsbridge Wells.*

Decrease of Several Kinds of Small Birds.—The effect of the three past severe winters appears to have made a marked difference in the number of small birds, both native and migratory, which usually inhabit our northern woodlands, and are so commonly seen on hedgerows, orchards, and fields around our dwellings. For a number of years previous to the winter of 1878 starlings had become very numerous all over the North, while considerable numbers remained here all the winter. At present there are none to be seen, and even through the summer months very few were to be distinguished. This is very generally regretted by farmers and others. It is very probable that the fact of their being a grub and insect feeding bird they do much good during the spring and summer months. Their common resort is about houses, farm buildings, and holes in trees during nesting time, and they are

consequently of a tame and familiar character, somewhat resembling in this respect the house sparrow. During the period of catering for their young, it is no uncommon affair to see them settled upon the backs of sheep both while grazing and lying. I believe them to be perfectly harmless in gardens. Their soft sweet notes when congregating together in the evening before roosting time were very enjoyable and interesting. The skylark is also another sort of bird that has become very much reduced in numbers; and as it is one of our sweetest native songsters, this is a subject of very general and common regret. The song thrush being a migratory bird during severe winters, is also very much lessened, and few were seen returning last spring to their usual breeding haunts. Their garden companion, the blackbird, was, however, plentiful enough through the spring and summer months. From their habits through the winter months being different, they did not become decimated to so large an extent; being evidently a bird not well adapted to take long flights, like the thrush, they remain where they are feared, and find food about ashpits, pigsties, &c. Amongst the greatest blanks, however, to our northern shores is the almost entire absence of the Norwegian fieldfare and the redwing, which used to visit us by the thousand. This winter none of the former has been seen, and very few of the latter. Bullfinches, siskens, crossbills, and most other kinds of small birds are very much reduced in numbers, and show the disastrous effects of the long protracted winters upon the feathered tribe. *F. Webster, Gordon Castle.*

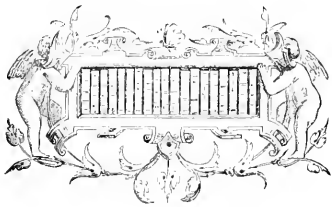
Double White-flowered Auricula.—"Alpha" enquires at p. 120 if any of your readers have seen this plant in flower. I have seen it in flower several times at Ascog Hill, Bute, when that place was the summer residence of the late A. B. Stewart, Esq. I cannot say if it is there now, as most of the plants were disposed of some time ago. It is a very free-flowering plant and nicely scented, and I believe was brought from one of the large London nursery firms, but I cannot say which. *Duncan Murdoch, Stagshaw Gardens, Colridge-on-Tyne.*

A Preventive of American Blight.—A simple experiment which I have tried with my Apple trees during the last two years seems so far to have proved successful as a perfect preventive of the spread of American blight. When I took this place, some three years ago, I found that the young Apple trees were being severely injured by this pest, and the usual methods of extermination, including the application of paraffin, seemed of no avail. In the following spring I placed mounds of soot around the stems of all the trees, and from the first time this was done to the present I have seen none of the insects or their work. Knowing that the insects were accustomed to hibernate in the ground around the base of their trees it occurred to me that any medium which could be applied to prevent them from re-ascending the holes of the trees in the early spring would have the desired effect—hence this experiment. I put the soot around the stems in the first week of April each season. *William Earley.*

Winter Aconite (*Eranthis hyemalis*).—What a charming and interesting early spring flowering plant this is. While looking round Messrs. John Jeffries & Son's nursery at Cirencester the other day, I saw a line of plants aglow with its bright yellow flowers. It is very hardy, and its cultivation very simple, as it will succeed in almost any garden soil, and comes into flower earlier than almost anything else in the open ground. It should be planted in clumps or masses, and when associated with Snowdrops it is very effective. *D. E.*

Tropæolum speciosum a Hardy Perennial Climbing Shrub.—Last year I succeeded for the first time, after many failures, in getting *T. speciosum* to grow. It ran up to the top of a moribund bush of *Berberis Darwinii*, and flowered well. The stem is so breaking in itself at every joint from top to bottom, and in the leafy continues as mild as it has been hitherto, it is quite possible that the *Berberis* bush may be a mass of leaves and flowers in May or June. *H. Harpur-Creese, Drayton-Bean-hamp Rectory, Tring.*

VANDA CAITHCARTH, rather rare, and seldom seen in flower, is in bloom at present at Messrs Veitch's. The large, singular, and fleshy flowers are very distinct; the sepals and petals, pale yellow, are so thickly marked with thin transverse cinnamon-coloured lines as almost to hide the ground colour. The most singular part of the flower is the large lip, which is loosely hung, white, with two parallel purple lines, the raised margin of the lip being soft yellow.



Notices of Books.

Pflanzengeographie für Gartner und Freunde des Gartenbaues. (*Geography of Plants for Gardeners and Lovers of Gardening.*) Von Dr. E. Goetze. Svo, pp. 476. Stuttgart: Verlag von Eugen Ulmer, 1882.

This book is the seventh volume of a series of works on the different branches of gardening and subjects belonging thereto in course of publication by Ulmer, of Stuttgart. Several of the volumes have been noticed in these columns, and, as has been pointed out, they show various degrees of merit, though none of them is quite bad. The shortcomings of one or two of them are due to the writers having overtaken themselves in trying to say something new, instead of being satisfied with a careful bringing together of useful facts. Dr. Goetze does not promise anything new. As he says in a very modest preface, he has tried to pick out all that is most worth knowing from the writings of those men who have most deeply studied the subject, and to place this knowledge before the reader in a useful form. At the beginning of his book he frankly gives the sources from which he has drawn, and throughout the work he very often lets his author speak in his own words. This way of treating the subject has its drawbacks as well as its advantage, because it does not allow of that evenness and clearness that make the charm of a book written from beginning to end by one pen. It also sometimes leads to the same thing being said again in other words under another heading, and some of the facts that would naturally fall together are far apart. Nevertheless, taken as a whole, Dr. Goetze's book is a good and useful one for the persons for whom it was written. It bears signs throughout of much painstaking work in reading many of the best works on the spreading of plants over the face of the earth, and usually of a happy choice in the borrowed passages. At the same time there are traces of the author having worked without several of the newer books that would have helped him nearer to the truth in some of the numbers, in some of the findings, and in some of the sayings, as we shall presently point out. But let us first give a view of the order in which the matter is treated. The book is divided into two parts, namely, "Outlines of Plant Geography" and "Views of Vegetation." The former is broken up under the following headings:—1, History of Plants; 2, Climate and Soil; 3, Zones; 4, Physiognomy of Plants; 5, Migration of Plants; 6, Regions of Vegetation; 7, Statistics and the Distribution of the most Important Families of Plants. These chapters are split up into a number of paragraphs, each usually bearing a suitable heading. The second part, as the title shadows forth, is made up of a number of pictures of plant life in various parts of the world.

Let us look a little into the chapter on climate and soil, and show the reason why we do not always like the headings. In the middle, at the end of the part dealing with the weather, and under the heading, "Zones of Changeable Winds and Rains," we are all at once brought face to face with the definitions of De Candolle's physiological groups of plants, as extended by Baker, followed by the distribution of the groups. This matter seems quite out of place here; and it would have been better to have made another chapter of it. Before leaving this part we may be allowed to point out a mistake the author has made in saying that the four physiological groups, Macrotherms, Mesotherms, Mesotherms, and Microtherms might be more roughly divided into Philo-therms and Frigofuges, or heat-lovers and cold-fearers. This has arisen from misunderstanding the sense in which Mr. Baker used these terms in some lessons on plant distribution, which were first given in the *Gardeners' Chronicle*, and afterwards printed

apart. Mr. Baker, not very happily, perhaps, used the names heat-lovers and cold-fearers for two kinds of plants, one kind of which is "checked from spreading from warmer latitudes by the want of plenty of heat in summer to carry them from the seed stage, round the circle of life, to the seed stage again; and the other, for which the heat of summer is sufficient, are cut off by sudden fits of cold that catch them at a time of vegetative activity." In a few words it may be said that Baker's heat-lovers are the annual plants that reach high latitudes in continental climates, whilst the cold-fearers are trees and bushes, especially evergreens, that reach relatively high latitudes in insular climates.

Further fault might be found with some things in the plan of the book, but as we do not wish to judge it by its weak points alone, we will leave off fault-finding as soon as we have shown two or three cases in which the latest knowledge would have spared the author some blunders. Thus, in speaking of the plants of St. Helena, *Pelargonium coteyledonis* is given as a noteworthy example of a plant that has died out; whereas Melliss, in his work on the natural history of the island, names several places in which it still grows. Then, as to the flora of Madagascar, it is wrong to say that it differs as widely from that of Africa as does the flora of Australia from that of Asia; and it is likewise wrong to say that the plants of the centre of the island are almost wholly unknown. The flora of Madagascar is now known to be closely akin to that of Africa, and it is just the central hill part of which the plants are best known. The plants of the hills have their nearest kinship in South Africa and in the mountains of Tropical Africa.

Now we will turn to the flora of New Zealand. Dr. Goetze rightly says that the new plants found since the publication of Sir J. Hooker's essay, in 1853, do not alter the main character of the flora; but he is wrong in saying that the numbers of genera and species have not been greatly raised. Taking the Composite, the number of species has risen from ninety to 140, with several new genera; and the Scrophulariaceæ have risen from forty to sixty species, whereof fifteen are new species of Veronica. Then there are nine new species of Ranunculaceæ, amongst them the strange ones with peltate leaves; and six new species of Ligusticum.

One more fault we find—one common to so many German books, is the want of an index. A book of this kind without an index is like a clock-face without pointers.

At last we pass on to the more pleasing task of taking something in return for what we have given. Dr. Goetze was so fortunate as to get a sketch of the vegetation of Australia from the pen of Baron Mueller; and as this is newer than anything else we will close our notice of the book with a few gleanings therefrom. "The total number of hitherto described and accepted species of Australian plants amounts to about 11,500. The number of Dicotyledons is about 7000; of Monocotyledons nearly 1550; and of Acotyledons nearly 3000." The last number is the least near the actual number existing, as it does not include the Desmids and Diatoms; and the moulds and other fungi have yet to be thoroughly worked up. Below are the numbers of species of the orders of flowering plants most largely represented:—Leguminosæ, 1043; Myrtaceæ, 956; Proteaceæ, 586; Composite, 537; Cyperaceæ, 373; Gramineæ, 304; Euphorbiæ, 295; Orchidæ, 248; Euphorbiaceæ, 220; Goodeniaceæ, 209; Rutaceæ, 203; Rubiaceæ, 134; Labiata, 130; Sterculiaceæ, 117; Salsolaceæ, 116; Liliaceæ, 113; Malvaceæ, 105; Scrophulariaceæ, 103; Sapindaceæ, 101; Umbellifereæ, 100; Amarantaceæ, 96; Dilleniaceæ, 95; Rhamnaceæ, 95; Stylidiaceæ, 95; Amaryllidæ, 87; Verbenaceæ, 79; Thymelææ, 74; Convolvulaceæ, 71; Kestiacæ, 71; Juncæ, 66. Of Alge about 1050 have been found, and 203 Ferns. In regard both to numbers and peculiarity the flora of South-western Australia is the richest. There the beautiful Myrtaceæ genera *Darwinia*, *Verticordia*, *Calycothrix*, *Thryptomena*, *Beekea*, *Beaufortia*, *Calothamnus*, *Callistemon*, *Melauclea*, and other genera have their greatest concentration of species. The genus *Acacia* counts nearly 500 species, and is the richest in all Australia, and the south-west is peculiarly rich in species. Herbs with brilliantly coloured flowers are also very numerous, and many of them are very lovely. The genera *Goodenia*, *Leschenaultia*, *Dampiera*, *Scèveola*, *Anigozanthus*, *Calectasia*, *Drosera*, *Utricularia*, and various genera of terrestrial Orchids, enter largely

into the composition of the herbaceous element. Another noteworthy feature of the vegetation is the wonderful variety of pretty annual plants of the smallest size and belonging to a number of different families. Then comes a grand array of the everlasting Composite, especially species of *Helichrysum*, and *Heliotropium*, and including the lovely *H.* (*Rhodanthe*) *Manglesii*, *Helichrysum Cassinianum*, and *H.* *Lawrencella*. Further, innumerable Leguminosæ and Proteaceæ. The absence of Palms and Tree Ferns is compensated for in some degree by the abundance of *Eucephalartos Fraseri*, *Kingia australis*, *Nantborthea Preissii*, &c. Grasses are largely replaced by sedges and Restiaceæ. There is not space here to follow the author through the other regions—the vegetation of the almost rainless interior, of the more humid south-east, of the delectable island of Tasmania, and of Tropical Australia, yet it is most instructive reading.

The Rosarian's Year Book for 1882. Demrose.

"This little messenger of loyalty and goodwill," as the Editor terms it, opens with an excellent portrait of the Hon. and Rev. J. T. Boscawen, and a slight account of the garden at Lamoran, omitting, however, mention of the full-page illustration, from a water-colour sketch of Mrs. Boscawen, that appeared in our columns, and the descriptive notes on the *Rhododendrons* by Mr. Mangles. Among the other articles are one on the "Enemies of the Rose," by Mr. Eaker; a similar one on "Rose Grubs," by Mr. Hlawtrey; on "Garden Roses," by Mr. Ewing; numerous gossiping articles of an ephemeral character, and, what is always the *finis de resistance* of this year-book, and which will give it permanent value, the account of the weather of the Rose year and its influence on the growth of the Rose, by Mr. Mawley. We note that during the terrible January of 1881 the lowest temperature of the soil at 1 foot in depth was 33°. Contrast this with the lowest temperature on the grassed surface—6°.3, more than 38° of frost!

—*Rabenher's Kryptogamen Flora*—The fifth and sixth parts of this useful publication contain the further account of the *Lymenocoetl* genus. The descriptive matter is in German, with clear woodcuts illustrative of the genera. In the present part, among others, is given a figure of the *Exobasidium* which causes gall-like deformities on the stems and leaves of *Vaccinium* and other Ericaceæ plants, and which we once saw overrunning a whole quarter of *Rhododendron hirsutum* and *R. ferrugineum*.

—*The Journal of Forestry* for the current month opens with an interesting article on the Forest of Dean, a practical article on Profitable Planting, and a variety of miscellaneous matter of value and interest.

—*Practical Microscopy.* By G. E. Davies (Bogue).—This is a work that will be warmly welcomed by microscopists, as it contains within moderate compass full details of the construction of the instrument in all its varied forms, and, what is of more use to the student, hints for dissection and the preparation of objects, their examination, measurement, &c. We can hardly recommend the busy student, already overlaid with work, to busy himself with the mounting of objects, except so far as may be absolutely necessary. Many things in connection with microscopy have become so technical, and demand so great an expenditure of time that it is better for the student to turn to professional assistance rather than to his own efforts, unless, indeed, in special cases. But whether the student take up this volume simply for the information it will give him in any particular line of research, or whether he refer to it with the view of becoming a specialist, in either case he will find it of very great service to him. We do not know any work of its class so comprehensive.

COLONIAL NOTE.

JAMAICA.—We have received a copy of Mr. Morris' lecture on the growth, for commercial purposes, of Coffee and Cinchona in the island. We have so often referred to the subject that we need here only commend the spirit which has led to the delivery and publication of this lecture, which can hardly fail to prove serviceable to the community.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 8, 1882

Table with columns: MONTH AND DAY, BAROMETER, TEMPERATURE OF THE AIR, Hygrometrical Deductions from Glaisher's Tables, WIND, RAINFALL. Rows for Feb. 2-8 and a Mean row.

- Feb. 2.—A fine day, but cold, foggy, and frosty. Fine but cloudy night.
3.—A dull, cloudy, damp, foggy day. Dense fog at night.
4.—An unusually dense fog all day.
5.—A dull, overcast, cold day and night.
6.—A dull, damp, foggy morning. Fine overcast night, but no mist.
7.—A dull, damp, foggy day; dark sky. Fine calm night.
8.—A dull, damp, gloomy day; calm. Fine, partially clear night, but cold.

LONDON: Atmospheric Pressure.—During the week ending February 4, the reading of the barometer at the level of the sea decreased from 30.28 inches at the beginning of the week to 30.03 inches by 3 P.M. on the 29th, increased to 30.65 inches by 9 A.M. on the 31st, decreased to 30.64 inches by 3 P.M., and increased to 30.70 inches by midnight of the same day, decreased to 30.54 inches by 9 A.M. on February 2, increased to 30.63 inches by 9 A.M. on the 3d, decreased to 30.55 inches by midnight of the same day, and was 30.46 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.49 inches, being 0.05 inch lower than last week, and 0.54 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 47°, on January 29th. On February 4 the temperature did not rise above 34°.5. The mean of the seven high day temperatures was 40°.6.

The lowest temperature in the week was 26°, on February 2; on January 29 the lowest temperature was 42°. The mean of the seven lowest temperatures was 33°.1.

The greatest range of temperature in one day was 14°, on February 3; the smallest was 3°, on January 31. The mean of the seven daily ranges was 7°.5. The mean temperatures were on January 29, 44°.2; on the 30th, 41°.4; on the 31st, 39°; on February 1, 33°; on the 2d, 32°; on the 3d, 35°; on the 4th, 31°.6; Of these the 29th, 30th, and 31st of January were 5°.8, 3°, and 0°.5 above their averages respectively; and those of the 1st, 2d, 3d, and 4th were 5°.6, 6°.7, 3°.8, and 7°.3 below their averages respectively.

The mean temperature of the air for the week was 36°.6, being 0°.4 higher than last week, and 2° lower than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 100°, on February 1; the highest, on the 4th, was 37°.5. The mean of the seven readings was 57°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 19°, on the 2d. The mean of the seven readings was 28°.7.

Rain.—Rain fell on one day to the amount of 0.02 inch. Fog was prevalent on February 2, 3, and 4; on Saturday, the 4th, it was present all the day, and of a very unmassive dense character.

ENGLAND: Temperature.—During the week ending February 7, the highest temperatures were 54° at Plymouth, 53° at Truro, and 51°.5 at Bristol. The highest temperature at Hull was 45°, at Bradford 46°, and at Blackheath, Leeds, and Sunderland, 47°. The general mean was 48°.8.

The lowest temperatures in the week were 20°.9 at Cambridge, 25° at Leeds, and 25°.5 at Wolverhampton. The lowest temperature at Plymouth was 37°.6, at Truro 32°, and Brighton 30°.6. The general mean was 28°.1.

The greatest ranges of temperature in the week were 27°.1 at Cambridge, and 22°.5 at Nottingham and Sheffield. The least ranges were 16°.4 at Plymouth, 17° at Sunderland, and 18° at Hull. The general mean was 20°.5.

The mean of the seven high day temperatures was highest at Truro, 50° at Plymouth 49°.7, and at Sunderland 45°.8; and was lowest at Blackheath, 40°.6, at Hull 41°.1, and at Bradford 41°.2. The general mean was 43°.8.

The mean of the seven low night temperatures was highest at Truro, 40°.6, at Plymouth 40°.2, and at Brighton 36°.2; and was lowest at Cambridge, 31°.6, and at Sheffield and Hull, 32°.1. The general mean was 34°.5.

The mean daily range was greatest at Cambridge and Sunderland, 11°.1, at Bristol 10°.5, and was smallest at Brighton and Blackheath 7°.5. The general mean was 9°.3.

The mean temperature for the week was highest at Truro, 45°, and at Plymouth, 44°.7; and was lowest at Hull, 36°.3, at Blackheath 36°.6, and at Cambridge 36°.8. The general mean was 38°.8.

Rain.—The largest falls were 1.99 inch at Sheffield, 1.57 inch at Leeds, and 1°.38 inch at Nottingham. The least falls were 0.02 inch at Blackheath, 0°.12 inch at Brighton, and 0°.13 inch at Sunderland. The general mean was 0.68 inch. It fell on an average two days in the week. Snow was falling all day on Jan. 29 at Bradford, providing water to the depth of 1.05 inch.

SCOTLAND: Temperature.—During the week ending February 4 the highest temperature was 53°.2, at Aberdeen; at Leith the highest temperature was 45°. The general mean was 49°.1.

The lowest temperature in the week was 28°, at Glasgow, Dundee, and Paisley; at Edinburgh the lowest temperature was 31°.4. The general mean was 29°.3.

The mean temperature for the week was highest at Aberdeen, 40°; and lowest at Dundee, Greenock, and Leith, 38°.6. The general mean was 39°.3.

Rain.—The largest fall was 0.75 inch, at Greenock, and the smallest 0.12 inch, at Aberdeen. The general average fall was 0.33 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.
DECAURNEA RECURVATA.—Can this plant be propagated by taking off the top, as one would a Dracena? And if it will root as a cutting, will the plant then make a bulb, as in old specimens, or grow without forming the latter? [We have no knowledge gained by actual experience to offer our correspondent, but do very much doubt the plant doing as he desires. Ed.] If the top was taken off, would the stem make another head, or would it die? [Die, we should think. Ed.] 7. C.

SABOTA.—They are selling a vegetable here called "Sabota." What is this? H. E. C. Liverpool. [The fruits of Sapota accharis, the Sapodilla Plum of the West Indies. Ed.]

Answers to Correspondents.

DENDROBIUM NOBILE, &c. Samsou. Return the plants to the stove to make their growths. Keep the Orchid in the stove, but when growth is completed keep them a little drier at the roots.

FLORIST'S FLOWERS FOR JULY: G. B. enquires, "What would be the best eight species of florists' flowers to show for cut blooms early in July?" Eight species of hardy florists' flowers cannot be had in flower at that time. Probably eight distinct hardy herbaceous plants are attainable; e.g. so, Achillea Millefolium, rosas, Petalipigia chrysantha, A. carnata, Campanula persicifolia alba pleno, Delphinium Madame H. Jacot, Pyrethrum Sir C. Nares, Stenactis speciosa, hybrid Potentilla Louis Van Houtte.

GRAFTING CAMELLIAS: An Amateur, Mr. William Paul, who has had great experience with Camellias, states that the autumn is considered the best time to graft, but it may be done any time between August and February. See his paper on this subject in our number for April 26, 1879.

GREENHOUSE CLEMATIS: Clematis. The varieties of the patens group would be most suitable for your greenhouse, as they bloom early, when flowers are more particularly prized. There is no reason why they should not succeed if planted outside, as they are hardy, but it would be wise, for several reasons, to neatly protect the exposed portion of the stems. They require deep and well-enriched loamy soil; and the summer shoots, which may be encouraged to grow and ripen outside, should be trained to their full length, and might be taken inside to bloom in the following spring, the older ones being cut away, if necessary, to make room for them. A useful selection would consist of the following sorts:—Miss Bateman, white; Fair Rosamond, bluish-white; Mrs. S. C. Baker, white with red bars; Sir Garnet Wolseley, blue with red bars; Lord Derby, silver-grey; Stella, light violet



Natural History.

THE HOUSE SPARROW.—I am surprised that so keen an observer as I know Mr. P. Grieve to be should not have found out what a deprecator the house-sparrow is in gardens, and how voracious is his appetite for the buds of Goseberry and Currant bushes, on which he feeds in early spring till the branches of the trees are often stripped bare. I have witnessed this repeatedly, and know him to be a loafing, worthless fellow, always on the look-out for scraps, and seldom or never rendering any service to man for the robbery he commits in the cornfields and around stacks and farm-buildings, where he is one of the worst pests the farmer has to contend with. If Crows were his only fancy in gardens we might tolerate him; but, besides these and the Gosecherry-buds, he has a special liking for Peas; for immediately these are through the ground he is at the tops, and when in pod he has a quick and ready method of finding his way through the shells, and extracting the succulent morsels within. To think of scaring such a bold marauder is quite out of the question, and powder and shot, or doctored Wheat, are the only means of waging a successful war against him. Had man sparrows are in this country, I hear they are quite a scourge in Australia, where, like the Scotchman's Thistle, they have increased and multiplied at such a rate as to threaten to devour everything in the way of cereals that favoured colony produces. In most counties of England boys were at one time paid for destroying the nests of sparrows, or had so much per dozen for their eggs and young; but an unwise law (as I think) has stopped this, and also the sale of poisoned Wheat, if it is known to be wanted for the purpose of laying as a deadly bait for the sparrows. As they breed so fast something will have to be done ere many years to diminish their numbers, as farmers cannot afford to have crops eaten up by birds that make no return for their keep. Some aver that they pick up and consume insects, but as well might it be said that carnivorous animals eat grass—as, indeed, the dog does occasionally, by way of medicine—and sparrows may perhaps be guided by the same kind of instinct to take a grub or caterpillar as an aperient. 7. Sheppard.

BLACKBIRDS AND SLUGS.—Having for some years past given the blackbird the credit of eating slugs, I have been rather startled by the recent statements to the contrary. On referring to Mr. Groom Napier's Food, Use, and Beauty of British Birds—a little work which I think every gardener and farmer should possess—I find that careful observer mentions slugs as forming part of the blackbird's food during several months of the year. My mind also reverted to an animated controversy on the food of birds carried on in your columns some thirty years since by the late Mr. Doubleday, of Epping, and others, and turning to the volume for 1850, p. 118, I found the following quotation from Yarrell by a correspondent:—"When, however, the enormous number of insects and their larvæ, with the abundance of slugs and snails, all injurious to vegetation, which are eaten by blackbirds throughout a greater portion of the year, are duly considered, it may fairly be doubted whether the value of the fruit is not counterbalanced by services rendered." So much for the authorities. Wishing to prove the point myself, and knowing the whereabouts of a tame blackbird, I took it a few days since a present of six slugs, which it devoured in about as many seconds, not by any means as a "nasty dose," but with evident relish. A. G. Briteman, Thames Bank, Marlow.

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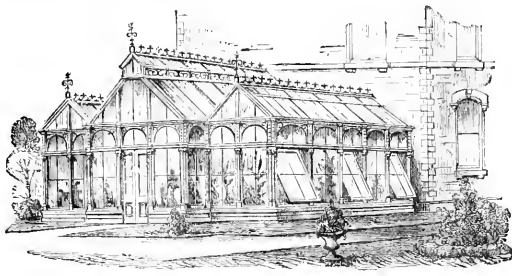
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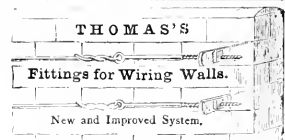
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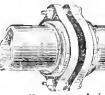
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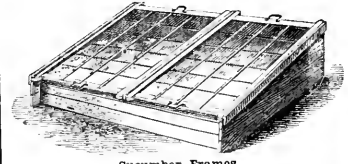
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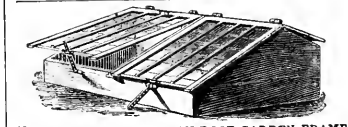


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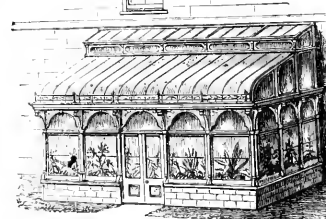


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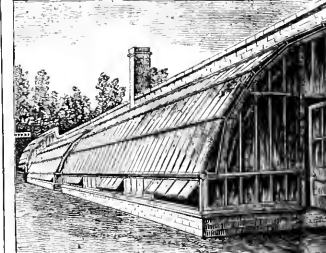
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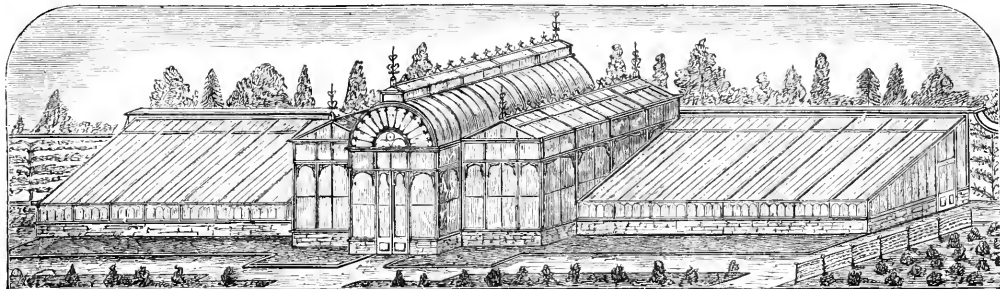
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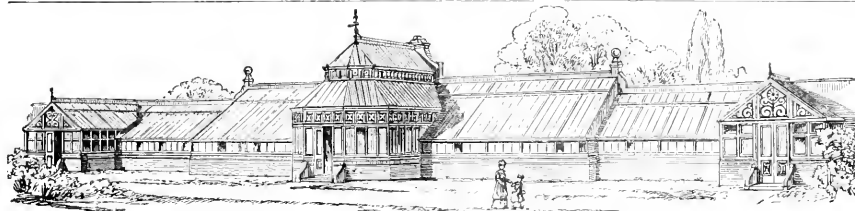

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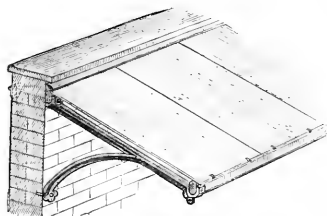
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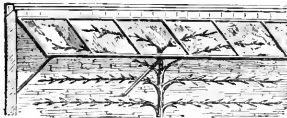
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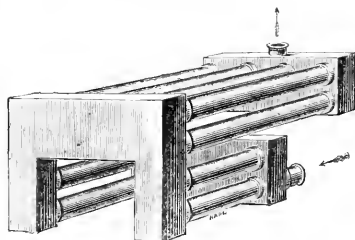
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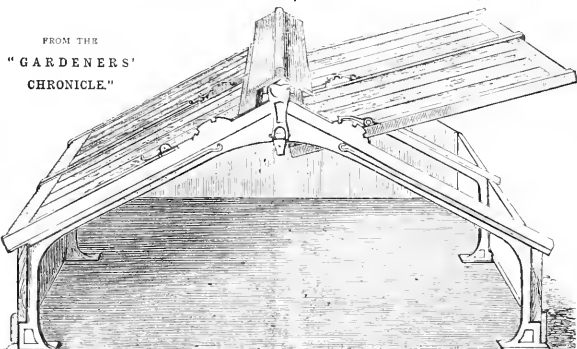
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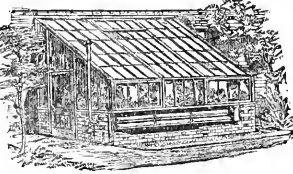
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POTATOS.-Scotch Champions, excellent quality, 2s. per lb. per bushel; seed: true Myatt's Early Ashleaf, for Seed, 4s. per bushel; 3s. per bushel; good free on rail. Apply to MANAGER, Dayford Hall Farm, Hertford, Herts.

Onion Seed-Onion Seed of Superior Quality. SPECIAL OFFER at REDUCED PRICES. F. GEE is prepared to supply the above, which are very magnificent, strong shouldered stuff, beautifully rooted, equal to some 2yr. old, a very choice lot, all carefully selected, at 1s. per 100s, for cash with orders.

Best WHITE SPANISH, 3s. per lb. Finest NUNHAM PARK, 4s. per lb. BEDFORDSHIRE CHAMPION, very fine, 5s. per lb. WHITE GLOBE, very fine, 5s. per lb. New Stocks, 12s. each; 12s. 6d., 6d., and 5d. each. SPECIAL TRADE LIST, or GENERAL RETAIL CATALOGUE of superior Bedfordshire-grown Seeds, Plants, Quicks, &c., on application to FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Beds.

For Sale, 50,000 strong GLOXINIA BULBS of erecta, pendula, and horizontalis, in bulk, 20s. per 100, or 15s. for 1000 orders.

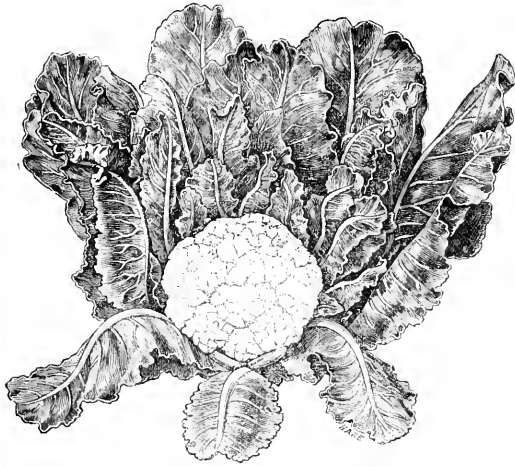
Our Gloxinias are unrivalled with regard to the size of the flowers and their sparkling colours.

50,000 strong BEGONIA BULBS, only red and large-blooming, various specialities, 20s. per 100, or 15s. for 1000 orders.

Further, we have on receipt and all sorts of current SEEDS at low wholesale prices for cash.

SATTLER and BETHEGE, Decorative and Wholesale Gardeners, Queidlinburg-a-H., Germany.

NEW BROCCOLI—"LEDSHAM'S LATEST OF ALL."



WAITE, NASH,
HUGGINS & CO.

Have much pleasure in introducing this splendid Novelty, the whole stock of which has been purchased by them from the Raiser,

Mr. SAMUEL LEDSHAM, Chester.

The above illustration (taken from a Photograph) gives a fair idea of its form and size; but the necessary removal of the leaves for the purpose of photographing prevents its true character, as THE BEST SELF-PROTECTING VARIETY extant being shown. As the Testimonials appended will show, this is the "LATEST OF ALL" Broccolis, lasting well until the time that the early Cauliflowers are ready. Its robust constitution enables it to withstand the most severe winters; while the mass of leaves by which it is protected prevents the heads from being injured by the summer sun. This variety has been famous in the neighbourhood of Chester for several years, and it is now with the greatest confidence offered for the first time to the general trade.

THE FOLLOWING TESTIMONIALS SPEAK FOR THEMSELVES:—

Extract from a Letter from Mr. LEWIS SOLOMON, Centre Row, Covent Garden.
"May 14.—Your Broccoli came safely to hand this morning. I have shown it to several good judges. They say, without exception, *they are the finest they have seen.* I have also been to one of the Committee of the Royal Horticultural Society, who also says *they are the very best.* If you have fifty dozen ready now we could dispose of them for you."

Extract from Letters from A. F. BARRON, Esq., Royal Horticultural Society's Gardens, Chiswick.
"June 2, 1880.—After the Committee disposed of the examples of 'Cattell's' Eclipse arrived, and were compared with yours by myself and several others, and *found to be quite distinct.*"
"June 23.—I brought forward yesterday the subject of your 'Broccoli.' The Committee *commented it highly as a very excellent sort.*"
"October 17, 1881.—The Committee considered the Broccoli to be a very fine late white variety."

Extract from the GARDENERS' CHRONICLE.
"May 15, 1883.—Mr. Ledsham, Green Lane, Tarvin Road, Chester, sent examples of a very promising variety of late Broccoli. The heads range from small to medium size, the *best* of a first-class Broccoli in size, shape, and whiteness, and, as we can affirm, of very delicate flavour."

Extract from the GARDENERS' CHRONICLE.
"May 27.—Mr. S. Ledsham again sent a fine sample of his late white Broccoli, which, considering the winter the plants have passed through, and their fine quality as shown, is a variety of great merit."

Extracts from JOURNAL OF HORTICULTURE.
"May 15, 1880.—We have received from Mr. Samuel Ledsham, Market Gardener, Boughton, Chester, some heads of late Broccoli of considerable merit. The heads are extremely solid, and almost as white as early Cauliflowers. They are not large, but quite large enough for the heaviest for their size we have noticed. Their whiteness is due to the marked self-protecting character of the variety, the heads being deep down in the plant and closely enveloped with leaves, these not having the twisted form of the Knight's protecting type. This Broccoli is a very good one, and if of dwarf habit and hardy it will prove highly worthy of cultivation, especially if, as we are informed, it will continue producing heads for three or four weeks longer."

"May 27.—We have received further specimens from Mr. Ledsham, Green Lane, Tarvin Road, Chester, of his late protecting Broccoli. The heads are larger than those referred to on p. 374, and are close, white, heavy, and of excellent quality."

Sold only in Sealed Packets. Price 2s. 6d.

May be obtained from all Nurserymen and Seedsmen throughout the Kingdom, and from

WAITE, NASH, HUGGINS & CO.,
79, SOUTHWARK STREET, LONDON, S.E.

THE OLDEST ESTABLISHED MANUFACTURERS OF HOT-WATER FITTINGS IN THE KINGDOM.

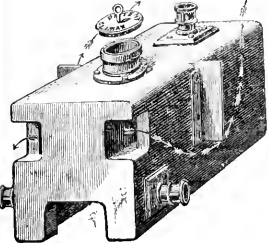
Illustrated CATALOGUES and PRICE LISTS sent free on application, and Special Quotations forwarded on receipt of specifications.

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ARCHITECTURAL and GENERAL IRONFOUNDERS,
MANUFACTURERS OF ALL KINDS OF HOT-WATER APPARATUS,
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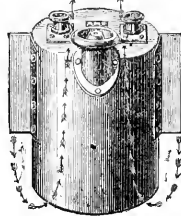
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CLOSE and OPEN FIRE KITCHEN RANGES, PATENT BATHS and FITTINGS, STABLE FITTINGS, GATES and RAILINGS, HOT-AIR STOVES, SANITARY APPLIANCES, VERANDAHs, CONSTRUCTIONAL IRONWORK, &c.

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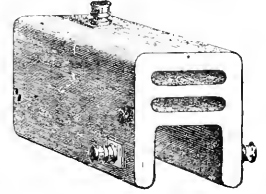
The largest and best Stock of HOT-WATER BOILERS, PIPES, CONNECTIONS, COIL BOXES, COIL CASES, FURNACE FITTINGS; also of WROUGHT, WELDED RANGE BOILERS, in London.

No. 39. Premier Boiler.



CRESTINGS, FINIALS, WEATHER VANES, RAIN-WATER PIPES and GUTTERS, and ALL REQUISITES for CONSERVATORIES and HOTHOUSES.

No. 28. Terminal End Boiler with Double Flue.



CONTRACTORS TO HER MAJESTY'S WAR, PRISON, AND INDIAN DEPARTMENTS.



THE GENERAL HORTICULTURAL COMPANY

(JOHN WILLS), LIMITED,

BEG TO ANNOUNCE THAT THEIR

DESCRIPTIVE PRICED CATALOGUE

OF

VEGETABLE, FLOWER, AND AGRICULTURAL SEEDS,

GARDEN IMPLEMENTS and REQUISITES, FRUIT TREES, ROSES, &c., for 1882,

Is now published, and will be forwarded, post-free, on application.

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Every information on Horticultural Subjects will be supplied and Estimates furnished on application to

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ROYAL EXOTIC NURSERY, ONSLOW CRESCENT, S.W.

MELBOURNE NURSERY, ANERLEY ROAD, ANERLEY, S.E., and FULHAM, S.W.

GREAT DENDROBIUM SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on MONDAY, February 27,

IMMENSE IMPORTATIONS OF DENDROBES,

in unusual masses and condition, consisting of DENDROBIUM:—

WARDIANUM, 1000	PARISHI	CRASSINODE	GRIFFITHI
SUAVISSIMUM, 1000	CHRYSANTHUM	THYRSIFLORUM	LITUIFLORUM
FALCONERI	CAPILLIPES	CAMBRIDGEANUM	BENSONIÆ
HETEROCARPUM	MOSCHATUM	EBURNEUM	CRYSTALLINUM
PRIMULINUM	TAURINUM	PAXTONI	BIGIBBUM
HOOKERI	FARMERI	FIMBRIATUM	TORTILE
CALCEOLUS	DEVONIANUM	DALHOUSIEANUM	SUPERBIENS
SANGUINOLENTUM	FREEMANI	RHOLOPTERYGIUM	WARDIANUM ALBUM

CATTELEYA DOWIANA.

ONCIDIUM MACRANTHUM HASTIFERUM—An altogether magnificent importation of this the finest Oncidium, from Mr. E. Klaboch. The consignment is in superb health.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES. 38. KING STREET COVENT GARDEN LONDON, W.C.

WEDNESDAY NEXT.

IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 22, at half-past 12 o'Clock precisely, by order of

Messrs. SHUTTLEWORTH, CARDER and CO., 191, PARK ROAD, CLAPHAM, S.W.,

An Importation of CATTLEYA AUREA, C. GIGAS, MASDEVALLIA SHUTTLEWORTHII, M. CHIMERA, M. TROCHILUS, M. HOUTTEANA, and M. HARRYANA; ODONTOGLOSSUM VEXILLARIUM, fine dark varieties; O. CRISPUM (ALEXANDRÆ), from the best district, &c.

Collected by Mr. John Carder. All in the best possible condition.

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

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CATTLEYA LABIATA PERCVALIANA

(Rchb. f.)

TRUE AUTUMN-FLOWERING LABIATA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by Order of Mr. F. SANDER, on THURSDAY, February 23, a wonderful Importation of this magnificent CATTLEYA. It is well known there are numerous varieties among the old Cattleya labiata, such as PESCATOREI, PICTA, &c., and the varied Bulbs show that many varieties are among the lots offered. It is true Autumn-flowering. Flowers will be on view of this the finest Brazilian CATTLEYA: sepals and petals broad, deep rose or light purple; lip broad, large, splendidly fringed, lower part deep velvety-purple; in some varieties quite one half of the lip is dark; throat golden-yellow. We have never previously seen imported a Cattleya so floriferous: there is hardly a Bulb which has not flowered, and whose spike does not show three and four flower seats. Mr. Seidl, the lucky discoverer, states that one mass alone had 380 flowers fully expanded when collected, and many others had faded. This piece had to be cut into four, to facilitate its transport to the far distant coast. We are extremely pleased at being able to offer it to the public, having looked for it without success for many years. The green and red-leaved varieties are among the importation, which is altogether in simply superb condition. The whole will be given into Mr. Stevens' hands, and comprise all that could be found, and none sold privately; but Mr. Sander earnestly invites prior inspection at the St. Alban's Nurseries, which are easily reached by the Midland, London and North-Western, or Great Northern Railways, from any of the Metropolitan Stations, Liverpool Street, King's Cross, or from St. Pancras, by fast train in half an hour.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

ASPARAGUS.—The finest roots that money can procure, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred. For directions for planting, see SEED LIST, free on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Six plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 15s. 2 and 3 guineas each. Royal Nurseries, Ascot, Berks.

GAME or COVERT PLANTING.

GORSE, two years in drills, 5s. per 100. SNOWBERRIES, stone, 2 to 3 1/2 feet, 25s. per 1000. THOMAS FERKINS AND SON, 34, Drapery, Northampton.

CEDRUS DEODARA — "The Indian Cedar" — Beautiful specimen trees, frequently planted and well-rooted, offered at the undermentioned low prices to effect a clearance:— 5 to 6 feet, 48s. per dozen | 7 to 8 feet, 72s. per dozen 6 to 7 feet, 60s. per dozen | 10 to 12 feet, 54s. per dozen

ABIES DOUGLASHI.—One of the most noble trees grown, well-rooted specimens:— 6 to 7 feet, 3s. 6d. each; 30s. per dozen 7 to 8 feet, 4s. 6d. each; 42s. per dozen 8 to 9 feet, 5s. 6d. each; 60s. per dozen

The above-named trees are highly suitable for Avenues, Lawns, Shrubberies, or Woods, and the opportunity of purchasing on such terms rarely occurs. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Hardy Rhododendrons and Azaleas. ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODOENDRONS of the best and most popular kinds. Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.

AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands. Knap Hill Nursery, Woking, Surrey.

WEBB'S PRIZE COB and other FILBERT TREES, Calot Gardens, near Reading. Apply to Mr. COOPER, F. KILLS, Calot Gardens, near Reading, Berks.

STOCK PLANTS of VERBENAS.—We have ready at the present time a large stock of the above, which for vigor and freedom from disease cannot be surpassed; they are very bushy, and bear already large quantities of clean healthy cutting. Price 16s. per 100, or 140s. per 1000. LIST of sorts may be had on application to: KEYSER, 320, C1, Nurseries, Salisbury.

WILLIAM FLETCHER has a few thousands to offer of ALLER, 10 to 12 feet; HAZEL, 11 to 2 feet, 2 to 3 feet; SPRUCE FIR, 2 feet; CHESNUTS, Spanish, 1 1/2 to 2 feet; DEUTZIA GRACILIS, per 100. Prices on application.

WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

Carnations, Picoetes, and Pinks. THOMAS S. WARE begs to announce that the Spring edition of his HARDY FLORIST'S FLOWER CATALOGUE for the present season is now ready, and includes, in addition to the above, most complete Lists of choicest varieties of Anemones, Delphiniums, Fuchsias, Pansies, and Violas, Pentstemons, Pyrethums, Dianthus, Potentillas, Sweet Violets, Philoxeræ, &c. Post-free on application. France prices on application.

Hale Farm Nurseries, Tottenham, London.

FOR SALE, DR. MACLEAN PEAS and MAGNUM BONUM POTATOS, true and good sample. For price, &c., apply to F. AND C. MYATT, Offenham, Evesham.

HARDY EXOTIC FERNS.—Having received several very large consignments of NORTH AMERICAN FERNS, in splendid condition, strong Crowns, well rooted, fine for Outdoor Ferneries, we offer many varieties at 6d. each and upwards. LISTS on application. W. AND J. BIRKENHEAD, The Fern Nursery of Baiton, Sale, Manchester.

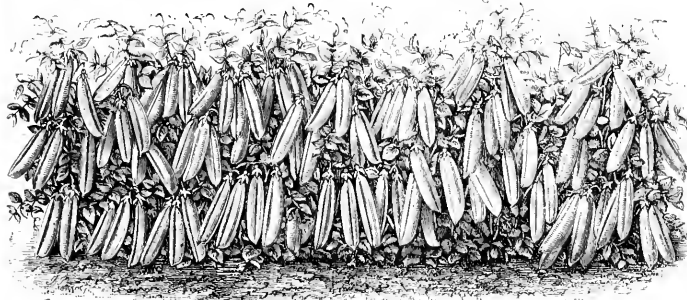
STRAWBERRIES.—Strong roots for fruiting this year, 4s. per 100. Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen, Worcester.

QUICKS, extra fine transplanted, at 15s., 20s., 25s., 30s., 40s., and 50s. per 100.— FINE S. fine transplanted Scotch Fir, 12 to 12 to 3 feet. ASH, fine Maunton, 12 to 12 to 3 feet. POPLARS, fine Black Italian, 10 and 12 to 3 feet. ASH, transplanted, 2 to 3 feet, at reduced price. Price on application. Address, WM. WOOD AND SON, The Nurseries, Maresfield, Uckfield, Sussex.

The Planting Season. THE LARGEST, FINEST STOCKS

ABIES DOUGLASHI, 2 1/2 to 3 1/2 inches, 10s. per 1000; 1 1/2 to 2 feet, 25s. per 100; 2 to 3 feet, 35s. per 100; 3 1/2 to 4 feet, 70s. per 100. CHESTNUTS, Spanish, 1 1/2 to 2 feet, 25s. per 100; 2 to 2 1/2 feet, 25s. per 1000. LARCH, 1 1/2 to 2 feet, 10s. per 100; 2 to 2 1/2 inches, 15s.; 2 to 2 1/2 feet, 25s. SPRUCE FIR, 2 yrs., 12 to 1 1/2 feet, 10s. to 15 inches, 10s. to 1 1/2 feet, 10s. SCOTCH FIR, 1 1/2 to 2 1/2 yrs., 4s.; 1 1/2 to 2 feet, 15s.; 2 to 2 1/2 feet, 15s. HAZELS, 2 feet, 18s. OAKS, English, 1 1/2 to 2 1/2 feet, 10s. per 100; 1 1/2 to 2 1/2 inches, 15s. AUSTRIAN, 1 1/2 to 2 1/2 feet, 10s. per 100; 1 1/2 to 2 1/2 inches, 15s. LARICIO, or CORSIKAN, 1 1/2 to 2 1/2 feet, 10s. to 15 inches, 10s. transplanted, 10 to 20 inches, 5s. THORNES, 2 1/2 to 3 feet, per 100; 1 1/2 to 2 feet, 15s. 6d.; 2 to 2 1/2 feet, 12s.; special by hundreds. CATALOGUES on application to GARLIES MITCHELL, Nurseryman, Stranraer.

THE EARLIEST WRINKLED PEA.



AMERICAN WONDER.

This valuable new early dwarf Wrinkled Pea was introduced by us last season. It is as early as our Kingleader, which is still the farthest Round White Pea. The haulm is thickly covered with fine pods, each containing from seven to ten Peas of delicious flavour. Height, 10 to 12 inches.

From Mr. T. TUSTON, *Gt. to* John Hargreaves, Esq.
 "American Wonder" Pea proved most satisfactory; was sown the last week in February, and was fit for the use the first week in June—quite as early as "Kingleader," sown the first week in January, and it is superior in quality; especially valuable for growing on borders where the trees are a consideration."

From Mr. T. LOCKIE, *Gt. to* the Right Hon. Lord O. Fitzgerald.
 "American Wonder" is exceedingly useful for forcing; only 10 inches high; producing a good crop of fine large Peas, of excellent flavour. Sown in a cold frame, March 10, was ready for use May 10. For forcing it is far superior to "Little Gem" or "Tom Thumb."

Price, 5s. per Quart; 2s. 6d. per Pint.

THE QUEEN'S SEEDSMEN, *Heston, Slough,* READING, BERKS.

OBSERVE OUR TRADE MARK ON EVERY PACKAGE. SUTTON & SONS HAVE NO AGENTS.

PURCHASERS OF PLANTS OF ALL KINDS

ARE MOST RESPECTFULLY INVITED AND EARNESTLY ADVISED TO INSPECT

The Extensive, Beautiful, and Cheap Stock at the St. John's Nurseries.

RICHARD SMITH & CO.,
 NURSERYMEN AND SEED MERCHANTS, WORCESTER.

PHALÆNOPSIS STUARTIANA, CATTLEYA SKINNERI,
 and CATTLEYA LABIATA Varieties.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 20, at half-past 12 o'clock precisely, by order of Messrs. HUGH LOU & Co., choice Imported ORCHIDS, comprising DENDROBIUM WARDIANUM, D. CRASSINODE, D. FALCONERI, D. DEVONIANUM, ONCIDIUM MARSHALLIANUM, CATTLEYA SKINNERI, amongst them grand masses; CATTLEYA LABIATA, extremely varied in appearance, both Green and Red-leaved varieties amongst them, and many were seen in flower by the Collector last autumn during the month of November. At the same time will be offered established Plants of PHALÆNOPSIS STUARTIANA, one in Flower; and other Choice ORCHIDS.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NOTICE.—SELLING OFF OF NURSERY STOCK.

Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz.:

- 15 per Cent. for Cash with order.
- 10 per Cent. for Cash within One Month of date of invoice.
- 5 per Cent. for Cash within Three Months of date of invoice.

After Three Months no discount can be allowed.

The following are some of the Goods they hold large and very fine Stocks of:—

- ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9s. to 15s. per dozen, 63s. to 100s. per 100, £28 to £40 per 1000.
- .. Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 1000.
- NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
- .. French Varieties of 1880, 18s. per dozen, 130s. per 100.
- CURRANTS—Black, 7000 bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100; cheaper by the 1000.
- NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6s. to 9s. per dozen, 40s. to 60s. per 100, £18 to £27 per 1000.
- ASPARAGUS—extra fine, strong planting roots, 2s. 6d. to 3s. 6d. per 100, 20s. to 30s. per 1000.
- HERBS of many kinds, 3s. to 6s. per dozen.
- PLUM (Prunus)—Variegated, common (P. domestica variegata), a very striking and easily grown variegated tree, 2 to 4 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.
- ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 6s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
- POPLAR—Black Italian, 6 to 8 feet, 5s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
- WILLOW—Beiford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
- .. Cut-leaved, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
- ASH—(Fraxinus excelsior) latifolia, 10 to 4 feet, 12s. per dozen; aucubifolia, 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 15s. per dozen; 8 to 10 feet, 24s. per dozen.
- .. spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
- BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen; 6 to 8 feet, 24s. per dozen.
- .. Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen; 8 to 10 feet, 36s. per dozen.
- .. Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen.
- .. Purple-leaved, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 75s. per 100; 5 to 6 feet, 15s. per dozen, 100s. per 100; 6 to 8 feet, 24s. per dozen.
- .. Weeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
- HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
- .. Scarlet-flowered, 6 to 8 feet, 15s. per dozen; 8 to 10 feet, 24s. per dozen.
- ELM—Variegated Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
- .. Giant or Huntingdon (macrophyllus), 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
- .. Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
- .. Scamptons Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per dozen; 12 to 15 feet, 36s. per dozen.
- MAPLE, Norway (Acer platanoides), 5 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen.
- WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
- EUONYMUS—radiatus argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 16s. per 100.
- ELDER—(Sambucus nigra) variegated; a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
- .. Cut-leaved—a handsome lacinated form, and like other Elders, extremely useful for ornamental planting close to the sea. 6s. per doz., 40s. per 100.

THE GENERAL AUTUMN LIST

will be forwarded Gratis and Post-free to all applicants.

N.B. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.

THURSDAY NEXT.**CATTLEYA LABIATA PERCIVALIANA**

(Rehb. f.)

TRUE AUTUMN-FLOWERING LABIATA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on THURSDAY NEXT, February 23, at half-past 12 o'Clock precisely,

A WONDERFUL IMPORTATION OF THIS MAGNIFICENT CATTLEYA.

It is well-known there are numerous varieties among the old *Cattleya labiata*, such as *PESCATOREI*, *PICTA*, &c., and the varied Bulbs show that many varieties are among the lots offered. It is true Autumn-flowering. Flowers will be on view of this the finest Brazilian *CATTLEYA*—sepals and petals broad, deep rose or light purple; lip broad, large, splendidly fringed, lower part deep velvety-purple: in some varieties quite one-half of the lip is dark; throat golden-yellow. We have never previously seen imported a *Cattleya* so floriferous: there is hardly a Bulb which has not flowered, and whose spike does not show three and four flower-seats. Mr. Seidl, the lucky discoverer, states that one mass alone had 380 flowers fully expanded when collected, and many others had faded. This piece had to be cut into four, to facilitate its transport to the far-distant coast. We are extremely pleased at being able to offer it to the public, having looked for it without success for many years. The green and red-leaved varieties are among the importation, which altogether is in simply superb condition.

CYPRIPEDIUM SPICERIANUM,

A few unsold lots of our last week's sale.

MASDEVALLIA RADIOSA—very rare **ODONTOGLOSSUM ALEXANDRÆ**
and fine
ODONTOGLOSSUM NEBULOSUM " **MADRENSE**
" **CRYSTALLINUM** " **VEXILLARIUM**

CATTLEYA DOWIANA—very splendid lot.*May be viewed morning of Sale, and Catalogues had.*

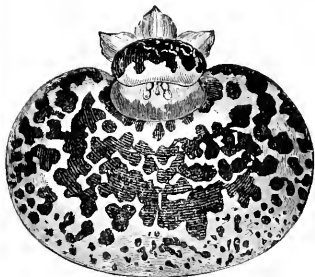


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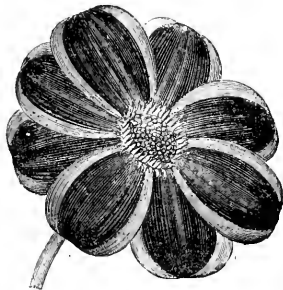
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- CALCEOLARIA, Herbaceous, Williams' Superior Strain .. 12. 0/ and 2. 0/
- CALCEOLARIA, Shrubby, useful for bedding purposes .. 2. 0/
- CAPSICUM, Williams' Little Gem (new) .. 1. 0/
- Awarded a First-class Certificate of Merit.
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- Never fails to take First Prizes wherever exhibited.



- DAHLIA, Single, Choice Mixed .. 1. 0/
 - DAHLIA, Double, Splendid Mixed Show varieties .. 1. 0/
- The seed of the above Dahlias has been grown by one of the oldest and most celebrated Dahlia growers in the Kingdom, and is the result of careful hybridisation of his Prize Plants, which may be expected to produce entirely new varieties.
- The Single Dahlia, if sown in heat, in February, and submitted to the usual cultural treatment, will bloom the following autumn.

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CHOICE VEGETABLE SEEDS.

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From Mr. R. GARLICK, *Cottage, Malmesbury.*
"I have been reading the testimonials of your Reading Hero Potato, and write to tell you that I have beaten them all. From the 14 lb. I had of you last spring, I dug at the end of September the extraordinary weight of 840 lb."

14 lb. produced 840 lb.

From P. S. GRAY, *Esq., Ketho.*
"The Reading Hero was a large crop with me, free from disease and splendid in quality, bush as to looks and boiling. I think they are the coming Potato for the main crop." From the 6 cwt. I have about 5 tons."

6 cwt. produced 5 tons.

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"The 2 cwt. of Reading Hero Potato I purchased from you last spring produced 3 tons 3 cwt. of sound tubers of first rate quality, and excellent shape. It is quite as heavy a cropper as the Magnum Bonum, and I think will be an equally good disease-resister."

2 cwt. produced 3 tons 3 cwt.

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THE Gardeners' Chronicle.

SATURDAY, FEBRUARY 18, 1882.

JOSEPH DECAISNE.

SINCE the death of Adolphe Brongniart French botany has not experienced so severe a loss as that to which it has lately been subjected by the death of this distinguished man. Decaisne, too, has claims on the horticultural world, as having risen from the position of a simple gardener to be the leading botanist in France, President of the Academy of Sciences, and Director of the Jardin des Plantes at Paris, and as having been the author of the finest, most carefully executed, and richly illustrated work on pomology that exists, as well as of various books on popular horticulture and botany, and of a whole series of articles on garden plants or groups of plants dispersed through the pages of the gardening periodicals. For these reasons some short account of his career will be acceptable to many of our readers, though the quiet, unobtrusive life of a hardworking man of science is destitute of those stirring incidents and sympathetic features which appeal to the public at large. Decaisne, though domiciled in Paris for very many years, was a Belgian by birth, having been born in Brussels in 1809. M. E. Morren tells us how his father, Charles Morren, was the schoolfellow and playmate of Decaisne, and how—as has been so often the case—the lad's first steps in the path of natural history were taken in the pursuit of butterflies.

In any case both turned their attention to botany. The earliest publication of Decaisne of which we find any record is dated in 1831, and a few years later another memoir on certain Japanese plants was written in association with his old playmate. Decaisne became attached to the Museum of Natural History in Paris, at first in the capacity of gardener, but he was soon appointed one of the assistant naturalists (1840), and we know him to have been the pupil and friend of Adrien de Jussieu and that he succeeded Mirbel as *Professeur de Culture* and Director of the garden. In this capacity he published many memoirs, to some of which we must allude at greater length, and specially he published that magnificent series of coloured illustrations of fruits and descriptive text known as *Le Jardin Fruitier du Muséum*. His observations were made upon the living trees, many of which his predecessor, Thouin, had got together and they are characterised by the same minute accuracy of detail and careful historical research that marks his other works. In spite, however, of the many excellencies of this superb work it is doubtful whether in the future Decaisne's researches as a pure botanist will not be more highly appreciated than his pomological labours. In any case in mentioning the latter now we are inverting the natural order of things, for long prior to the publication of this work Decaisne had achieved reputation by his studies among the Alge. In 1841 he was the first to show that the common Coralline of our sea-shores was a genuine seaweed, all encrusted though it be with lime, and not a polyp, as had previously

been supposed. In association with the lamented Thuret also, Decaisne made those discoveries with relation to the male organs of the common Bladder-wrack (*Fucus*), and to the fertilisation of these seaweeds, which entirely revolutionised what was known on these matters previously. His paper on the anatomy and physiology of the common Madder (*Rubia*), at one time so largely used for dyeing purposes, is a veritable masterpiece of lucid exposition and exhaustive treatment and, considering the time at which it was written, and the limitations of the subject, one of the most able memoirs that have ever been published on the physiological history of plants and their bearing on practical cultivation and manufactures. The memoir on the Mistletoe, also, is one of those monographs which no advance in science can ever completely supersede. Decaisne's more recent publications have been almost entirely descriptive and systematic. He elaborated the *Asclepiadaceæ*, and the *Plantaginaceæ* for De Candolle's *Prodrromis*. The *Geraneaceæ* were treated of in the *Revue Horticole*. Other families and genera were monographed in the archives of the Museum, the *Annales des Sciences*—of which he was at first, in conjunction with Brongniart, and afterwards by himself, the botanical editor—in the *Flore des Serres*, and other journals. *Rosaceæ*, and more especially *Pomaceæ*, received very great attention at his hands. By his researches in the development of the flower-bud, from the earliest stages to the adult condition, he made known the fact, now generally accepted, that the so-called calyx-tube of these plants—that which forms the eatable portion of the Apple and the Pear—is the top of the flower-stalk rendered swollen and succulent. Decaisne was an admirable draughtsman, and this circumstance, combined with his long-continued and very extensive studies in almost all branches of the vegetable kingdom, lend particular value to the general history of the natural orders which he published in conjunction with Le Maout, and which was issued in an English version under the editorship of Dr. (now Sir Joseph) Hooker. The extent and comprehensiveness of his studies, and the fact that, to a large extent, he had, where circumstances permitted, availed himself of observations and experiments on living plants, for which his position at the Jardin des Plantes gave him exceptional facilities, give special importance to his views as to the nature, limitations, and development of species. On these points Decaisne seems to have held opinions intermediate between those who would elevate every variation to the rank of a species and those who would combine all variations into a small number of species. His studies on the variability of fruit trees, aided as they were by observation and direct experiment, led him to reject the theory of Jordan, who sees in each one of the many hundreds of varieties of Apples and Pears a distinct species bounded within its own limitations, incapable of transgressing them or of becoming merged in another. Decaisne, of course, recognised that out of these hundreds of varieties none could be called wild, and he asks, therefore, with much cogency, if all these varieties are true species, where are they now, or where were they once wild? To escape the difficulty M. Jordan was obliged to assume that the wild forms were antediluvian, and all lost during the catastrophe except those which had been domesticated prior to the Deluge and which Noah took with him into the ark! It will be new to pomologists that Noah was the most eminent of their race.

By observing the countless variations from seeds of Pears, Apples, Strawberries, and the like, Decaisne was compelled to acknowledge that they had all proceeded from a few original forms, and to that extent he may be claimed as an evolutionist. Moreover, he distinctly announced his conviction that Nature has not two ways of working in this matter, "she acts

in the fields as she does in the garden." Nevertheless he retained to the last a firm conviction in the existence of species and genera as understood in the pre-Darwinian days, and in their limitation by definite, though often extremely wide and elastic boundaries. Thus he was firmly convinced that the Apple (*Malus*) and the Pear (*Pyrus*) were two absolutely distinct genera, and that those botanists who, following Linnæus, combined the Apple genus (*Malus*) and the Pear genus (*Pyrus*) under one and the same, acted in opposition to the plain teachings of Nature. He showed the numerous points of difference, morphological and structural, between them, and denied the existence of any transitional forms between them sufficient to constitute one genus. As an instance of the thoroughness with which he investigated things, he communicated with the writer of this notice as to the existence of certain forms of malformation peculiar to the Pear and to the Apple respectively; thus, while twin Apples are not uncommon, twin Pears—*Ec.*, two Pears more or less united together, side by side—are almost, if not quite, unknown. On the other hand, while prolific Pears, in some shape or other, are extremely common, M. Decaisne had never seen a similar malformation in an Apple, and the present writer only once or twice, as contrasted with the many scores of similarly affected Pears that have passed through his hands. Similarly, Decaisne could not give his assent to those who would combine the Sorbs and the Quinces with the Apples and Pears under one genus. The alleged transformation of the wild Radish, Carrot, or Cabbage into the cultivated varieties was not credited by him.

Comparisons have often been instituted between the Jardin des Plantes and other botanic gardens, but not always fairly. The funds at the disposal of the administration of the garden have always been very modest in amount, while the idea of the authorities has hitherto been to maintain it as an educational establishment solely, and in no sense as a pleasure-ground. Whether this was a wise procedure, and whether better cultivation, more attractive arrangement, and a more catholic appreciation of botany and horticulture as a means both of popular and of strictly scientific education, would not have secured in the end, in an establishment supported by public funds, even greater benefits for pure science, are questions we do not care to discuss in this place. The idea which Decaisne held was that the Jardin des Plantes was exclusively a scientific establishment, like a university botanic garden, and that by keeping the houses for the most part closed to the general public, and only available to professed students he was enabled to retain and cultivate a considerable number of plants of scientific interest, but which are not attractive to the general public by the elegance of their vegetation or the brilliancy of their flowers. Decaisne thoroughly identified himself with the establishment which he directed, and he was ever ready, as we have reason to acknowledge with gratitude, to dispense the resources of the garden among his fellow workers, and to communicate to them the results of his own observations and study. In this manner, on many occasions, the readers of this journal for several years past have profited by the experience and knowledge of the eminent French botanist and pomologist. His devotion to his work was specially manifested in those most trying days—in 1870-71—when the German army begirt Paris. In January, 1871, over eighty shells fell within the precincts of the garden; some of the stoves were shattered to atoms, such as the Orchid-house, the Fern-house, part of the Palm-stove, the aquarium, and a house wherein were grouped together a collection of plants of special botanical interest. This destruction occurred at a

time when the thermometer registered -10° C. of frost. For more than a fortnight this frightful state of things continued, Decaisne sticking to his post and doing his best to protect the plants under his charge. In the midst of all his cares his observant faculty led him to remark on the singularly different effects which the projectiles had upon various groups of plants. Writing to us early in 1871 he remarks how the *Pandanus*, the *Cyclanthes*, the *Dracenas*, had their leaves torn to ribbons, while the *Bromeliads* were not only uninjured by the explosions, but were not hurt by the frost which destroyed so many nearly allied plants. It will be remembered that our horticulturists, headed by the Royal Gardens at Kew, did their best to repair the losses which were then experienced, and that the greatest sympathy was felt for the administrators of this famous establishment, but in many cases the losses were irreparable. As Decaisne wrote pathetically at the time, "Who will restore the *Malpighiaceæ* that Adrien de Jussieu, the monographer of the order, gathered together with such pains and assiduity? Who could replace the historical plants of Anblot, of Commeron, or Du Petit Thouars?" Ten years and more have elapsed since that dreadful period—ten years in which Decaisne, whether in his capacity as Academician, or as a publishing botanist, remained as active as many a younger man who had not passed through such terrible experiences.

In the year 1871 we published a slight sketch of the interesting history of the establishment over which Decaisne presided, and in the same year we gave a portrait of the eminent botanist to whom on so many occasions the readers of the *Gardeners' Chronicle* have had reason to be grateful. Decaisne died somewhat suddenly on the 8th inst., and was buried on the 10th in the presence of a large concourse of his former friends and associates.

New Garden Plants.

COLUMNÆA KALBEYERIANA. (Fig. 32.)

We have already alluded to this plant at p. 44; a full botanical description, together with a coloured illustration, will, we believe, be given in the *Botanical Magazine*. Suffice it here to say that it is a stove plant, the foliage of which is very striking, from the manner in which the lance-shaped leaves, which are opposite, curve downwards on either side of the stem. One leaf of each pair is much larger than the other, and the large and small leaves alternate, so that while that on the right is large that next above it on the same side of the stem is small, and so on. The leaves are dull green above, sometimes spotted with pale yellow, the lower surface being of a deep claret-red. The calyx is yellow, as is also the corolla, which latter is not shown in our illustration, taken from the plant when first exhibited by Messrs. Veitch, when it received a Botanical Certificate, though in an unexpanded condition. The corolla exceeds the calyx in length, and is marked with red stripes in the interior. It will make a very striking plant for exhibition purposes. The plant is also mentioned in the *Florist and Pomologist* for the present month.

CATLEYA DORMANIANA, *n. sp.*; *prope eadem*, que LELIA DORMANIANA.

The first flowers I had from Mr. R. Bullen proved to be as much *Lelias* as those of *Lelia elegans*. There were sometimes eight independent pollinia, with four much smaller ones, at other times four cohering on both sides with the caudicula. Now Mons. D. Massange de Louvrex kindly sends me a flower of what is a true *Catleya*, with four pollinia only. There is also a good mark of distinction in the perigone itself, it being distinctly coloured. Neither the sepals nor petals are blotched at all, but tinted with cinnamon all around the borders, leaving the disk alone greenish-yellow. There are also purple longitudinal stripes on the back, sides and front of the column. The pseudobulb and the two leaves (of

light red for very long time, as Mons. D. Massange observes) appear not to differ at all from what I had from Mr. K. Bullen.

One might have expected such phenomena, and yet one cannot help wondering at them. I feel as convinced as possible in such a case that

doubt it would be very desirable to watch the individuals, to ascertain whether they are constant in the character of their anthers. *H. G. Rehb. f.*

ARALIA QUINQUEFOLIA GRACILIS.

This is a shrub of slender habit, with very long cylind-

segments. Though no other *Aralia* was in flower at the same time as the plant of *A. quinquefolia*, none of the seedlings have come true, two-thirds of the batch being of the type now called *gracilis*. *Aralias* are, however, notoriously variable, leaves of different forms very often occurring even on the same individual



FIG. 32.—COLUMNNEA KALBREYERIANA: LEAVES CLARET-RED, FLOWERS YELLOW. (SEE P. 216.)

the parents of this and of *Laelia Dormaniana*, the prior type, are *Laelia pumila* and *Cattleya bicolor*. We have now a typical *Cattleya*, a starved *Laelia*, and we may expect a typical *Laelia* with eight developed pollinia. The Massangean plant may be of different origin, since it was purchased of Mr. Williams at the Victoria and Paradise Nursery. No

dical leaf-stalks, the blades being divided palmately into five linear remotely toothed segments. It comes from Messrs. Rodger, McClelland & Co., of Newry, in whose nursery it was raised from seed saved there from the typical *A. quinquefolia*, which, like one called *A. Schefferia* in Continental gardens, is closer in habit, with shorter leaf-stalks, and much broader

plant. The plant before us is a very nice one, and will be very useful, especially as Mr. Smith informs us a few degrees of frost will not hurt it.

ODONTOGLOSSUM WILCKEANUM PALLIDUM, n. var.

This is a variety with light whitish sulphur-coloured flowers. There is one large brown spot on each

sepal, but there are no spots on the well-toothed acuminate petals. The lip is rather acute, nearly firmate, and has a few brown spots. I have to thank Mr. W. Bull for it. *H. G. Rehb. f.*

ONCHIDIUM LANCEANUM (Lindl.) LOUVREXIANUM, *n. var.*

A magnificent variety of this good old plant, with very yellow sepals and petals, nicely spotted and marbled in a very pretty manner. The greatest charm is that while the base of the lip is of the finest, darkest mauve, the front part is of the purest white. All the flowers I saw had two anther-like organs at the very base of the stigmatic hollow. It was purchased at a Santerian sale in Mr. Stevens' Rooms, July 8, 1880, and flowered at the Château de Baillyville, Mauche, in the fine collection of Mons. D. Massage de Louvrex. I feel pleased to dedicate it to this enthusiastic grower of Orchids. *H. G. Rehb. f.*

CYRIPEDIUM DISCOLOR, *hyb. ex typ. C. venusti.*

Leaves very fleshy, dark glaucous, scarcely showing vestiges of narrow hieroglyphical markings. Peduncle dark purple-brown, hairy. Bract very short. Odd sepal triangular, with sixteen dark purple stripes between the green nerves. Sepals connate in a triangular much-tapered bidentate emarginate body with a few green nerves, brownish-purple at the base. Petals ligulate, blunt acute, light reddish, green at the base, with numerous dark purple spots at the base, and a few bristles over the base. Lip, as in all types of the affinity, a long blunt shoe with lateral horns at side of the mouth, pallid reddish-brown with ochre-coloured areas. Staminode transversely elliptic, with an incision at the back, one in front with an intermediate tooth, pallid green with some short dark green venations. This is one of those already mentioned hybrids or aberrations which were raised in the collection of Mr. K. Warner. They are now in the hands of Mr. B. S. Williams. The name *discolor* is given both on account of the great contrast of perigone outside and inside, and the curious difference of colours on the lip. *H. G. Rehb. f.*

CYRIPEDIUM WILLIAMSIANUM, *n. hyb., dub. orig.*

This is a fine thing, reminding one of *Cyripedium villosum*, and comparable to *Cyripedium Harrisianum* and its nearest relation, *Cyripedium Dauthieri*, that came from the garden of M. Massage de Louvrex, of Saint Gilles, where it was grown by M. Charles Kramer.

The leaves have a distinct darker network. Peduncle light brown, hairy. Bract green, with rows of dark brown-purple spots. Odd sepal oblong acute, very large, white, with dark blackish-brown middle line and prominent nerves green. Sepals reaching three-fifths of the length of the lip, of the same colour, without a dark middle line. Petals oblong ligulate acute, with very short bristles on both sides, dark brown middle line, nice reddish, with some sepia, on the upper side, white, with hue of lightest copper on the lower side, chief nerves all green on both sides, but nearly vanishing on the upper side. There are numerous small dark spots in rows near the base. The lip is like that of *Cyripedium villosum*, but the side horns on either side of the mouth are much shorter, ochre-yellow beneath, light brown above, with an ochre limb around the border. Staminode light copper-ochre coloured, with few green nervilli, covered with short hairs.

This is the best of the Warnerian derived hybrids. It is a curious fact that in plants derived from some cross there appear such very different individuals. Look to the *Cattleya fausta* of Messrs. J. Veitch & Sons. Thus I should not be surprised if all these Warnerian hybrids were produced by fewer crosses than there appear distinct types. At all events, this curious neatly shining plant may bear the name of its present indefatigable possessor, Mr. B. S. Williams. *H. G. Rehb. f.*

LYCASTE SULPHUREA.*

This has a smaller flower than a good *Lycaste cruenta*. The sepals are more acute; the superior sepal ligulate acute, the side ones oblong, markedly acute, all pallid sulphur coloured, with very small red blotches inside; petals oblong, apiculate, light sulphur coloured, with a few brownish-purple spots, and

* *Lycaste sulphurea*.—Aff. *L. cruenta*, Lindl. : flore pallide sulphurea; labelis laciniis lateribus semiovatis angulatis, lacina antica ligulata acuminata reflexa, callo mediano obtusangulo (non quadrato). *H. G. Rehb. f.*

a large dark purple blotch at the base. Lip pallid sulphur, purple between the side laciniæ internally; callus and angles of the side laciniæ inside deeper yellow, nearly orange; column much like that of *Lycaste cruenta*, plump, short, broad at the base, light sulphur, deep brown, purple at the base, with brown purple spots above. There are not so many hairs at the base as in *Lycaste cruenta*.

I suppose this to be a cross between *Lycaste Deppi* and *cruenta*. Curiously enough, it appeared nearly at the same time with Mr. Williams' *Lycaste Deppi punctatisima*. I obtained what I have seen of this plant from Mr. W. Bull. *H. G. Rehb. f.*

TACSONIA PARRILE, Mast., n. sp.* (fig. 34, p. 255).

This is a new and very remarkable *Tacsonia*, the introduction of which is due to Senor Parra, better known as Parrilla, who communicated it to Mr. Carder. The materials at our disposal consist of dried flowers and foliage together with a coloured illustration, which though in more than one point not botanically correct, is sufficient to show how remarkable an addition to our stove climbers this species is. The three-lobed leaves are glabrous above, pilose beneath, the stipules entire, subulate acuminate, the leaf-stalks channelled on the upper surface and provided with a variable number of sessile glands. The flower-stalks are cylindrical, longer than the leaves. The bracts unfortunately are wanting in our specimen, and are not represented in the sketch. The flower-tube is long, slender, and glabrous, distended and sulcate at the base; the five sepals are of a rosy-orange tint, oblong-hooded and provided with a remarkably deep wing terminating in an acute point, the wing being much deeper than in any other *Tacsonia* of which we have any knowledge, and the sharp points of which are shown in the sketch, wherein, however, the conformation of the flowers is not well brought out. The oblong-flat petals are considerably shorter than the sepals, and are of a rich orange colour. Judging from the dried specimens, the corona in the throat of the tube consists of an outer row of tooth-like projections, and an inner membranous fold bent downwards. The stalk supporting the stamens and ovary is very slender, the ovary itself elliptical and pilose. We are not cognisant of any species with this floral conformation and this peculiar colour, nor can we find mention of any similar plant in Messrs. Planchon and Triana's monograph, issued since our own enumeration in the *Flora Oranienensis*. The stock is in the hands of Messrs. Shuttleworth, Carder & Co., who have introduced the plant from Tolima, and at whose request the plant is named. *M. T. M.*

PEACHES AND NECTARINES OUTSIDE.

THE uncertainty of obtaining anything like regular crops of Peaches and Nectarines of the older sorts on outside walls has led to a falling off in their culture; but this deficiency has been met in many cases by erecting glass structures in which to grow them. That first-rate trees can be grown on walls needs no proving, though really good trees, such as those at Ditton Park, which were noticed in the last volume of the *Gardeners' Chronicle*, are not often met with at the present day. Within the last few years quite a host of new Peaches and Nectarines have been added to our older sorts, and it is of some of these new sorts that I wish to speak, as, judging from the free way in which they have fruited here during the past three or four seasons, there is still hope of once again obtaining good crops of these choice fruits on open walls.

Among the new Peaches the first place is a sure fruiter must be given to Sea Eagle. It is a handsome, moderately late Peach, and it has not failed here to set a full crop of fruit during the past three seasons,

* *Tacsonia Parrille*, Mast., sp. n.—Folii breviter petiolatis, petiolis glandulis sessilibus præditis; stipulis subulato-acuminatis integris, lamina superiore glabra subtus albidis pilosis, e basi connata ovatis profunde trilobatis, lobis lanceolatis apiculatis remote denticulatis, lobo medio longiore; pedunculis petiolosis folio longioribus; bracteis hand visis. Floribus 6-poll. long. roseo aurantiacis, tubo cylindrico lato ventricoso sulcato, segmentis externis (sepalis) oblongis apiculatis scaphiformibus profunde alba-carmatis alba superne aristatis; segmentis internis (petalis) quam sepala dimidio brevioribus oblongis obtusis rubro-aurantiacis; corona faucibus duplici (extera externa e processibus dentiformibus obtusioribus erectis conferta, series interna e plicis carnosulis inflexis constans); corona basali ad basin tubi membranacea inflexa; gynandrophoro gracili exserta; ovario elliptico piloso. Floris strudantur imperfecte representat icon. *M. T. M.*

and the fruit has ripened perfectly by the end of September. As a mid-season kind, Goshawk has proved the best. It is a large pale-coloured Peach, of first-rate quality, but rather coarse in the skin. It ripens about a fortnight earlier than Sea Eagle, and has never failed to set and carry a crop of fruit under adverse conditions. Among the earlier kinds, Alexandra Noblesse is the hardest, and it will prove a valuable acquisition for outside culture. It is said to be a seedling from the old Noblesse, which it certainly resembles in the fruit, but in hardness and freedom of growth it far surpasses its parent. Among the older kinds of Peaches that we have most frequently seen carrying crops, both in the North and in the South, are Crawford's Early, Bellegarde, Dymond, Malta, and Late Admirable.

Out of the new Nectarines there are three that deserve special notice; these are Lord Napier, Darwin, and Humboldt. The first-named is the finest Nectarine in cultivation; and is equally suitable for indoor or outside culture. It is the latest to open its flowers, and the earliest to ripen. We have never failed in having good crops of this kind outside; and we have had fruits of it from under glass that weighed over 7 oz. The best to succeed Lord Napier is Darwin. This is an Orange Nectarine, very like the old Pitmaston Orange in appearance, but it is with us quite three weeks earlier than the Pitmaston, and is equally rich in flavour. This variety has pleased us so well outside, both in quality and appearance, that we have this season planted it under glass. As a late variety to fruit to the end of September Humboldt is the best. This has every season set well here and ripened its fruit perfectly. It is an Orange Nectarine of the largest size, and will yet become popular both for indoors and for outside walls. Another fine Nectarine that always sets well outside is Victoria, but it is only in the finest seasons that it ripens outside, and is seldom satisfactory except under glass. When favoured with these conditions it is the finest late Nectarine in cultivation. There are two of the older sorts that I have so often seen carrying good crops on walls that they deserve mentioning; these are Balgown and Downton, and they are both first-class kinds.

In selecting trees for outside culture preference should be given to trees on stems about 3 feet high that have been grown in good sound loam free from rank manures, as gumming generally lays hold of over-stimulated young Peach trees, and when this is the case the trees soon present a ragged and unbalanced appearance. A tree on a 3 or 4 feet stem has an advantage over a dwarf in having its most tender and vital parts farther removed from the dampness of the surrounding border. Trees of this character should never be planted on walls less than 10 feet high.

The border should be thoroughly drained to ensure success, as it is impossible to get the wood in the best condition in an undrained border, and the trees are much slower in going to rest in autumn under the latter conditions, and seldom set well in spring owing to the sappy condition of the young wood. The best soil for the border is a good calcareous loam, ramming it in thoroughly firm. Where a soil of this character cannot be had then we recommend the best strong loam that can be got, and to this should be added one good barrowload of chalk to every cartload of loam, with the addition of a little burnt earth.

In training the trees adopt the fan system, as in no other way can the walls be so regularly furnished with fruiting wood. Of late we have seen many recommendations to grow young Peach trees like Willows, but this system will not do for outside trees, as we do not want growths for making baskets, but to produce fruit. Aim at getting moderate growths while the trees are young, and spread these thinly over the wall, using the thumb and finger in regulating the trees in summer in preference to using the knife too freely in winter. In the early stages of the trees a slight check at the roots will sometimes be advisable, which should be done early in the autumn. We prefer the trees nailed to the walls to any system of wiring we have yet seen adopted, and great care should be exercised in the nailing, as a shoot once bruised sooner or later dies a premature death from gumming. When the trees reach fruiting size, it is sometimes advisable to thin out the foliage in early autumn as soon as the fruit is gathered. This lets in the sun on the wood and the wall, and this materially assists the wood in ripening. When the wood is not fairly ripened, the trees often get into growth before they

flower; when this occurs no time must be lost in disbud-
ding early, otherwise the growths will take all the
strength of the tree from the blossoms, and the result
will be failure. During hot, sunny weather it will
be an advantage to the trees to cover their stems with
haybands up to a little above their union with the
stock. *J. Roberts, Gammersbury.*

NORMANTON PARK,

THE seat of Lord Aveland, in Rutlandshire, is
pleasantly situated midway between Stamford and
Oakham, in a picturesque district charmingly wooded
and surrounded by a park of over 500 acres in extent,
in which a fine herd of deer is kept. My ambition
to pass through Empingham grew more intense when
I learned that it was by the same route their Royal
Highnesses the Prince and Princess of Wales had
travelled in January of the present year when they
honoured Lord Aveland by a visit to Normanton,
where preparations on a grand scale were made for
their reception.

The avenue leading to the house from Empingham
is a solid, clean, and well-kept road, ornamented by
two fine rows of Sycamore and Beech. The mansion
is of the Ionic style, rebuilt on the site of the earlier
house at the close of the past century.

At the bottom of the grounds there is a stream
which has been broadened into a lake, with an island
in the centre to afford cover for the water-fowl, which
are numerous upon the lake. The stream is a
tributary of Rutland's river, of the gwash or wash
of which Drayton in his *Polyolion* said—

“What river ever rose from bank or swelling hill
Than Rutland's wandering wash a delicateser rill.”

Looking from the house across the lake there are
beautifully wooded slopes, of which Hamilton Hill is
most conspicuous, and extensive views of rich scenery
abound in the direction of Exton Park and Burley-on-
the-Hill. The terrace garden is on the north-west
front, and is adorned with statues and ornamental
trees. Spring gardening is here of great importance,
and perhaps after all the spring garden is the sweetest
of all outdoor garden enjoyments. Plant that is well
spoken of at Normanton is *Heuchera lucida*, which pro-
duces an insignificant flower, but the “brone” foliage
is said to be very pretty in the spring—plants, how-
ever, colour differently in different soils and situations.
A glance at the Golden Alder on the island referred
to reminds me that it is seen to best advantage in a
distant situation, and the colour is so strong that the
plant should be sparingly used, unless, indeed, a
whole bed of it is planted for some special purpose.
April and May are the two months to see the flower
garden at Normanton, although the vases, statuary,
and specimen trees are always of interest to
the visitor whose mind is not wholly absorbed in
summer flowers. The north-west wall is gay with
a grand specimen of *Pyraanthra* trained horizontally;
its berries are so numerous and profusely produced
that the wall is a picture of livid red, which is well
shown off by its association with evergreen trees and
shrubs; indeed, a general superabundance of green
requires something associated with it, contrasting in
a greater or less degree, or the eye grows weary of
so much sameness of colour if there is nothing
striking to vary the scene and brighten up the general
effect.

Several good specimens of *Taxodium* and *Wellingtonia*
are thriving upon a lawn by the side of
a border of shrubs and mixed flowers comprising
Snowdrops, *Crocus*, *Daffodils*, *Anemones*, and spring
flowers generally. Flower gardening upon the grass
has been carried out here for many years, and very
naturally the plants appear to be disposed under and
between the trees and shrubs.

The finest specimen *Wellingtonia* in the grounds
is 41 feet high. The rockery upon the north side of
the pleasure grounds is planted with a very interesting
collection of alpine plants and Ferns—the latter, how-
ever, not doing well during the past summer, in con-
sequence of the extreme drought. Some of the
plants that struck me as being well adapted to the
place, as well as being pretty, include the following:
—*Saxifraga Wallacei*, *S. Maweani*, not so good
as the former; *Helianthemum oculatum*, cream
colour, with a yellow centre; and *Red Dragon*, also
very handsome as a rock plant, and of good habit
for a sloping border either among stones or roots.
At the base of the rockery Mr. Grey has managed to

establish some healthy clumps of *Primula denticulata*.
The plant has been killed in many places where every
condition seemed favourable to its cultivation, and
yet it spreads rapidly among rocks where it is shielded
from cutting winds. Even with the hardest of plants
there are many points to be considered in their culti-
vation. Other plants adapted for rock gardening are
Saxifraga phelata, which throws flower-spikes from
12 to 18 and 24 inches high, and *Campanula gar-
ganica*.

Outside the rockery are some notable trees of
Cupressus macrocarpa, *Wellingtonias*, and the decidu-
ous *Cypress*, *Liquidambar styraciflua*, *Mespilus
ulgaris*, 100 years old, and the feathered *Sumach*,
which is a very handsome shrub for pleasure grounds
in autumn. The Cedars of Lebanon have suffered
from the effects of the past winter, rather than from
the weight of snow resting upon their branches than
from injury from frost. A large Mulberry tree
bears the mark of great age, and also other trees
which are dying of decay; but Mr. Grey has antici-
pated the inevitable result of old age, and planted
many young trees several years ago, which will fill
their places, if not with as much interest, at least
with more effect.

The kitchen garden is entered from the north-west
side, and there are two long borders planted with
horizontal trained cordons a foot high at the back,
which are pretty either in flower or in fruit. The
borders are planted with bulbs and spring-flowering
plants, and are a notable feature in these gardens
during the spring months. The south-east wall run-
ning parallel with these borders is planted with Peach
trees of the usual run of established sorts, which were
bearing heavy crops, and are in good health and
free from the attacks of insects, which accounts
for the size and quality of the fruit. In one of
the borders I noticed several patches of ornamental
grasses which appeared to me to be most useful for
arranging with cut flowers in autumn, and save the
interminable slaughter that is made amongst the
choicer kinds of exotic Ferns. One of the best out of
several seemed to be *Pennisetum longistylum*, a hand-
some grass with a feathery plume, which would at
least be an agreeable associate with floral arrange-
ments for the dinner-table. The garden, I should
have stated, is a square cut in two by a broad central
walk having borders of hardy flowers upon either
side. The most prolific varieties of Apples here are
Lord Suffield, *Stirling Castle*, *Warner's King*, *Scarlet
Nonpareil*, *Keswick Codlin*, and *Jolly Beggar*, all of
which are to be supported, so heavy was the crop, and
the size and quality of the fruit were also good. The
south-west wall is planted with Peaches, the north-
west wall with Pears and Plums, and the border with
plants for spring bedding. Adjoining the large
kitchen garden, there are three smaller ones taking
the form of three triangles, and the walls of which are
planted with healthy trees in full bearing. Morellos,
of course, are always relegated to the north side of
walls, and no more profitable crop can be grown in a
garden. Many of the borders are used for growing
flowers for cutting and for raising plants for spring
bedding. Among the showiest flowers I noticed
Centranthus macrosiphon, a Valerian-like flower,
raised from seed sown in the spring; *Delphinium*,
also raised from seed; *Schizostylis coccinea*, coming
into flower, and *Gladiolus Colvillei alba*. Apricots
succeed well in one of these gardens, and the trees for
a wonder are free from canker or disease. In the
framing-ground, Azaleas and large plants of *Imantophyllum
miniatum* are being hardened by exposure to
the weather, and other winter flowering plants are look-
ing equally prosperous. The hot-houses, pits and frames
contain excellent examples of plant and fruit growing.
The first structure that I have to notice is a fernery
chiefly filled with varieties of *Adiantum* for cutting,
and plants for furnishing, of which large stocks are
required during the winter and spring months. Mr.
Grey adopts a very good system with this class of
plants: he lowers the temperature gradually through-
out the autumn in order to secure that firmness or hardi-
hood which is necessary for plants to possess that are
subjected to the rough usage of exposure, gaslight,
and other deleterious influences which furnishing
generally entails upon plants. *Cyrtopodium insigne*
is grown in a cool frame during the summer, and
never fails to yield abundance of flowers, which come
in under the cool system of cultivation at mid-winter,
when it is most important to have them; *Primulas*
are grown in large quantities; *Browallia elata* in small
pots, flowering Begonias by the hundred, and *Fuchsia*

and Tree Carnations for winter flowering
in proportionate quantities.

The *Selaginella* Mr. Grey also uses largely for
table-work, his favourites being *apoda* and *Kraussiana*.
In a house of miscellaneous plants I noticed, among
others, *Ardisia crenulata*, *Begonia Froehlii*, *B. insignis*
and *B. metallica*; *Crotons*, *Dendrobium*, *Phaius
grandiflora*, *Plumbago rosea*, *Andurium Scherzerianum*, &c.

Mr. Grey also grows *Chrysanthemum frutescens*
and *C. Etioleda* Op, planted out in the open borders,
and grand plants are kept for lifting in the autumn. In
the vineries good crops of *Muscats* and *Lady Downe's*,
as black as Sloes, were ready for cutting, the early
houses of course being cleared of their crops some
time ago. It is hardly necessary to say, in conclu-
sion, of so experienced a cultivator as Mr. Grey that
his charge does him credit, and that fruits, vegetables,
and plants, and everything else under his manage-
ment gives evidence of high cultural skill, and a
system of garden administration of the first order.
W. H.

THE COFFEE-LEAF DISEASE.

[We have received a lengthy communication from
Mr. Storck (now resident in Fiji), and who was
assistant to the late Dr. Seemann in his mission to
these islands) on the means for combating the leaf-
disease, *Hemileia*. Mr. Storck reviews the previous
attempts that have been made, and then details his
own method, which he claims to be effectual, and the
principle of which is the diffusion through the planta-
tions of carbolic acid vapour, injurious to the fungus.
It is obvious that the success of the plan depends
upon very many circumstances, which should induce
cautious experiment on a small scale before embark-
ing on a large one, such as the depth to which the
fungus penetrates, the state of the weather, the
condition of the Coffee-plant, the influence of the
poisonous vapour upon it, &c. Should Mr. Storck's
experiments prove in other hands as successful as
according to his statements, supported by other
testimony before us, they are in his own, he will
prove a veritable benefactor, and should receive the
reward of his public-spirited endeavours to remove
a great scourge. It is obvious that the principle is
applicable *mutatis mutandis* to the treatment of other
plants affected with superficial moulds. E.D.]

My own method of application, says Mr. Storck, is
purely atmospheric, and for the benefit of the
countries and planters suffering from the ravages of
Hemileia vastatrix I will now give a description of it.
In doing this I rely, as regards my rights of priority
and proprietorship in an invention of great import-
ance, upon that spirit of justice and fair play so gen-
erally obtaining in the scientific and planting world.

An acre of Coffee land contains thirty-six centres
of vaporisation formed by tin vessels to be mounted
upon short sticks, and covered in a peculiar manner,
to protect the contents from rain and rubbish, thereby
preventing waste and undesirable dilution by rain of
the fluid contents of the vessel. They consist of a
mixture of carbolic acid and water in the proportion
of from 3 to 10 per cent. of Calvert's best No. 5
acid, at the option of the operator. Any strength
not exceeding 25 per cent. may be used, since nothing
touches the plants or the soil, nor injures the tenderest
young leaf or flower-bud. In starting the treatment I
would recommend a first charge of 10 per cent. (5 per
cent. is sufficient), and then a weekly supply of a
density of 5 per cent., which will keep the strength of
the fluid up to 3 per cent. for many months. An
average labourer can in this manner attend to at least
50 acres per week. The first season's outlay per acre,
including the first establishment of the system over an
estate, will not reach £2 10s. per acre, and for any
subsequent year it will not exceed £1. The present
molech of the vessel has an evaporating surface of
4 inches, but I am contemplating an improvement in
it, which will better regulate evaporation, and do
away with weekly supplies, while a further reduction
in the item of labour will be effected. The vessels,
holding rather over half a pint, can be manufactured
wholesale at a £ each, and are so modelled as to allow
of the closest packing, the two parts separately; they
will last for many years.

After eleven months of immunity from leaf disease
enjoyed by the trees treated in a cure by me, and
of a new nursery I had made in the mean time, a gang of
labourers from the upper river carried infection back
to the place. Among the subjects infected were two

Liberian Coffee trees, one among a cluster of five, and another some short distance off in a small plantation of forty, all just in full spike, and to my dismay I also found the nursery badly infected. As soon as I could get the materials I started my system of vapourisation (July 4 last). The two Liberian trees I simply furnished with a small bottle each, partly filled with my mixture of only 3 per cent., hung into the angle of the lowest branches. Both trees have now been perfectly free of the fungus for some weeks, and not a single one of their close neighbours has been infected. They prove to have been completely isolated by the treatment, not a single spore living to reach and infect the others, although in some instances almost touching. With the nursery, covering about three-quarters of an acre, I proceeded in the following manner:—Judging that with so small an area as the above I should be working at a disadvantage through the gas escaping beyond the limits of the area and going to waste in every direction, I arranged my centre of vapourisation a little closer than would be necessary on a large field, and put them 8 yards apart each way. The receptacles of the fluid and their covers were represented by ordinary cups and saucers. Pressing the cups slightly into the ground and mounting the inverted saucers upon three or four short sticks stuck closely round the rim of the cups, I left a clear space of about 1 inch in depth between the rim of the cup and the cover. They were then charged with a dilution of 3 per cent., and the effects noticeable after a few days were most startling. The ripe spores with which the plants, then some nine months old, were fairly reeking, began to change colour from the well-known bright orange to a dull ochre, until they subsequently turned into dirty yellow and then greyish-white. They all, instead of as usual dispersing, remained in a manner glued to the leaves, and afterwards dropped with them, dead, harmless, incapable of propagation. As time went on, all rust which came out began to look dull in colour and sickly, quite different from a healthy crop of spores. By degrees pale rings round the rust patches began to show, indicating the circumference of the mycelia and where their farther development had been arrested. In the third month a large proportion of the spots appeared pale green, whitish round the edges, and as if drying up in the middle; some pushed out a few sickly spores, but very frequently none at all. The spots turned into dry tissue, and most of those leaves, unless too severely attacked, remained on the trees. Thereafter a little dirty-looking rust still continued to appear, but the presence of the disease, up to its complete disappearance, was chiefly indicated by dead and dying mycelia. From what I have witnessed, bare contact with the vapourised atmosphere seems, if not immediately to kill the spores, to effectually incapacitate them for germination. From moving round in the nursery, examining the effects of the treatment, as I frequently did, I would often go in among healthy trees, handle their leaves, pull suckers and the like, but not a single instance of further infection took place among those trees, Liberian and Arabian, which were healthy when the process was started. With grown trees, having leaves of denser texture and more uniform age than nursery plants, which are almost always growing, the effects, although apparently slower at the beginning, are in the end still more pronounced. They lose a greater proportion of leaves at the start, but all disease upon them and in them is dead before the fall, at once neutralising a fruitful source of re-infection. In the case of fairly vigorous trees a new coat of clean foliage, never again to be soiled by the devastating parasite, will have formed by the time the last spore has disappeared.

My method of permanent vapourisation is specially adapted for a country like Ceylon, for instance, when self-sown Coltee in the forest and native garden patches present a standing menace of re-infection, which will defy any other treatment. With the permanent atmospheric treatment any spore of *Hemileia vastatrix* which comes in any way whatever within the radius of its influence must die. As I have asserted elsewhere—"In any one employing my process will reap the full benefit of his outlay, even though his neighbour's field next adjoining or just across the road may be reeking with disease for want of treatment. No live spore can be carried out of the area under treatment—nothing carried in can live, and re-infection becomes impossible."

For the guidance of any planters who may wish to give my system a trial, I will here give the following

directions:—Before my treatment comes into general use, so as to induce the wholesale manufacture of the specific tin vessel, planters will have to make shift as I did, with cups and saucers, which must be so placed that they will not be overturned or buried by storm-water coming down the hillside, which contingency is avoided with the tin-vessel mounted on a stick. Presuming the distances between the rows and in the rows of Coffee trees to be as usual (6 feet), commence at the corner of the field, say working from right to left, start with the third tree in third row, then follow the base line, placing a vessel in every sixth row between the third and fourth tree. When the base line is thus marked off, start at right angles along the rows, count six and place your vessels between the sixth and seventh trees in a line with the trees, so as not to obstruct work and passage; put down your cups, drive three to four short pegs immediately round the cups so as to steady them, and let the inverted saucer rest on the top of the pegs. They must be of even height and long enough to allow the spout of a watering-pot or other feeding vessel to pass through under the roof to save the trouble of lifting it every time—but they should not be so high as to allow rain and rubbish to be blown in by the wind; and then place a stone up to the size of a fist to make all more secure. This done you may go on charging your vessels with a density of at least 5 per cent., but, as said above, I would for the first charge recommend a density of 10 per cent. The effects of the first week's dense vapour will amply repay the extra outlay in striking a deathblow, not only against the rust in full development, but—which is the greatest triumph of my system—against the mycelium of the fungus. This first blow will under these circumstances save a large proportion of the foliage, unless too far gone, by instantly arresting the development of the fungus, and killing all that may be still alive on the dead and dying leaves strewn the ground. If the disease is not visibly present, all the better; if the carbolic vapour will in a short time force it to show itself, chiefly in the character of dying mycelia, and save still more or all of the foliage which would have gone in the next attack of disease. The treatment may be started at any time with equal advantage. One week's ordinary weather will be found to evaporate about one-third of the contents of the cups, and thereafter weekly supplies of 5 per cent. will be quite sufficient. Should at any time during a spell of wet cool weather so little water have evaporated (evaporation of the acid goes on continually) that there is not room in the cups to receive the ordinary quantity of diluted acid, raise the density to 15 per cent. or more, or only give a few drops of undiluted acid. All this is easily calculated, and must be left to the discretion of the operator.

If planters are disinclined to make larger experiments, they may try my system with as few as two acres, and they will soon see the contrast between them and the untreated portions of the field. One acre with another will only take thirty vessels. Six months after starting the process those 10 acres and a considerable margin all round will be in full foliage and crop, when the area outside the limit of effective vapourisation may be standing without a leaf, and the crop shrivelling and starving for want of shelter and moisture, and they will find the same result. The experiment, conducted with ordinary intelligence and regularity, will in a few months convince the most sceptical of the value of my method.

The chief merits of my method of permanent vapourisation may be summarised in the following:—

1. Undeniable simplicity.
2. Economy of material and labour.
3. The most perfect control.
4. Complete isolation of material from soil and plants.
5. Complete and unconditional immunity from leaf disease.

I could bring the evidence of several neighbours who have witnessed the condition of the nursery and the few solitary trees, and the effects of my process, but as it could serve no practical purpose I abstain from doing so.

Some months ago I applied to the Fijian Government for protection of my invention, and was refused on the strength of the reading of the local Patent Ordinance, which only partly covers the subject of my discovery, and only applies to inventions of a purely mechanical nature. My process has to be exhibited for many months in the open field, and cannot be kept under lock and key like a new machine, not to mention paltry matters, patented every day. Therefore I commend myself and my interests once more to the good-will and love of justice of the public. *Joseph A. North, Belmont Estate, Rewa River, Fiji Islands, Nov. 25, 1881.*



ROSES ON THEIR OWN ROOTS: WINTER ROSES. —Some of your readers may recollect that I drew attention last year to the fact that on the Genoise Riviera Roses get rest through summer-heat and drought, and that after a few months' rest thus obtained they flourish and bloom freely again in the autumn, when started naturally by the autumn rains, or artificially by watering. I then omitted to mention a fact communicated to me by my gardener, which may be of use in England in striking cuttings. He tells me that when cuttings are taken from these shrivelled-up dry Roses, put in the ground in the blazing sun in September and well watered, the day temperature being about 75° F., and the night about 70° F., they almost all succeed—95 per cent. They throw out leaves within ten days, form a callus in thirty, and sufficient roots to bear transplanting and potting within two months. We struck some hundreds in that way last September, and the 45-pots into which they were transplanted are now full of roots. On the other hand not more than 10 or 15 per cent. of the cuttings, taken at the same time from flourishing well-nourished plants, and similarly treated, have rooted. The cuttings were principally from Madame Safrano, Madame Falcot, Gloire de Dijon, Souvenir de Malmaison, Mdle. Nabonnard and Rubra vera, a Bengal. Of these Roses, the Safrano is decidedly the best winter Rose in this climate; indeed, it is the one on which florists all but entirely depend for commercial purposes in January and February. Not only is it the hardiest winter Rose and the freest bloomer throughout winter, but it has a most valuable quality for the trade—its buds open out in water several days after it has been cut: thus they open freely in Paris and in London when sent by post from the South. Mdme. Falcot has the same inherent quality, and is very much akin to Safrano, although of rather rosier darker hue, but is not, by any means, so free a winter bloomer. I have always had blooms of it so far in the garden, but I have not been able to cut handfuls as I have done of the Safrano all through the winter up to now, February 7. I have found Safrano a late Rose in my English garden, flowering late into the autumn. It is the winter trade Rose here, and probably would be the same in Paris and London, if cultivated under glass for that purpose. It is pretty as an expanding bud, but loses its charm when fully open, being then loose because deficient in petals.

The next best Rose here in winter, at least in my garden, is unquestionably Mdle. Nabonnard, a very lovely Rose, introduced by M. Nabonnard, of Golt Juan, near Cannes. It is a large Rose, of a handsome flesh or light salmon colour, with numerous petals, and looks its best when fully expanded, the colour being then rich in the extreme. The petals are numerous, but are distinct, and the central ones are not crumpled up like those of the Gloire de Dijon. Like Safrano and Falcot, its buds open out in water several days after cutting, but not so readily as the former: that is, the flower must be half open when cut to go on opening, whereas mere buds of Safrano and Falcot open in water. It is not very generally cultivated even here, although it deserves to be, for one or two blooms lighten up a room for days, but I presume it is more delicate to rear. This autumn all our cuttings of this Rose failed, but my gardener says the failure was quite accidental, and that he has often struck it like the others. Banksias grow very freely here, attaining a large size, and they are good stocks for grafting other Roses on, such as the Gloire de Dijon and Cloth of Gold (Chromatella). They succeed perfectly on it, and grow with great vigour. The Gloire de Dijon holds its own as a hardy Rose, and has flowered all winter with me, but the flowers only open thoroughly in January and February in a very sunny sheltered situation, on a warm wall or hedge, for instance. In other less warm positions large buds form, but do not open in mid-winter. When cut also it remains where it is at the time, the flowers opening no further in water. The buds do not open at all once cut.

The Bengal Rubra vera has flowered freely all the

winter, and decorates the garden, but is only of use as a bud in nosegays; these buds do not open, and the fully expanded flowers fall to pieces almost at once. We have had Tea Lamarques until recently, and plenty of white Bankias freely flowering in hedges. We also have some other Teas in flower, of which I do not know the name; but none of them have the precious faculty of expanding in water from the buds, and of thus flowering and flourishing after several days' journey. Souvenir de Malmaison flowered until Christmas, and then gave in; it cannot be called a winter Rose here.

In December our mean minimum was 44°.1; mean maximum, 55°.2. In January the mean minimum was 44°.2; the mean maximum was 54°.5. In December we had more rain than usual; in January we have had none at all after the 3d. The sea has been calm, the sunshine constant, and the weather glorious. It has been all but midsummer, except the cool nights, all along the coast from Genoa to Hyeres. The mean minimum for fifteen years, as given in my work on the Mediterranean, for Mentone, is:—December, 44°.2; January, 42°.S. The mean maximum is:—December, 55°.1; January, 53°.5. Thus, December was true to that average, whilst January has been warmer—minimum, 44°.3 instead of 42°.2; maximum, 55°.1 instead of 53°.5. *Henry Bennet, M.D., Mentone, Febr. 7.*

PRUNING ROSES.—With reference to the hard pruning of some kinds of Roses advocated generally by "Wild Rose," I may mention that a couple of old trees of *Maréchal Niel* having become apparently somewhat exhausted, I put the knife into them hard, with the result that strong shoots are bursting forth

Economic-house, each span-roofed, and 45 feet long, 28 feet wide, and 18 feet high. Again, on either side are span-roofed Orchid-houses, 45 feet long, 22 feet wide, and 14 feet high. At one end of the range there is a plant stove, and at the other a Succulent-house, each 40 feet long, 30 feet wide, and 21 feet high. Then running back at right angles from each of the end houses is a wing composed of a span-roofed house 35 feet long, 19 feet wide, and 12 feet high, and a circular house 35 feet by 30 feet and 16 feet high; the houses in one wing being for dwarf tropical plants and tropical aquatics, and in the other for dwarf temperate plants, Ferns, &c.

The base of the houses, so far as exposed to view, is to be of polished stone, and all the wood work to be of the best Moulmein Teak wood. The range is to be heated by three of Mr. Dallen's flued wrought iron boilers, each 8 feet long, and a small saddle boiler is provided to heat a row of pipes round the base of the upper roof of the Palm-house. Besides the main range there are to be erected at the back four forcing-houses, each 40 feet long and 10 feet wide; four cool frames, each 30 feet long and 5 feet wide; potting, soil, seed, and tool sheds, and rooms for young men. The boiler-house will be under the north end of the Palm-house, and about 16 feet below the floor level. Provision for storing water has also been provided for, in the form of twelve slate cisterns; and in the heating apparatus there will be ninety valves; the heating and ventilating arrangements also including all the latest improvements. The site of the new range is alongside the Kibble Crystal Palace, which is constructed of iron and glass, and which, it will be remembered, was also built by the Messrs. Boyd.

wealth of catkins on the Nut trees, but I know of none very near. Then there is, some quarter of a mile distant, a large breadth of *Mahonia Aquifolium*, a small quantity of which is in bloom, but I am not sure whether that furnishes the pollen. I remark, however, that the bees when they take flight rise high, and dart right away, evidently bent on a long journey, and apparently with the same confidence they would show were it May instead of February. Whilst we may be in doubt as to whence this food is obtained, there can be none as to its purpose, and we may reasonably hope that it indicates plenty of early and strong brood, and, not least, some early swarms. *Boyd Esq.*

The Poultry Yard.

MATING FOR BREEDING.—All fowls which are to supply eggs for hatching this spring should now be mated for breeding. In many instances this will have been done; but for March eggs, and later on, there is yet time. One of the main points to be observed in mating is to have good male birds. Cockerels, and those two years old, are the best. After this age they are not so good; and, apart from age, it is most important that the male should not be related closely, or at all, to the hens. In-breeding only begets infirm chickens and diminutive fowls. This is not a question relating to exhibition stock alone, it applies to table fowls most particularly, and farmers and others who only breed chickens for home use cannot pay too much attention to this, as it is with such as them that we generally observe the smallest fowls. The remedy is simple, and the result sure. No matter whether the stock is pure or crossed, unfertile eggs are generally the result of having too many hens with one cock. Five hens now and through-

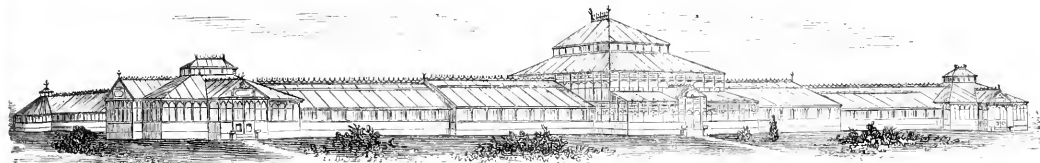


FIG. 33.—VIEW OF THE PROPOSED NEW RANGE IN THE GLASGOW BOTANIC GARDEN.

from the old hard stems in a way that shows there is plenty of life and vigour in the old deers yet. Not the least remarkable breaks are from solid stems as big as broomsticks and as hard, the buds bursting out in the most unlooked-for places, and with a strength that promises presently a fine robust growth. If this be secured, the trees will get a new lease of life. These are under glass and are about eleven years of age, thus showing that in some places the *Maréchal Niel* lives and thrives to a fair age. No doubt, this is as well glass, will bear almost any amount of cutting, but if it is desired to ensure a large number of medium-sized buttonhole buds, the cutting must be directed to that end. If large blooms are needed, hard cutting will best ensure that result. Very coarse growths in the open air are often pithy, and fail to ripen well, so that when severe weather comes the wood is killed wholesale. Glass not only gives the wood protection in hard weather, but it assists in ripening it also, so that doubly it is benefited. Some kinds, Lamarque for example, break so freely that often where one shoot is hard cut half-a-dozen will break out, and some of these will grow very strong. As this Rose flowers best from side shoots, it is better not to cut too hard, and thus ensure plenty of bloom. The *Maréchal Niel* is peculiarly a Rose that needs recuperation, and this is best got by forcing it to make new strong growth by hard pruning, and also by top-dressing the roots, for it is of little use to hope for new life unless the plant is assisted by ample nutrition. *A. D.*

GLASGOW BOTANIC GARDENS.

By the courtesy of Messrs. James Boyd & Sons, of Paisley, the architects and contractors, we are enabled to place before our readers a view of the fine new range of glass-houses shortly to be erected in the Glasgow Botanic Garden on the site of the old one (fig. 33). In the centre there is a Palm-house, 80 feet long, 50 feet wide, and 42 feet high, and on either side an

The numerous plans we have seen seem arranged with a view to practical utility; and with such a cultivator as Mr. Bullen, and such a Director as Prof. Bayley Balfour, the old Glasgow garden ought speedily to resume the importance it had under the management of the late Sir W. Hooker. Glasgow is so favourably placed for the importation of new plants, that with the facilities now about to be offered we may look for great things in the future.

The Apiary.

WITH such a winter as is the present one there should be a good honey-harvest. Bees are having a good time of it; they can get out to obtain plenty of fresh air, and are in the bright sunshine much strengthened. Of course if not well supplied with honey they need feeding, and doubtless it is well to feed in any case, as good honey may thus be saved. But it is quite remarkable to note how much the insects are already helping themselves to natural food. Here, even as early as the 10th, when the sun shone out and the air was clear, the bees were working almost as busily as if it were a pleasant day in April, and coming in laden with pollen mostly of a dull white colour. So many, indeed, seemed to be collecting pollen that they would come tumbling in one over the other a dozen at a time, just as though some large breadth of seed were near and in bloom. I have been much puzzled to understand from whence this pollen could come, and should like to be enlightened. I have thought that a quantity of *Gorse* on Hounslow Heath might be in bloom; but that would be two miles away. Then there is quite a

out March are enough, and after that two or three more may be added.

FEEDING FOWLS.—Extra attention should be given to this now. As all should be laying now, and every egg should be fertile, soft warm food will be morning, and plenty of grain in the evening, will be found to agree with them well. Spratt's patent food, mixed with about an equal quantity of barley-meal, is a grand mixture for them. Buckwheat, English Wheat, Oats, and Indian Corn, are all good grains. Made-up mixtures of all together we do not approve; giving each kind by itself is what we approve. Then a change may be given daily, and this is what they enjoy. Once or twice a-week is often enough to give Indian Corn. It is very fattening, and hens which are over-fat never lay well, and the eggs they do lay are seldom fit for setting, as they are generally deformed. At this season we have had cocks in poor condition, as they will sometimes hardly eat unless the hens are with them, and then they attend more to finding for them than themselves. Their condition may always be judged by taking them in the hands when they are on the roosts at night, and if too tight they may be shut up a little while by themselves daily, and given some extra food. Indian Corn is good here. They may call on their mates for a long time, but in the end they will eat, and afterwards they may be let out again. *Henswife, South Wales.*

ABIES FORTUNEI, LINDE.—In the *Journal of Botany* Dr. Hance notes the occurrence of this tree near Fu-chai, and adds—"I believe Lindley was quite right in referring this handsome tree to *Abies*, though *Carrière* has made a special genus, *Keteleeria*, of it. The cone-scales are not persistent, as stated by Parlatore, but they do not fall so early or so readily as usual in the genus." In museum specimens, however, the scales are certainly persistent. Hance also refers the plants to the Silver Firs (*Abies*). Our much regretted friend, Andrew Murray, however, was the first to unravel the synonymy of this species.



Orchid Notes and Cleanings.

PHALANOPSIS STUARTIANA.—In a recent visit to Mr. Lee's famous collection of Orchids, Leatherhead, I had the pleasure of seeing three very fine plants of this new and rare Orchid, all in flower. Till then I had no idea how very distinct is P. Stuartiana from all other known Phalanopsis, or what a truly beautiful Orchid Mr. Low has introduced for us. Mr. Lee's largest plant has several leaves, one of which measured 12 inches long and over 3 inches broad. The spike, which was then carrying a score of flowers, had long branches and branchlets, from which fact I think we may safely conclude that P. Stuartiana is very free-flowering, even more so, I should say, than P. Schilleriana. Mr. Low possesses dried specimens where on one spike a hundred flowers can be counted, which number, judging from the strength of Mr. Lee's plant, may be reasonably expected under cultivation; P. Stuartiana will then be a grand companion for P. Schilleriana, more than which could not be said of even the chimerical scarlet Phalanopsis, supposing it really appeared. Mr. Lee's appetite for new and rare Orchids is evidently a very keen one, and his grower, Mr. Wolford, must think his responsibility increasing at a rapid rate. *J. C. Spyers.*

MASDEVALLIA CHELSONI.—This is a hybrid between Veitchiana and amabilis. The flowers are irregularly funnel-shaped, the tube of the funnel curved, and the limb divided into one smaller and two lateral larger segments, all broad at the base, acute, and prolonged into long thread-like tails. The colour is indescribably rich and brilliant, suggesting orange, crimson, rose, lilac, or a combination of all these according to the direction in which the light falls on the flower. No artist could render the colour of this flower faithfully, still more impossible would it be to describe it in words. We have before us a flower from Mr. Lee's collection.

CATLEYA TRIANAE.—Amongst several varieties of this species in flower in Messrs. Veitch's nursery at Chelsea, the form named Dodgsoni stands out very prominently for the large size and exquisite beauty of its flowers; these are quite 8 inches across, the sepals and petals of a beautiful pinkish-blush. The front margin of the lip is crimson, the basal portion being pale yellow. C. Trianae alba is also very lovely, being pure white, except the base of the lip, which is pale yellow. Amongst the ordinary forms there is one with a most beautiful crimson lip, richer by many shades than the Dodgsoni form. Some years ago a discussion arose in the *Gardeners' Chronicle* as to the length of time this *Catleya* remained in flower, one good grower contending that it did not last more than a week. It is enough to say that the individual flowers on C. Dodgsoni remained in beauty on the plant in Messrs. Veitch's nursery for five weeks.

ANGREUM HYALOIDES.—Amongst the rare little genus *Angraecum* hyaloides is one of the most charming. It is a tiny plant, in the way of, but smaller than A. citratum. On one little plant with one growth I counted seven spikes not more than 2 or 3 inches long, on which the small pure white flowers are thickly placed. There is quite a thicket of spikes on a small collection of A. citratum in the same house. This fine species is being better appreciated as it becomes more common.

ORCHIDS FROM SEED.—When Mr. Day was advised by his gardener not to seed his rare *Cypripedium*, owing to the great risk, it was simply because of its rarity that such advice was given, as other plants had shown a great dislike to it and even in some cases death had resulted. It was my good fortune to spend three years at Tottenham previous to the dispersion of Mr. Day's collection, and during that time I had a great deal to do with plants in all stages of development as regards seeding, and from very careful observation I can truly say that I was in nearly every instance satisfied it was doing harm. During these three years, many plants of each genus were impregnated, as *Cypripedium*, *Laelia*, *Cattleya*, *Phalanopsis*, *Odontoglossum*, *Oncids*, and in one or

two cases *Vandas*. As regards *Cypripedium* many of these were seeded both by Mr. Day himself and his gardener, both of them very enthusiastic hybridists; some of the *Cypripeds* bore the trial fairly well, while others would after a time bear sufficient testimony that for them it was not the right thing. I found C. superbiens, C. vexillarium, and most forcibly the beautiful C. Spicerianum, amongst those that resisted the hybridist's endeavours the most: the last-named on one occasion bore a very fine pod, the cross being vexillarium, but so much did it seem to suffer, that in order to keep the plant alive we felt at last compelled to cut off the pod in order to save the plant, which in time regained its usual vigour. With our *Phalanopsis* we tried again and again to procure a cross, but always failed even when success seemed at hand. In fertilising these care was taken always to set the lower flower, and also to remove all other flowers from the spike to feel certain there should be no undue strain put upon the plant; yet these one by one lost heart, and in nearly every instance died from what we justly, I think, laid to impregnation. *Cattleya* and *Laelia*, also, at times showed unmistakable signs of distress, owing, I believe, to the unusual size of the pod, and to the long time it often takes to perfect its seeds. *Odontoglossum* and *Oncidium* show, by the much smaller bulbs they make during the time of carrying a seed-pod, that it must be taking vigour from the young growth. In concluding this note I will give verbatim my present employer's views, he being a great lover of Orchids and a most thorough hybridist:—"I have myself lost numerous plants, including a fine variety of *Anguloa eburnea*, and a good plant of the rare *Cypripedium Faircraeanum*." I may say that Mr. Day's plants were far from "the last-straw stage of existence," as Mr. Douglas so forcibly puts it. *H. C., Forest Farm, Windsor Forest.*

EPHEDRUM WALLISH.—This species has made growths 6 feet long in one season in Sir Trevor Lawrence's collection, and by the strength of the young growth partly formed perhaps a greater length will be attained. The long stems are well furnished with clusters of golden-yellow flowers, the sepals and petals sparingly marked with small spots; the whitish lip is marked with maroon-purple lines. Another species seldom seen in flower is *E. rhizophorum*. Here a thrifty plant of it has a compact cluster of its rich orange-scarlet flowers with a paler lip. Like many others of its family, it forms long, rod-like stems.

LELIA ANCEPS.—Growers are beginning to find out that this succeeds well with cool treatment. The variety alba is doing well in Mr. Bull's nursery in a cool-house, and in the Burford Lodge collection. Mr. Spyers has placed some grand varieties in juxtaposition with *Dendrobium Jamesianum* and *D. infundibulum*. On a recent visit the rare and beautiful *L. anceps Dawsoni* was over, but the variety rosea is an admirable companion to it, and was beautifully in flower; it scarcely differs from the form shown by the Messrs. Veitch under the name of *L. flowers Veitchii*. The sepals and petals are white, with the faintest tinge of colour, the lip edged with pale purple, the labellum marked with purple lines, and the throat yellow.

DENDROBIUM CRASSINODE BARBIERIANUM.—The remarkable growths, as well as the compact habit of this plant, of which there are some splendid varieties in flower in Sir Trevor Lawrence's collection—and well flowered too, almost every node having its quota—would place it at least equal with the grand *D. Wardianum*. There are several forms; one well-flowered plant with two spikes had been in flower five weeks. *D. Findlayianum*, in flower too, is a most distinct and beautiful species. When this was exhibited before the Floral Committee it did not receive the highest award given to new flowers, but as it is to be seen now, with its distinct habit, the flowers freely produced, of a delicate pinkish tint, with a bright yellow blotch at the base of the lip, it would doubtless be more highly esteemed.

VANDA CATHICARTII.—Of this Sir Trevor Lawrence has probably the most remarkable plant yet seen in cultivation. It had four spikes of flowers open at once; on one spike there were four flowers, and on the other three spikes three flowers each. The singular flowers were well described at p. 192.

ANGREUM CITRATUM is now to be seen in full beauty in the Burford Lodge collection. On one plant there were five long spikes, which would be in flower in a few weeks; others had two long spikes, all of them giving evidence of its free-flowering character. A. Kotschy had just come out of flower, but Mr. Spyers thinks very highly of it, and places it before A. Elbi. The strongest plant had a spike 2 feet long. It has been recently figured and described.



The Kitchen Garden.

SEED SOWING, &c.—Should the weather keep dry for a few days longer the ground will be in capital condition for proceeding with the following operations:—Plant out shallots, Garlic, and Chives in beds 4 feet wide, with an alley 1 foot wide between each bed, in rows 9 inches apart and 6 inches in the row. The beds should have an even and somewhat firm surface, over which some wood-ashes have been strewn; it should be patted down with the back of the spade, and when the bulbs have been planted—the Shallots inserted by the pressure of finger and thumb barely under the surface of the bed, and the Garlic and Chives a couple of inches deep—the bottom of the alleys should be made level; the beds will then present, as all seed-beds should do, a neat appearance.

Onions, as a rule, succeed Celery, therefore no time should now be lost in taking up the latter and laying the stems in as deep as before in a north border, and the ground should be manured and well dug. The ground, assuming it to be light and pulverised, should be trodden when sufficiently dry to prevent its adhering to the feet, raked and made level with a wooden rake and then rolled with a light roller and again raked, this time and subsequently with an iron rake, the ground having first received a good surface-dressing of dry soil and wood-ashes, after which the drills can be drawn 1 inch deep and 1 foot asunder, and the seed sown thinly and evenly in the drills. The soil should then be closed in over the seed with the feet, and again trodden down over each individual drill and rolled, and finally raked over in the same direction as the drills, so that the bed when finished may present a fine, firm, and even surface. As to varieties, of which I gave a list at p. 82 in your number for January 21, I would remark that the long-keeping varieties and those which are grown chiefly on account of their fine size and for autumn use, should be sown in proportion to their keeping qualities, and a few rows of Early White Naples should be sown to succeed the autumn-sown ones, also a few beds of the silver-skin variety for picklers, the latter being sown broadcast and rather thickly in a poor, dry, and shallow border, in order to prevent them from growing too large.

Carrots and Parsnips should also be sown in the same way as recommended for Onions, except that the rows should be farther apart—from 15 to 18 inches between each row. However, it will be advisable to make two sowings of Parsnips (of which the Hollow Crown and Maltese are good varieties), one now and the other about the end of April, the former for early and the latter for late use. Another sowing of Turnips (Snowball and Carter's Jersey Lily) and Early Nantes Horn Carrot should be made adjoining those previously sown. A small sowing should also be made in a favourable situation of the following seeds, namely:—Wheeler's Imperial Cabbage (or any other early variety), Early Elm Savoy, Brussels Sprouts, Leek (Musselburgh), green and white Paris Cos Lettuce, and Grand Admiral Cabbage Lettuce, round-leaved Spinach (a row between the ranks of early Peas), and Early White and Scarlet Turnip-rooted Radishes—the latter under a south wall between the trees. As soon as the Cauliflower and Lettuce plants, which should now (excepting those intended for early use), be all planted out as recommended in previous Calendars, have been removed from cold pits, the latter should be got ready for and planted with some of the early kidneys from the shelves in the Potato-house, taking care that the young shoots are not broken off in the operation.

RHUBARB, SEAKALE, &c.—Where large quantities of Rhubarb roots are taken up annually for forcing it will be necessary to make fresh plantations of that variety every year, by dividing the roots and planting the divisions with the buds a couple of inches under the surface in rich deeply-trenched ground—the soil being rather light than otherwise—in order to maintain an adequate supply of good established roots for that purpose; therefore advantage should be taken of

the present fine dry weather to get this, together with the overhauling and replanting of the herb-borders, and any other operation that will be as well, and perhaps better, done now than a month later. In covering Rhubarb and Seakale crowns, place a number of Rhubarb pots—more or less according to circumstances—over some of the best established plants of a good early variety and if necessary cover them with long stable litter, a little of which should also be placed over the remaining crowns, which are now on the move, to protect them from injury from frost. The individual rows of Seakale we cover with boxes 8 feet long, 9 inches deep, and about the same width (inside measurement) which are made as follows:—Two boards of the dimensions above given and two end pieces—the latter an inch higher than the sides to keep the lid in its place—are nailed together, and a board of the proper length and breadth placed upon the top as a lid. The necessary number of rows having been covered with these boxes, as the latter are covered over, and the space between them filled with decayed leaves so as to thoroughly exclude light and air from the interior of the boxes; the natural result of plants thus treated is "Kale" of the best description—short, thick, and crisp.

FORGING DEPARTMENT.—Sow in pots Long Red, Cayenne, and Squash or Tomato-shaped Capsicums, placing them in a warm frame near the glass, and potting off singly in thumb-pots as soon as large enough to handle, returning them to the frame. Celery plants, too, when large enough, should be pricked out in rich, finely-sifted soil, 4 or 5 inches apart, in a frame near the glass, or in pots and boxes. If the latter are more convenient, and placed in a similar position, and then watered through a fine rose to settle the soil around the roots of the plants, which should be shaded from the mid-day sun for a few days until the roots have taken hold of the soil, when it should be discontinued, and sufficient air admitted to the frame to prevent the plants making a weakly growth. As the plants increase in growth so also should the ventilation be increased, and subsequently the sashes should be tilted up at night. A pinch of Tomato seed—the Trophy, in my opinion is the best for outdoor culture—should be sown at the end of the present month, as also Marjoram and Basil; also a pinch of Leek seed in a box to be pricked off subsequently and grown on for special purposes where necessary. *H. W. Ward, Longford Castle, Wilts.*

WHEN TO SOW ONION SEED.—Under this heading a correspondent endeavours to show that February is a better month in which to sow Onions than the time usually chosen; but to those who may feel inclined [to be venturesome enough to commit their seed to the ground thus early I would just reiterate *Punch's* advice to those about to marry, and say, "Don't," for although, as "W. H." says, frost does not hurt the seed, I know it does the plants, as on several occasions we have had the tender tops of ours much cut and injured, and yet we never sow till towards the middle of March, which in most districts is quite early enough, as little or no growth can take place till April, and any check from cold to young seedlings always tells seriously against their progress even after fine weather sets in. This being so, there can be nothing gained by making the sowing in February; and it is far better, in my opinion, to wait and be late if the land is not in good order at the ordinary season than to risk having the seed lie so long in the earth, where, if we set in, or snow falls, a great deal of it is likely to rot. *J. S.* [We should add that "W. H." hails from Surrey, and "J. S." from Suffolk. Ed.]

— I have on several occasions sown Onion seeds in February, as recommended by "W. H." at p. 185, and had very good crops of Onions. One year—the ground being in excellent order—we sowed on February 7, and had afterwards a heavy fall of snow, which lay on the ground for a fortnight, but did not injure the seeds in the least, as we had a splendid crop that year. We sowed on the 9th this year, as the ground was then in good condition here. *H. Henderson, The Gardens, Hall Place, Cranleigh, Surrey.*

NOTES ON VEGETABLES.

CULVERWELL'S GIANT MARROW PEAS.—Had I written the article (p. 141) on "New Vegetables of 1881" I should have given the above Pea as much

prominence as possible, as I feel certain that of all new vegetables introduced during the past year none can surpass this in genuine merit. No one could name a fault it possesses, and those who prefer small-podded varieties to it stand greatly in their own light, and may be regarded as obstructors of advancement in Pea raising and growing. It grows freely, has a robust constitution, a most prolific habit, and the pods are the largest and best filled of all, while the flavour is second to none. Last spring I had a few seeds direct from Mr. Culverwell and some from two different seed firms, and in all cases the above are the points which it showed most prominently. *J. Muir, Margam, S. Wales.*

CARTER'S INCOMPARABLE CRIMSON CELERY.—This grows with me from 18 to 20 inches high, thick, solid, and crisp, and has that rich nutty flavour so desirable in a good Celery. My experience of it is for a late crop, but doubtless it is all that can be desired for early work. Col. Clarke's Solid Red, and Leicester Red, both bolted with me three weeks back, for which I blamed the mildness of the season; but I lifted ten dozen of Carter's Crimson only last week not one of which showed any signs of starting to flower. This I take as conclusive that it is the very best variety I am acquainted with. *R. Gilbert, Burghley.*

THE MAZAGAN BEAN.—This is still quoted in many catalogues as an early variety, but it is a misnomer to term it such when compared with the Seville Early Longpod and the ordinary Early Longpod. That it is a hardy and free-bearing variety cannot be denied; but the truest Early Longpod is unquestionably the Seville, while for its dwarf growth it is a great cropper. Too much cannot be said in praise of this variety as an exhibition Bean, especially at shows held during the first and second weeks in July; it is the longest podded variety known, the pods often reaching a length of 1 foot or more. So great an advantage has this bean over any other on the exhibition table that a class for Longpods should be provided in schedules, so that the Windsor type may form a class of themselves.

Peaches and Nectarines.

The present time is a very busy one in this department, especially where there are a number of houses. The chief work in the early and second house for some time will be disbudbing, thinning the fruit, and heeling down the young shoots. Pinch in close any shoots at the base of which there are fruit, and which may be taken off after the fruit is ripe. A little manure-water may now be put in the evaporating troughs, to keep red-spider in check, and trees that have set a heavy crop will be very much assisted by being mulched with good rotten manure, and afterwards well watered with tepid water at about the usual temperature, 85°. Take advantage of bright sunny days to shut up early, allowing the temperature to run up to 75° or 80°, syringing the trees well backwards and forwards with tepid water, thoroughly wetting every particle of foliage, and always doing it early enough to allow the trees to get dry before night. Keep the night temperature about the same as already given. If treated according to directions given, the third house will now be in bloom, and the fourth close upon its heels. Fertilise with the brush daily, or, if the weather is dull, on alternate days will be sufficient. My bees are dead, from some cause or other, or I should have introduced them again, as they did me good service last year. As soon as the fruits are fairly set, give a thorough watering with tepid water. Proceed with cleaning and tying late houses, so as to get all finished as soon as possible; for with all the ventilation we can possibly give, if we have a continuation of mild weather the buds will be on the move directly. It has this season been sharp work to keep pace with them. *J. Wallis, Keele Gardens, Feb. 14.*

THE BEEKEEPERS' ASSOCIATION.—On Wednesday afternoon the annual meeting of this Association was held, under the Presidency of the Baroness Burdett-Cootts. The annual report stated that the number of members continued steadily to increase, the present total being 331. There is also an increase in the county beekeepers' associations in affiliation with the central society.



STOVE.—In this department the majority of the plants will soon be making good progress, being greatly aided by the unusually mild weather we are experiencing, whereby a nice growing, healthy atmosphere can be maintained without excessive firing. Give close attention still to the watering of newly potted plants; these should on no account be carelessly watered along now, or the evil results will be apparent during the summer.

STOVE BULBOUS PLANTS.—These are at all times valuable; many of them can be grown where other plants will not thrive. Alocasias are grand things when well done. These should be potted now before active growth commences. A. Lowii, A. Veitchii, A. Thibautiana, and A. metallica will thrive well in a compost of peat, such as one would use for Orchids, with the addition of some fair-sized pieces of charcoal, some sphagnum moss and silver sand—a good open porous soil suiting these kinds. A. macrochiza variegata will develop its variegated leaves to greater perfection when grown in a poor soil, in which loam predominates. A. Marshallii and A. Jenningsii may be treated like Caladiums. The stock of these latter plants should be gone through and repotted before they emit fresh rootlets. Remove all the old soil and dead roots from the bulbs, and see that no decaying portion of the old bulb is left on when repotted. For this purpose use a clean, sweet, open soil, with a good supply of leaf-mould and silver sand, and pot into rather small pots for a start; the most promising can later on be shifted into larger sizes as occasion may require. A batch of Achimenes and Tydeas should now be started. When growing these our practice used to be to separate all the stock entirely from the soil about now, and keep all that are not wanted for the first batch in sand until required to be started in their turn. Generas should be kept dormant a while longer yet, but any of the Gloriosas should be potted without delay to endeavour to get a good growth before they commence to flower. Pancratiums may be repotted, removing the offsets where this can be done easily. One good strong bulb of these is better kept singly. If several are grown in one pot together they generally come into flower at one time, which is not desirable, the flowers being short-lived. A better succession can be kept by growing each bulb by itself. In potting these plants a predominance of good loam should be used. Ureolina aurea may be grown under like treatment. Of bulbs thriving best in a temperate stove or intermediate house the Amaryllis stand in the front rank; those that are throwing up their flower-spikes should now be more freely watered. The flowers, when expanded, will be of greater substance, and the young growth succeeding the flower-spike will not become unduly elongated. Imantophyllums grown in the same temperature will soon push up their spikes; liquid manure will be beneficial to these occasionally. Haemanthus should be kept rather dry until signs of flowering appear, then treat them more liberally.

GREENHOUSE.—Keep this structure well ventilated in mild weather, and do not entirely close up at night unless signs of frost appear. All specimen hard-wooded plants that are wanted for late summer blooming should be retarded as much as possible; for this purpose a house with north aspect is invaluable. Plants of Pimelea mirabilis and P. decussata may be made to bloom in June and July by pinching out the points of the shoots during this month. Dracophyllum gracile may be treated likewise; the individual spikes will not be quite so fine, but extra numbers will help to compensate for that deficiency. Hyacinths intended for the latest bloom should be kept as cool as possible; they are unusually early this year, no doubt caused by the mild weather. Plants of the hardy Primulas, denticulata, and cortusoides amœna, are very pretty objects grown in pots for the greenhouse or conservatory, being distinct and attractive. These will soon push up their spikes, see therefore that they are watered freely. *James Hulson, Gunnersbury House.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb. 20	Sale of Imported Orchids, at Stevens' Rooms.
		Sale of Lilies, &c., at the Mart, by Protheroe & Morris.
TUESDAY,	Feb. 21	Clearance Sale at The Nurseries, Fitcham, S.W., by Protheroe & Morris.
WEDNESDAY,	Feb. 22	Sales of Imported Orchids, and Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Feb. 23	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Feb. 24	Sale of Roses, Hardy Plants, &c., at Stevens' Rooms.

THE annual meeting of THE ROYAL HORTICULTURAL SOCIETY, which took place on Tuesday last, did not appear to excite much interest among the Fellows, who, as the President remarked, reversed the ordinary rules, and flocked to the meeting when the Society was in adversity, but kept away from it when prosperity seemed returning. The report, too, from the Council was not of a very exciting character, and generally the proceedings seemed to indicate that the Council had the confidence of the Fellows at large. Lord ABERDARE repaired one omission in the report by paying tribute to the memory of the late Dr. DENNY, an ardent horticulturist and a good supporter of the true interests of the Society. He might well have gone further and alluded to the retirement of the late Treasurer, Mr. WEBB, who devoted much time most beneficially to the interests of the Society, and who, by his genial manner and generosity, endeared himself to all who came into contact with him. The retirement of Dr. HOGG from the post of Secretary should also surely have been mentioned. It will be remembered that he took office in troublesome times, when few would have been found willing to accept so thankless a position, and throughout he managed to retain the confidence of the horticulturists. His services during the troublesome litigation forced on the Society by the Commissioners must have been of no light kind. The new members of Council are all men in whom the horticulturists may fully confide as gentlemen devoted to horticulture and the legitimate work of the Society. To outsiders it would appear that Mr. HAUGHTON, to whose energy and zeal the Society owes so much, would as a business man have made an excellent Secretary. He, however, retains office as Treasurer, while Major MASON, an excellent horticulturist, fills the office vacated by Dr. HOGG. The only objection that can be raised to Major MASON—and in busy times it would be a serious one—is his residence at a distance from London. The number of Fellows is steadily increasing, the yearly revenue is improving, and the purely horticultural routine work at Chiswick and at the Committees is on the whole well done. That more is not done to raise the tone of the Society, extend its operations, so as to make it more truly an exponent of national and scientific horticulture, is due to two causes—one, the insufficiency of funds, and the other the absence of any competent head to manage and direct the whole Institution, and see that its higher functions are duly attended to. Under existing circumstances the supply of this deficiency seems to be an impossibility. The popular lectures and demonstrations of the Rev. GEORGE HENSLAW meet with very general approval; and we trust the Society may soon see its way to bring before the public his elaborate report on the effects of the late severe winters on vegetation. Such a report, carefully and thoroughly done, would be of very great value, and would do much to restore the influence of the Society in a department which, from force of circumstances, has been much neglected of late years.

The balance-sheet, as it stands, presents opportunities for unfavourable criticism, but we believe that the items which appear questionable are readily and satisfactorily explained, and that the great deficiencies under some

heads, and the large amounts under others are due, not to any real discrepancies, but to the manner in which it has been thought well to draw up and present the balance-sheet. It is a pity that an explanatory sentence was not added to the report to remove the impression which many must have had on a superficial perusal of the documents in question. Thus the small amount mentioned as paid in prize-money is simply due to the fact that by far the larger part has been paid since Christmas, so that really the financial statement, so far as the year is concerned, is satisfactory.

The Society appears to have been rather unfortunate in its dealings with the Sanitary Exhibition, and specially with the managers of the Smoke Abatement Exhibition, who, after occupying the arcades for some time, and killing or seriously injuring many of the noble specimens in the conservatory, announce a loss on their business of about £800, from which the prospects of the Horticultural Society in this connection appears the reverse of satisfactory. It is to be hoped that in any future negotiations of this kind the Society may be enabled to make better bargains than it has hitherto done.

As to the lawsuit hanging over the Society, it will be remembered that a decision in favour of the Society was obtained, but that this decision was appealed against with results not yet known, but which it is expected will speedily be determined. Till this matter is settled all attempts to get beyond the ordinary routine must of necessity be held in abeyance. On the whole, in spite of the sword of DAMOCLES which hangs over the Society, and the position and prospects of the Society are at any rate considerably better than they once were, and for this relief horticulturists owe their thanks to the present Council.

— BRICK KILLS.—At the late Gloucester Assizes, Mr. W. FOSTER, of Spillmann's Court Nursery, Stroud, sought to recover damages from a brickmaker on account of injuries to the plants in his nursery, alleged to have been sustained by fumes from the defendant's brickworks. The case is reported at great length in the *Standard Journal* of February 11, and is worth reading by all similarly circumstanced. For the present we can only mention the case, and hope to revert to it at another time. It must suffice to say now that the jury apparently thought either that Mr. FOSTER'S injuries were not severe, or that they were caused by some other agency, such as frost, rather than by the fumes of the brick-kills, seeing that they awarded Mr. FOSTER £1 damages only. We are informed that the Judge expressed his dissatisfaction with the verdict, and that an application for a new trial will be made in London. This being so, further comment would be inappropriate, but we may say without impropriety that the contention in the case lately tried turned very much on the question of the difference between the effects of frost or of noxious vapours on particular plants—a difference that in the main ought surely to be readily recognisable by experienced plant-growers conversant with local circumstances.

— BRAZILIAN BROMELIACEÆ.—MM. ED. MORREN and H. FONSNY have published a French version of the descriptions of the Bromeliaceæ discovered by Dr. WAUBA during the journey of the Princes AUGUSTUS and FERDINAND of Saxe-Coburg, preceded by a narrative of their travels, to which we may hereafter allude at greater length.

— THE RAISER OF MAGNUM BONUM POTATO.—MR. CLARK, a native of Christchurch, Hants, the raiser of this Potato, has fallen upon evil times, so that several gentlemen who know his sterling worth, and appreciate his labours as a successful raiser, are desirous of showing their sympathy in a practical form. Donations of £25 have been received from Messrs. SUTTON, others from LOUISA, Marchioness

of Waterford, J. K. WELCH, Esq., and others. Messrs. FRAMPTON & SON, Highcliffe, Christchurch, Hants, will receive further subscriptions.

— VEITCH'S "MANUAL OF CONIFERS."—The utility of this very serviceable book has been very considerably enhanced by the publication of a full index in place of the imperfect one before issued. As many persons may have obtained the book who are not known to Messrs. VEITCH, we are requested by those gentlemen to state that a copy of the index will be supplied to those who have purchased the book, on application to the Royal Exotic Nursery. With this addition the *Manual* becomes by far the most useful and accurate book of its class.

— MR. THOMAS MOORE.—In consequence of a misapprehension which appears to exist with reference to Mr. MOORE'S retirement, we are requested by him to state more explicitly that it is from the co-Editorship of this journal that he has recently retired, and not from the Curatorship of the Chelsea Botanic Garden, or the Editorship of the *Florist and Pomologist*.

— THE HORTICULTURAL SOCIETY OF SEINE AND OISE will hold its annual flower show at Versailles from Thursday, May 18, to Sunday, May 21, inclusive. It will take place, as usual, under a large tent in the park of Versailles, close to the Palace. This show is usually one of the best round Paris.

— EUPATORIUM GRANDIFLORUM.—From Mr. T. SMITH, of Messrs. RODGER, McCLELLAND & Co.'s nursery, Newry, we have received a specimen of this plant, which gives one a good idea of its character for conservatory decoration. It is bushy in habit, with large ovate, lanceolate, rough, coarsely-toothed leaves, and much branched terminal panicles of white flower-heads. Mr. SMITH writes:—"It is one of the best plants in flower here just now. The one sent is two years old, and it is unlike most of the genus, inasmuch as one-year-old plants do not develop the fine heads of bloom that older plants do. My practice is to cut them down after blooming, and plant them out in rich soil in the open ground at the end of May. I do not stop them at all, and lift and pot them in September. The plant is curious in another respect. After being housed in the autumn it requires to be carried right on slowly through the winter; if it is put in a cool-house in order to retard it the lateral spikelets never develop, and the terminal ones come miserably small."

— THE ARTHUR VEITCH MEMORIAL FUND.—It has given us much pleasure to learn from Mr. E. R. CUTLER that the committee of the Gardeners' Royal Benevolent Institution has received the sum of £800 14s. 2d., being the amount collected by the Arthur Veitch Memorial Committee to perpetuate the memory of that gentleman, and which, by the express wish of the Memorial Committee, has been placed to the account of the Pension Augmentation Fund.

— FLOWERS IN SEASON.—From Messrs. CRIPPS' nursery, Tunbridge Wells, we have received flowers of the old *Hamelis virginica*, and of the more recently introduced *H. Zuccariniana*, which appears to us to be very closely allied, if not identical with the plant figured by us some years ago as *H. arborea*, and which is not half so well known, as a winter-flowering shrub, as its merits demand. *Nuttallia cernitiflora* is also flowering freely, as well as double Lilac and white Primroses.

— THRIPS.—MR. TH. FERGANDE, 321, D Street, Washington, writes that he is making a study of the Thrips insects in their various forms, and is very desirous of obtaining specimens from all parts of the globe; and trusts that some of our readers, home and colonial, may favour him with specimens. These insects are very small, mostly vegetable feeders, and increase periodically, as gardeners and farmers know to their cost.

— SPORTING IN BEGONIAS.—In some of the Continental gardening papers it is stated that a gardener of Nancy has obtained several varieties in propagating *Begonia Contessa Ackermann*, according to the part of the plant employed. Thus, cuttings of

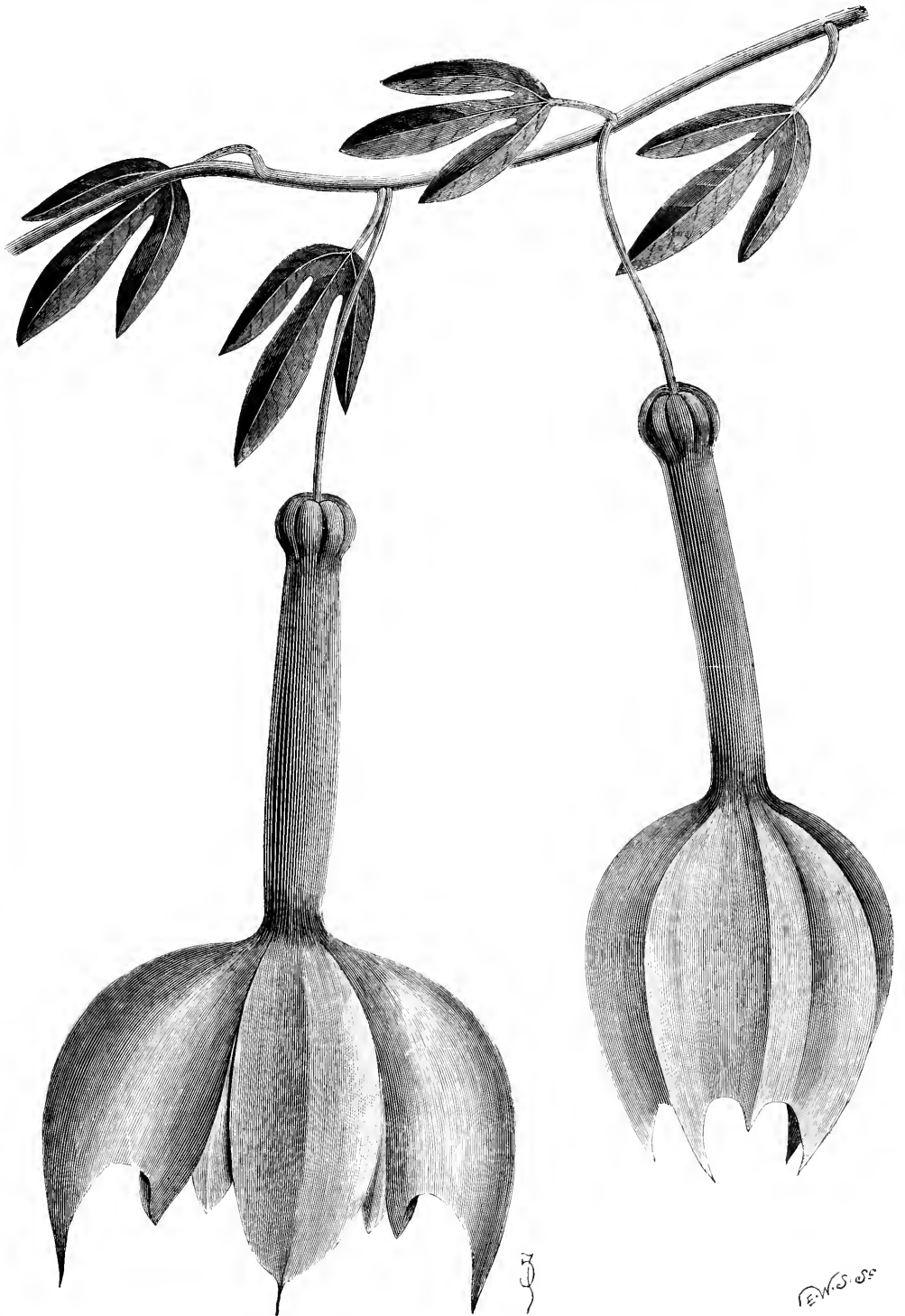


FIG. 34.—TACSONIA PARRITE : FLOWERS ROSY-ORANGE. (SEE P. 218.)

the stem produced plants bearing leaves of the same colour as the parent—that is, green suffused with red and dotted with white; whereas cuttings of the leaves produced plants bearing leaves not only more spotted but banded. Uncultivated developed in their centre several plants whereof one had spotted leaves and the rest had banded leaves. We agree with Dr. REUEL that this result requires confirmation. It was probably an accidental circumstance.

— DR. NEUBERT'S "DEUTESCHES GARTEN-MAGAZIN."—We have received the first number of a new series of this gardening monthly, now under the joint editorship of MAX KOLB, Inspector of the Royal Gardens, Munich, and Dr. J. E. WEISS, botanist. It has been enlarged, and it is to be more fully illustrated than heretofore. The present part contains coloured plates of *Nymphpha zanzibaricensis* and *Tilandsia Zahnii*. As far as the latter is concerned, the illustration is not very satisfactory. There are thirty pages of letterpress (large Svo), devoted to the various branches of gardening.

— THE FUNCTION OF LIME IN GERMINATING SEEDS.—Dr. LIEBENBERG has recently published, in the organ of the Vienna Academy of Sciences, the results of some researches on the part played by lime in the germination of seeds, from which it appears that there is a great number of plants of which the seeds require lime during germination, or the young plants die off from want of it. On the other hand there are plants that do not need this supply of lime in germination. Dr. LIEBENBERG further observes that the plants that die off in consequence of an insufficient supply of lime, do not die from the injurious effects of the solutions devoid of lime, but because lime is required in the nutrition of the plant. The author, however, was unable to determine with certainty the purpose of lime in plants, though he proved beyond doubt that the absence of it did not affect the formation of starch.

— THE KEW MUSEUMS.—In the wood museum is now exhibited a life-size painting, reaching from floor to roof, of the gigantic Aroid, *Conchallus Titanum*, which has more than once been alluded to in our columns (see p. 781, vol. x.). The two life-sized portraits of Malays bearing the spadix and tuber of the gigantic plant on a pole resting on their shoulders, and standing beneath the shade of the enormous solitary leaf, constitute a very striking picture, and appeal to the spectator in a manner that no numerical indication of feet and inches could do. In the old museum the Cryptogam collections have been advantageously and most instructively displayed; while the gallery executed by Mr. FERGUSON, at the expense of Miss NORTH, for the reception of her drawings of flowers, as numerous as they are extraordinary, is rapidly approaching completion. The memorial as to the formation of a rock garden has been so far successful that plans are under consideration how best to carry out the scheme, which when realised cannot fail to add to the attractions and increase the value of these gardens. The vitality and energy pervading this great national establishment are subjects for congratulation.

— PULMONARIAS AS POT PLANTS.—Gardeners who can force plants into flower *ad libitum* need scarcely trouble their heads about getting hardy plants early into flower, except such indispensable things as Hyacinths, Tulips, Crocus, Violets, &c. But there are a great many who have but a cold house on which to depend for a supply of plants, and anything that is early and attractive is of use to this class of gardeners. The varieties of Pulmonaria officinalis in the open border are pushing up their leaves and flower-stems, and if lifted, potted, and put in a cold frame or the cold house will soon display their beauty both of flowers and foliage, and they are equally of a high order. Some plants of what is known at Kew as *Pulmonaria saccharata grandiflora* that have been in pots all the winter in a cold house have already begun to flower, strong plants throwing up as many as five or six blooming spikes of pale red flowers, changing to blue as they age. The leaves, too, are rapidly developing, and when matured are handsomely spotted with grey on a whitish-green ground. All hardy plants of this character grown in pots for flowering in early spring should be planted out in a prepared bed after flowering, as if kept in pots in the house the foliage is apt to become infested

with red-spider. There is something akin to a feeling of liberty in plants so treated, as they make a free growth in good soil, and will bear division in autumn or when lifted for potting.

— EXHIBITION OF CANADIAN VEGETABLE PRODUCTS IN GERMANY.—Last autumn, as reported in NEUBERT'S *Deutsches Garten-Magazin*, an exhibition of Canadian cereals, grasses, fodder plants, fruits, &c., instituted by Dr. OTTO HAHN, was held in Reutlingen. The object of the exhibition was to instruct intending emigrants in the resources of the country and its advantages to those seeking a new home. The products were collected by four young German settlers—two gardeners and two farmers, and seem to have been of a very good quality. A collection of Apples is very favourably reported by the pomologist, Dr. E. LUCAS, who selects ten out of the fifty sorts, which he says are of superior quality, and at the same time excellent market fruit. These are:—Baldwin, Hub Davis, Iule Pearmain, Clula Beauty, Famous, Hubbard's Nonesech; ('Hubbard's non such'—? Hubbard's Pearmain) Irish Crofter, Northern Spy, Red Kombo, and Spitzenburg.

— HYGROSCOPIC PROPERTIES OF THE INVOLUCRAL LEAVES OF THISTLES.—A week or two ago we published a note on some hygroscopic plants belonging to the Composite, in which there is an incidental allusion to the hygroscopic properties of the involucre bracts of some of the Thistles. It will be remembered that the branches of the whole plant of *Asteriscus pygmaeus* and *Gymnarrhena micrantha*, under the influence of the drought that prevails after the flowering season close up over the flower-heads so tightly as to prevent the seed from being shed until the rains return, though driven hither and thither by the winds. These plants open and close repeatedly under the alternate influence of wet and drought. In some at least of the Thistles the involucre leaves surrounding the head of flowers close over the flowers or achenes in wet weather, and open in dry. Professor ROTHAY, of Vienna, as we learn from the *Gartenflora*, has been investigating this phenomenon, and he finds that the mechanism of the movement lies in a special tissue (sclerenchym) immediately under the epidermis of the under or outer side of the involucre leaves, which lengthens under the influence of imbibed moisture, and shortens when dry. How long the achenes usually remain enclosed within the involucre we are not told.

— LENGTH OF PINE CONES.—In a reprint of an article on Conifers, by Mr. STARKIE GARDNER, a statement that *Pinus excelsa* bears cones 1 to 2 feet long, took us so much by surprise that we have ascertained the length of the longest cones of several species of Pines in the Kew Museum, though of course we are not prepared to say that longer ones do not exist. The largest of the Himalayan Pine, *Pinus excelsa*, is 15 inches; *P. Lambertiana*, a North-west American species, is represented by a cone 10 inches long—the longest in that rich collection; *P. Grenvillei*, a Mexican species figured in the *Gardeners' Chronicle*, n.s., no. 1, p. 113, by one 15 inches long; and a cone of the Mexican *P. Ayacahuite* exceeds the last by half an inch.

— CURTIS'S FLORIDA PLANTS.—Botanists occupying themselves with North American plants have for some time past appreciated the excellent specimens prepared and distributed by Mr. A. H. CURTIS, Jacksonville, Florida. We now learn that the same collector undertakes to supply living plants and seeds of many of the most ornamental and interesting Florida plants. As many of these plants cannot be procured through the ordinary channel, some of our readers may be interested in this announcement.

— PEZIZA COCCINEA.—We were much pleased, a few days since, at Clifton, to see a basket containing beautiful specimens of *Peziza coccinea*, of which an orange-coloured variety has lately been shown to us, artistically packed in green moss, as a table decoration. We understand that it is frequently offered for sale in the market for this purpose. It is not the first time that we have heard of its being so used, indeed, we know of an instance where it was employed with such effect that a person present, charmed with its great beauty, became from that day a diligent student of fungi. The hint may prove a very useful one, for there are many species of equal beauty, though of

different habit, which could not fail if nicely disposed to attract admiration. Care should be taken to choose such kinds as do not lose their colour, and are free from any pronounced odour. Some of the more elegant kinds of moss, especially when in fruit, might make a very welcome addition. Fungi would then cease to be considered and despised as the exuviae of Nature, to be contemptuously trampled on or rejected. *M. T. B.*

— OUYIRANDRA FENESTRALS.—This singular plant is now to be seen in capital condition in one of the Orchid-houses in the collection of Sir Trevor LAWRENCE, Bart., M.P., Burford Lodge, Dorset. In many gardens considerable expense has been incurred in order to grow this plant, but even when the conditions thought to be most favourable to it have been obtained it does not always succeed. Here it is grown in an oval tub, containing less than a dozen gallons of water, and a few inches of sandy loam at the bottom. The depth of water is just 8 inches. The water is packed full of leaves, many of them a foot long, and very nearly 6 inches across. There is a constant drip of water from a syphon placed in another vessel on a higher level, and that is all the conditions. The temperature of the house is regulated to suit other Madagascan plants, such as *Angreecums*, &c. Mr. SYKES is to be congratulated on growing this interesting plant so well.

— THE PHYSIOLOGICAL LABORATORY AT KEW.—We are pleased to find that the resources of this, one of the latest additions to the Garden, are at present utilised to the fullest possible extent. Mr. BOWER has been investigating the structure and development of *Welwitschia*, and the results are memoirs which, like those of Mr. MARSHALL WARD on the development of the embryo sac, made in the same establishment, do honour to British science, and go far towards removing the stigma that original research in this department of botany is comparatively neglected in England. Such work will compare favourably with the best work in German laboratories. In the last-named country, however, such institutes may be counted by the dozen. Professor CHURCH is also at work in the Kew laboratory on the chemical history of the colouring matters of plants—a subject on which he has already published a valuable series of researches, and Messrs. CROSS and BEVAN are pursuing investigations into the life-history of plants in special relation to the formation and changes during growth in the last tissues.

— TESTIMONIAL TO MR. GEORGE BAKER.—On the occasion of the annual meeting of the members of the United Horticultural Benefit and Provident Society, at the Caledonian Hotel, Adelphi Terrace, on Monday evening, the 13th inst., the members presented Mr. GEORGE BAKER, of Coombe, with a testimonial of their esteem and gratitude on his resigning the office of treasurer of the Society after a term of office of something like twelve years. Mr. BAKER was one of the original members of the Society since its formation in 1866, and he has ever been an earnest worker in its interest. The testimonial, which was privately subscribed for among the members, and of the existence of which Mr. BAKER had no knowledge till it was placed on the table before him, consisted of a silver teapot, sugar-basin, and cream ewer.

— FICUS MINIMA.—This chaste little wall-creeper, which has withstood the severity of the past three winters out-of-doors in Mr. KINGHORN'S nursery, Richmond, will make a welcome addition to our stock of evergreen creepers for select situations out-of-doors. The plant in Mr. KINGHORN'S nursery has its roots under glass, but it can hardly be supposed that this protection to its roots will contribute in any way to the hardness of the plant, rather the reverse. The plant occupies an east aspect, and seems quite weather-proof. The little tiny leaves of the plant (it is much smaller than *F. repens*) are so numerous, and are so thickly set upon the stems, as to form a dense green covering, which would give many an unsightly wall quite a cheery aspect at all seasons of the year, and will be especially useful to architects for covering naked places about villa residences, where a great many things have to be done within a limited space. It may hardly be added that the plant clings like Ivy, or like its congener, *F. repens*, while it is much neater and more chaste in appearance.

— *ARALIA LEPTOPHYLLA*.—Those who have much experience in furnishing are only too well aware of the losses sustained by using tender stove-plants in anything like quantity during the winter months. All the *Aralias* are somewhat expensive, owing to the fact that they have to be increased by grafting, and are not very rapid growers. But, notwithstanding this, the stove varieties, such as *A. Veitchii* and *A. elegantissima*, are commonly employed for purposes of furnishing, much to the detriment of the plants, and without yielding any compensating effect in proportion to their value. The variety under notice is a greenhouse plant, and is therefore less liable to injury from a low temperature than the more tender stove kinds. The habit of the plant is much superior to *A. Veitchii*, its long narrow drooping leaves being both graceful and effective. Effect is really the point aimed at in furnishing, and if this can be produced equal to, if not better, by the employment of half-hardy plants, it seems anything but economy to use tender-leaved plants for no better reason than that they cost a higher price.

— *AUBRIETIAS*.—It is only where the *Aubrietia* is left pretty much to its own sweet will that we see it in all its beauty. When transplanted twice in the year for spring bedding, and often propagated by pulling to pieces, it is seldom seen in even decent form; and, indeed, is perhaps one of the worst plants that can be used for such a purpose. Still farther, it does not thrive well where the soil is flat and stiff, for there the moisture in the winter months lies about the roots, and not only injures them, but also provokes decay in the leafage. Under no conditions are *Aubrietias* seen in better form than when growing over rock or rootwork, or on sharp slopes where there is no stagnant moisture. One of the very best masses of the *Aubrietia* we have seen is where some plants are in an old tub sunk in the ground, and elevated about 9 inches above the surrounding soil. Some stones placed about on the soil amongst the plants keep the growth dry and healthy and in a perfect mass of greenery, and presently of flower, and where the growth to a length of 12 or more inches runs down over the sides of the tub, it is quite luxuriant, and shows how capital a plant it is for the covering of narrow slopes. In places where, as under trees, turf will not thrive, the *Aubrietia* might well be tried as an edging plant, provided that it was thus enabled to trail downwards in its most natural way. Strong growing kinds, such as *Hendersonii* and *violacea*, both rich dark coloured forms, and *græca* and *Campbellii*, paler ones, are the best for a free seeder, and reproduces itself freely. As the seed is ripe in June, if sown at once quite large plants may be got for planting out in the autumn, and then with natural cultivation a rich display of dark coloured flower is ensured. Where the growth is thus natural, robust, and unharmed by frost or damp, the bloom is much earlier and more enduring, in fact, makes a good show for three months' duration.

— *THE DOUBLE WHITE PLUM* (*Prunus alba flore-pleno*).—Few plants are more charming to look at or more delicate in appearance than the subject of this note, which is an old plant, not exactly forgotten, but rather neglected than otherwise, considering its claims upon horticulturists as an early spring flowering plant. The profusion in which its double white flowers are produced, and the extreme delicacy blending so beautifully with its tender green leaves, need only be seen once to be duly appreciated and admired by those who have not already included it among their lists of forcing plants. Arranged in conjunction with scarlet Tulips or red and scarlet Azaleas it has a fine effect.

— *CULTIVATION OF FIGS IN THE COLONIES*.—*The Colonies and India*, in recommending the cultivation of the Fig in some of our colonial possessions, points out that "Plantations have already been made in certain districts in Australia, but in all parts of that continent there is abundant opportunity for the extensive cultivation of the tree if only for the sake of its beautiful foliage in the treeless wastes in some portions of the interior. Of all the numerous varieties of Figs scattered over the tropical and temperate zones, there is none more easily cultivated, none more striking in appearance, and none more profitable than the *Ficus Carica*. Its fruits eaten green or sun dried are both palatable and nutritious, and the enormous

demand that exists for them is shown by the fact that the annual imports into Great Britain, chiefly from Southern Europe and the Levant, amount to over a thousand tons, while the United States import half a million dollars' worth yearly. According to the *New York Sun*, in Georgia, where the Fig bears two crops, an ordinary tree, six or seven years old, will produce 5 or 6 bushels of fruit annually, while twice or thrice that quantity may be expected from large old trees. There are trees in Eastern Florida that may be trusted to yield from 20 to 30 bushels of Figs a year. At Santa Barbara, California, it is said that a tree ten years old will bear about 500 lb. of fruit a year. In Alabama it is considered the most prolific of all fruit trees; and from Texas it is reported that the fruit succeeds perfectly all over the State. The tree is more hardy than is generally supposed, and if it will grow so well in tropical countries, and in the West Indies, in Fiji, throughout Australia and the greater part of New Zealand, in South Africa, in India—indeed, almost throughout our colonies and Indian empire, Figs ought to be a staple product. The ease with which the fruit is dried and packed is an important point in its favour."

— *CLOVE CARNATION MRS. LAZENBY*.—A good yellow self Clove is always acceptable, especially when in combination with a good habit. These two desirable characteristics are found in the variety under notice. It is, perhaps, more properly a *Picotée*; the flowers are large, well formed, of a good yellow colour, and it has, as already stated, a good habit of growth—in fact, a robust habit. Take *Courier*, scarlet; *Bella*, delicate blush; *Corsair*, rich deep purple; *Mrs. Lazenby*, yellow; *Eliza*, violet-purple; *Susan Askey*, white; and *Sybil*, beautiful bright rose, and we get a batch of beautiful varieties, good growers in the main, and most valuable for cutting from. It is easy to multiply these, but the foregoing gives a select collection to commence with, to which additions can be made as sterling varieties present themselves to notice.

— *KEISER'S KROON TULIP*.—This Tulip, which is of comparatively recent introduction, is a remarkably vigorous variety, and is an undoubted acquisition to its class. The flower is seen at its best before it is fully open. It is long, oval-shaped, rather a tall grower, and will be found in consequence to be a good variety for grouping with other spring flowers. The variety was sent out as being red and yellow, but the yellow is more of an orange, which adds to its merit and appearance. Mr. H. CHAPMAN has some good examples of it in flower in his nursery at Otland Park, Weybridge, Surrey, where it is highly spoken of as a showy variety, and is very effectively used in the show-house, where it has a conspicuous appearance, and quite bears out Mr. CHAPMAN'S eulogy of its usefulness for purposes of grouping.

— *THE WEATHER*.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending February 13, issued by the Meteorological Office, London.—The weather has been generally cloudy or dull, but towards the close of the period the sky cleared somewhat in the south and east, and at some stations the weather became very fine and bright. Temperature has been equal to the mean in "England, E.," but above it elsewhere; over Ireland and Scotland the excess was as much as 4° or 5°. The thermometer was highest on the 12th and 13th, when it rose to 57° in London, and to 55° or 56° at many other stations. The minimum reading for the period (28°) was registered at Collyumpton on the 7th. Rainfall has again been less than the mean in England, but in Ireland and Scotland the fall slightly exceeded the average. Bright sunshine was still very little prevalent, the percentages varying from 25 in "Ireland, N.," and 23 in "Scotland, E.," to 12 in "England, N.W." Depressions observed:—During the whole of this period the barometer has again been highest in the south-east part of our area, and lowest to the westward or north-westward. The wind has consequently been between S. and S.W., and generally moderate in force, but owing to the passage of some depressions it freshened considerably at times on our west and north coasts, and on the 9th, 10th, and 13th reached the force of a gale.

— *GARDENING APPOINTMENTS*.—Mr. WALTER DANCE, late Gardener at Llwyngwair, Pembroke-shire, has been engaged as Gardener to Colonel LOWE, at Gosfield Hall, Hlalestead, Essex.

THE KEW ARBORETUM.

THE OAKS.

QUERCUS BRANTII, Lindl., *Bot. Res.* 1840, App. p. 41, No. 74; Boiss., *Fl. Orient.*, vol. iv., 1173; Kotschy, *Die Eich. Eur.*, tab. xxxvi., fig. of leaves; *Penny Encycl.* xi., p. 213; *Acorns: Discoveries in the Ruins of Nineveh and Babylon*, p. 666; *Gard. Chron.* 1853, p. 263, fig.—Kurdistan.

This handsome and singularly interesting Oak, remarkable for its large acorns and leaves, which, when fully mature, measure 6 inches in length by 3½ inches in width, and when young are clothed with thick down, was first discovered by Mr. J. Brant, H.M. Consul at Erzeroum, in 1839. It was not, however, until some time afterwards that it was successfully introduced into this country by Mr. (now Sir A. H.) Layard. In these columns for 1853, p. 263, it is stated that the whole tenour of Mr. Layard's descriptions "points to the probability of the Kurdistan Oaks . . . proving hardy." If so, we may boast not only of having gained a new element of decorative gardening, but of having secured the very tree—the sacred tree—before which Sen-nacherib was wont to sacrifice; for it is highly probable that its acorns represented at p. 160 (*Discoveries in Ruins of Nineveh and Babylon*) upon a translucent cylinder supposed to have been the signet or amulet of that monarch, belong to no other plant than Q. Brantii."

In the *Gardener's Chronicle* for 1854, p. 691, in an article on the "Effects of the Previous Winter," the writer says, "the Kurdistan Oaks, especially Q. Brantii, disregard cold but do not like such frosts as those of April 24, which are in fact too much for any tree whatever in full leaf." This species was grown at Kew many years ago, but at present seems to be wanting in the Oak collection. The name is to be found in some catalogues, and it is possible that good plants of it exist in this country; will any one possessing it kindly state particulars of size, &c., for the benefit of all who are interested in hardy trees? It may be as well to add that a different plant, which I have not yet been able to determine satisfactorily, is grown in some Continental gardens under the name of Q. Brantii.

Q. COCCIFERA, L., *Loud., Enycy. of Trees and Shrubs*, p. 833, figs. 1617, 1618; Kotschy, *Die Eichen Europa's und des Orients*, t. 29; J. D. Hooker, *Trans. Linn. Soc.*, vol. xxiii., tab. 37.—Along the Mediterranean from Portugal to Turkey, Asia Minor. The Kermes Oak.

A shrub a few feet in height, now and then assuming the character of a tree, with a trunk from 1 to 2 feet in diameter. The largest specimen at Kew is one about 9 or 10 feet high, with a compact head about 7 feet through. The species is a very interesting one, with small dark green rigid leaves, like those of a Holly in miniature. "It is celebrated as being the haunt of the Kermes insect, which yields so brilliant and permanent a blood-red dye that the old Flemish tapestries dyed with it two centuries ago have lost none of their brilliancy" (*Penny Cyclop.*, vol. six., p. 213). For the manner of collecting Kermes and many interesting particulars see *Loud. Arbor. et Frut. Brit.*, vol. iii., p. 1908. According to Aiton Q. coccifera was cultivated in this country so long ago as 1683.

Q. ALNI-FOLIA, Poeh., *Enumer. Pl. ins. Cypr.*, p. 12; Kotschy, *Die Eichen Europa's, &c.*, t. 6; *The Garden*, vol. xviii., p. 486 (fig.). Q. *Cyprici*, Jaub. et Spach, *Illustr. Pl. Orient.*, i., p. 110, pl. 56; Boissier, *Flores Orientalis*, vol. iv., 1168.—Native of the hills of Cyprus.

This is quite a recent addition to British gardens. Its principal charm consists in the bright golden tomentum which clothes the under-surface of the small Alder-like leaves. As the snow persists for more than a month where this Oak grows it seems not unreasonable to expect that there may be many spots in the British Isles where it would flourish in the open air.

Kotschy states that the acorns are collected by the monks of the Greek convents, dried in the air, and then stored for mixing with the food of their domestic animals during winter.

Q. DENSIFLORA, Hook. and Arn., *Bot. of Beechey's Voyage*, Suppl. 301; Hooker, *Journ.*, tab. 380; Nutt., *Sylvia*, 1, ii., t. 5. *C. chinensis*, Torr., *Proc. R. Soc. Phila.*, 137, t. 19.—California.

Varying from a mere shrub from 5 to 7 feet high, to a pretty large tree, 50 or 60 or sometimes even 80 feet high. In foliage not unlike some of the forms of *C. lucida*. This has stood fairly well in the open at Kew without protection for some years. Even during the winters of 1870-80 and 1880-81 only the young unripened shoots suffered from the cold.

Q. PHYLLIROIDES, A. Gray, *Bot. of Japan*, p. 406, in *Mém. of Amer. Acad. Arts and Sciences*; DC., *Prod. Arb. vni*; Mast., *Gard. Chron.*, vol. 1, 1874, p. 362.—Japan.

A pretty evergreen Oak, which has done well in the open at Kew without protection for some years. Foliage not unlike that of some *Phyllireas* such as *P. media*, &c.

SALISBURY PALACE.

THE episcopal residence is situate within 400 yards of the city market place, and adjoining the cathedral. It is an extensive and picturesque building, in the Tudor style, and the gardens and grounds cover an area of 15 acres, nearly three of which are walled-in kitchen garden, and in which are situate the glasshouses, pits, sheds, and the head gardener's house, the latter abutting on Exeter Street, whence there is a private entrance. In the kitchen garden, which is exceedingly clean, well cultivated, and judiciously cropped with winter and spring vegetables, are also grown the hardy fruit trees of the kinds usually met with in such gardens. There is not much glass here—a few small vinerys, plant stoves, hot-water pits and cold frames, and some of these were gay with *Primulas*, especially fine and attractive being Williams' *P. alba* magnifica, the individual blooms of this variety being nearly 2 inches across, with a well-defined-yellow eye, and beautifully fringed; *P. Chiswick* Red, another of Mr. Williams' varieties, a crimson-scarlet, making a striking contrast with the *alba* magnifica, but apparently not so robust and free-flowering a habit as the latter. Mr. Smith, the persevering and intelligent gardener here, has a promising strain of his own, which he is still endeavouring to "improve."

In the plant stoves, which were filled with plants of an ordinary though useful description, I noticed a couple of nice plants of *Adiantum trapeziforme* and *Fegonia Prince Wallenstein*, the latter a very useful ornamental foliage and flowering variety, and not so much grown as it deserves to be, the young leaves and stems of which have the appearance of crimson velvet, and, with the white flowers, which are shaded with pink, are strikingly effective and greatly admired. A plant of *Passiflora racemosa*, in flower, depending from the roof, is also deserving of passing notice, as also is a well-flowered batch of *Marie Louise Violet*, which are planted near the glass in a three-light frame, situate at the sunny side of a high, well-trimmed New hedge, of which there are good examples on either side the principal thoroughfare in these interesting gardens.

The flower garden, which is divided from the small park, in which is a nice sheet of water, by a ha-ha and stone balustrade, is situate immediately opposite the south front of the Palace, against the walls of which are growing some good examples of *Magnolia grandiflora*, *Wistaria sinensis*, *Pomegranate* (*Punica granatum*), *Myrtles*, *Passiflora cærulea*, and *Roses* in good condition. Several nice specimens of Irish Yew (*Taxus fastigiata*) occupy central positions in some of the circular beds within a few yards of the Palace walls, and a small fountain adjoining the balustrading is not the least interesting feature of the place, which historically and naturally is full of interesting matter.

In the grounds, which extend north, east, and west of the Palace, are several fine specimens of the Cedar of Lebanon (*Cedrus Libani*), fine bushes of English Yews from 9 to 10 feet high and 15 feet through, and sundry fine specimens of *Ulex* dot the greenward between the tall Cedars, *Dunus Lanlettiana*, &c. In the midst of these lofty evergreen trees show conspicuously and somewhat strangely the branches of a fine specimen *Plane* (*Platanus occidentalis*), which at 4 feet from the ground measures 11½ feet in circumference, and had shed its bark pretty well from every branch. In conclusion, I may be permitted to add that several *Fig* and *Magnolia* trees are trained against the back of the cloister wall at the garden side, and between the huge buttresses which support that lofty wall, and which protect the trees from the force of the east winds. The good keep of the whole place reflects not a little credit upon Mr. Smith, who evidently understands his duties. *Tourist*.



FRUIT NOTES.

Late Pears.—A recent correspondent complains that there are so few late Pears worth growing, and that the nurserymen do not offer any variety. I would suggest that the difficulty lies not so much in the direction of obtaining the fruit as in keeping them. Very few fruit-rooms are competent to preserve Pears in good condition to their proper season, and the recent summer-like weather, and wet and unkindly autumns, have not brought the fruit into a proper condition for storing. In 1881 there was both too much wet and too little continuance of good gradual ripening weather; a sudden drought, combined with an acceleration of solar heat, does not appear to produce that mellow flavour which is so much desired, while a sunless summer produces fruit that may be large, but it seldom ripens under such conditions, as witness the *Beurré d'Ananlis* Pears shown at the January meeting of the Fruit Committee in 1880 by that good Pear grower, Mr. Goldsmith, of Hollands, Tonbridge. Now, if a gardener finds he cannot keep his ice, means are soon taken to remedy any apparent defect in the store, and if he cannot command the required heat for forcing, more pipes are added to the boiler, or those already in use are rearranged. If, then, late Pears are of any value at all, why should not the fruit-room be looked to and overhauled? Any sudden alteration of temperature, such as causes the fruit to sweat, is injurious, and should be guarded against by extra thatch—two outside mats, if one does not answer; and let the coming summer-time, when the fruit-room is not required, be utilised to set these matters right. Taken from a list at hand all these late Pears are good—not, perhaps, all in one season, but they may be depended on generally. Let some be tried on walls as young trees, or grafted on old ones—others as cordons, or pyramids, and on both Pear and Quince; and, excepting the accidents of season, the gardener may hope to have some English fruit to place on his employer's table at a time when its rarity will forbid too close criticism.

Bergamotte d'Espèren
Matthee's Eliza
Hysh's
Beurré d'Ananlis
Rance
Duchesse de Bordeaux
St. Plus Meurs
Nouvelle Fuelle
Olivier des Serres
Doyenné d'Alençon
Nemur, Marlborough.

Knight's Monarch
Josephine de Malutes
Incombe
Marie Guise
Marie Benoist
Madame Millet
Winter Nectar
Vetch's Dr. Alphonse also produces well
Passe Crassane.

Pear Knight's Monarch.—I can endorse all that Mr. Morgan has said both for and against this Pear. When it does attain maturity it is the *me plus ultra* of all Pears, but unfortunately that has not happened above six times for the last thirty years here. In most cases it drops its fruit not only early but prematurely, consequently they become withered and shrivelled, in fact of no use at all. I have found such the case in wet and dry seasons alike. The trees here are worked on the Pear stock, grown as pyramids, espaliers, and on walls, and all are alike, the trees are healthy and bear fair crops yearly to no purpose. *Paecl. Lundsdan, Blenheim Hall Gardens.*

Dessert Apples.—I do not think I am far from wrong in my estimate of the good qualities of the King of the Pippins. I want to point out both to Mr. Carmichael and to Mr. Culverwell that in the selection of six dessert Apples I gave I had in view sorts that are usually fit for table and for exhibition at the same time; but, of course, freely admit that there are others quite as good that have different seasons. There is Old Red Quarrenden, Early Harvest, Irish Peach, and Kerry Pippin, in their early season all first-rate, but their season is a short one. Then coming on till now there is the old Cockle Pippin, a most delicious Apple, one of the best dessert kinds we have. Winter Pearmain, fine and good; Royal Pearmain, Sturmer Pippin, and others, all first-class late season kinds; but none either of early or late give us such handsome samples as do the kinds I have before mentioned as good mid-season sorts. I have Lemon Pippin, so much praised by Mr. Culverwell, and I grew it as good samples in South Hants some years since, but I never thought it good. The flesh always

has seemed hard before the fruit was really ripe. Perhaps it does better on a cooler soil. Apples, like Potatoes, vary very much in size and quality on diverse soils, and in our discussions it is well to make full allowance for that undoubted fact. Then Mr. Culverwell does not think much of Blenheim Pippin as a dessert Apple, but curiously enough it is the most popular dessert kind in the London market. Perhaps Mr. Culverwell will say "So much the worse for the Londoners;" but then opinions differ. All Apples are not Ribston Pippins of course, any more than Medoc wines are the Chateau Lafites, but then many have various good qualities none the less. *A. D.*

HOME CORRESPONDENCE.

Senecio spathulifolius.—For thus I spelt the name in the MS. of my paper in the *Journal of Botany*. It is derived from Gmelin, who spelt it *spathulifolia*. That I ventured in my *Manual*, ed. 8, to alter into the more correct form with an *z* in place of the *s*. Linnaeus and Smith would also have spelt it so. Plants of it kept sheltered from the weather, in a very cool greenhouse, have at this season enormous buds or rather rosettes of leaves of a cordate-spatulate shape, quite covered with most beautiful arachnid fibres. It is of much interest to trace the changes in the plant from these leaves to the long leaves usually found at the base of the stem in the summer even on seedling specimens. These winter leaves seem to be quite unknown to botanists, as they are not noticed nor figured anywhere, as far as I can discover. *C. C. Biddings, Cambridge, Feb. 11.*

Ants in the Peach-house.—In a Peach-house here the trees from which I have taken heavy crops of fruit annually for some years past this season had the blossoms attacked and destroyed by ants in a remarkable manner. Until this season I had always looked upon the presence of ants in the house in question as of little or no importance; their chief occupation seemed to consist of running up and down the stems in search of the excrement from the black-fly, with which the trees were infested, and which I failed to extirpate until last autumn. My attention was called to the subject while fertilising the blossoms with a camel-hair pencil. I found all the earliest blossoms minus the pistil, and upon closer examination I found they had been eaten off just above the ovary, and lay shrivelled up among the stamens, while an ant was in the cavity of the flower, the object being to make an entrance. In a few instances I found an entrance made by eating through the flower at the base of the stamens, and the pistil uninjured; but in all cases the predator was inside. I have arrived at the conclusion that by annihilating the aphid I had deprived the ants of their natural food, and consequently they attacked the blossoms for the nectar they contain. So thoroughly had they done the mischief that had I not discovered it in time I feel convinced the crop would have been destroyed. I immediately took steps to stop their coming by wrapping several folds of brown paper round the stems of the trees, upon which was tied a roll of cotton wadding that had been steeped in paraffin, which proved an effectual barrier. I then put a man to destroy all the ants he could find upon the trees, and in a few hours the trees were rid of this (to me new) enemy. I should be glad to hear if any of your readers have had similar experience. However that may be, I cannot any longer look with indifference upon the presence of ants in a Peach-house. *Horace Woods, The Gardens, Maindy Park, Abercromby.*

Sisyrinchium grandiflorum.—I send you a clump of this charming early-blooming plant, to show how well it does in our stiff, holding soil. Quantities of it now make a fine appearance. *Z. Smith, Newry.*

Potatoes to Grow.—A great number of gardeners throughout the country are expected to produce, among other things, a continuous supply of Potatoes. This rule is in force here, and to grow a sufficient quantity we usually plant from 2 to 4 acres. Being anxious to grow most new sorts having high characters we for some seasons planted a host of varieties, with this result, that in consequence of disease and other evils weak constitutioned sorts are subject to our supply generally became exhausted some considerable time before we could reasonably expect to dig and renew our stock. This state of things induced me to select as sorts to be raised upon four or five kinds which would give us a large supply the whole year. After testing various sorts our choice fell upon the following:—Ashleaf and Lapstone Kidney for the garden, Scotch Champion and a limited quantity of Magnum Bonum and Beauty of Hebron for field cultivation. We selected the Champion principally

because our field Potato ground is of a poor chalky nature, and as we grow for quality we use little or no manure at the time of planting, consequently the tender sorts fail, whereas the extraordinary constitution of the Champion enables it to grow and bear a crop of the highest quality. Since adopting the practice here stated we always have had Potatos and to spare. *A. L. H.*

Cinerarias from Seed.—What can be got out of a pinch of seed? I ask the question because last spring I bought a 2s. 6d. packet of seeds, as I had given up growing the named sorts, as to me they were a great trouble, and took up much useful room after they had bloomed which could have been used for other plants that were useful. I found many of the named sorts very weak, and they would not start into growth satisfactorily, now with my seedlings I have no trouble, I sow the seed early in March, and out of my pinch of seed I believed every one germinated, so that for 2s. 6d. I got four times as many plants as I wanted. These I took up little room or care until August and September, and at my disposal they were put into pots for flowering. They were first sown in pans not too thickly; when they were strong and fit to handle, they were potted into very small pots, and grown on in a very small space, the greater part of the summer. Now the plants are nicely in bloom I have no reason to regret discarding the old roots, for the blooms are as the packet described "superb," the colours various and everything I could wish for, some of the flowers measuring 2 inches across and of great substance, and the culture is so simple and so certain, that I would recommend all who want Cinerarias for bloom to grow them from seed; they grow in good soil, and require frequent watering with weak manure-water, a cold frame suits them best with the lights removed morning and evening, giving a light shade in bright weather. The seed should be lightly covered with soil and not watered for a few days after sowing. Cover with a bell-glass, and shade the pans; in this way every seed of mine germinated. *William Cutbush, Thorpe Perrow.*

Sedum acre aureum.—This beautiful Sedum deserves to be better known and more extensively grown than it appears to be at present, judging from the fact that we seldom meet with it in gardens, and yet when seen during the winter and spring months it never fails to excite admiration, the light green groundwork and the golden tops of the shoots being very effective. We have it now in its summer quarters in our flower garden, where it makes a striking contrast with the green and silver leaves, and among the raised patches of it, in company with *Aubretia purpurea*, have a very telling effect among the rock plants. This, like most of the other Sedums, is very easily propagated—a handful of it "minced" up and scattered over a piece of border with, or without, a little fine soil strewn over it; roots freely any time from April to October. *H. W. W.*

Luculia gratissima.—In the Camellia-house here, which is 95 feet long, 24 feet wide, and 21 feet high, there is a splendid plant of *Luculia gratissima*, 14 feet high, and to feet through. It has been planted at least thirty-five years in a raised border amongst Camellias. Owing to the large dimensions of the house, fire-heat is scarcely used save to exclude frost; indeed, in the winter of 1880, when the thermometer fell 2° below zero on two occasions, and when day after day the thermometer ranged from 20° to 30°, it could not be kept much above the freezing-point, yet the *Luculia* flowered better than usual, the blossoms being fine, scores of them measuring 6 to 8 inches in diameter. The Camellias are a speciality here (and the great majority of the plants are well furnished from the ground to the apex), and all other occupants of the house, whether permanent or temporary, are treated in the same way. The mildness of this winter precludes the use of much fire-heat; indeed, the house is kept as cool as possible in order to retard the Camellias, yet the *Luculia* is flowering fairly well, producing a flower almost at the point of every shoot. I may also add that, as a matter of course, when the Camellias have finished their growth, all the ventilation possible is given to the advent of frost. Gentlemen who are accustomed to travelling from place to place, assert that it is the best specimen of the *Luculia* they have seen, although they have seen it grown apparently under more congenial circumstances. When it has finished flowering its shoots are cut back to about three joints of last year's growth, kept rather dry at the roots, and well syringed. I find by thus treating it that it makes satisfactory progress. Am I right or wrong in shortening back the shoots, as I have been informed that it is considered wrong to cut back *Luculia* shoots—even that it is injurious to cut the flowers off? Of course, if it is desired to extend the plant as rapidly as possible in certain directions. I do not shorten the shoots much till that object is accomplished; still, I maintain that the use of the knife is in no way injurious to the well-being of the

Luculia by merely cutting back its shoots. *Thomas Lloyd, Spring Grove Gardens, Beaulieu.* [You are right, of course, in judiciously cutting the shoots back. If you did not do so, the tree would grow out of all bounds. *ED.*]

Garden Mice and How to Trap Them (see p. 119).—The "Perpetual Mouse Trap" is decidedly the best and most simple, yet ingenious contrivance that I have ever before seen for the catching of these troublesome garden pests. It is about 12 inches long, 3 inches wide, and the same in depth. The sides and bottom are made of thin boards, the ends of wire, mangle-rib, and the top glass, through which shows the Wheat with which it is baited) fixed in a framework on either side the depressed entrance, which is in the centre, about an inch wide, extending across the box, and a little more than half its depth. On a level with this entrance is a balance-board with an upright partition in the centre, and which, when a mouse treads on it—whether it has been attracted by the bait—is completely imprisoned in that division of the trap, and while being thus caught sets the one in the adjoining compartment for the next arrival, which is necessarily on the opposite platform, and so on, each mouse caught setting the trap in the adjoining prison for the next one, which on finding itself a prisoner makes its way through a wire contrivance, and through which it cannot return, to the light which is admitted through the wire end of the trap, which bars its further progress. These traps, as already stated, are always set, and require no fresh baiting, inasmuch as the latter is as far out of the reach of the mouse when inside the trap as it was when outside, provision being made in the bottom for removing the mice. One of these traps is capable of catching ten or twelve mice in one night. We keep several of them ourselves all the year through in our flower garden and grounds under the Yew hedges, in the Rhododendron and flower beds, &c., where during the last five or six weeks we have caught nearly as many dozen mice. The grass mice, however, are very shy of them, and as they have occasionally caught them by baiting the traps with water, but not with cheese or flowers they had directed their attention to. The inventors of the "Perpetual Mouse-Trap" are Messrs. Colin, Fullinger & Sons, and the sole wholesale agents, Messrs. S. & E. Ransome & Co., 10, Essex Street, Strand, London. *H. W. Ward.*

—We have been very much troubled with mice here this winter. Field and house mice attacked our earliest sown Peas, which were meant to kill by the figure-of-four trap baited with toasted cheese. Our Tulip and Crocus bulbs are completely destroyed by the field vole, which we have been unable to trap, although we have used a number of the same traps, some baited with cheese and others with Peas and Beans. *H. H.*

Teopelia cyanocrocus.—After several failures I have at last succeeded in blooming two out of three bulbs of this lovely Chilean plant, for which I am indebted to the kindness of Mr. Max Leichtlin. I thought at first it would, like the *Tigridia* and *Nemostylis geminiflora* prove very fugacious, but this is by no means the case. One flower has remained expanded for four or five days, though it has been kept in a hot room with the window only open for a few hours every day. The lovely blue colour of the petals, almost exactly the same hue as *Genetia aculis*, is set off to perfection by the white eye at their base. The pot in which the bulbs are planted has been kept during the winter in a cool greenhouse, close to a window always open in the day time except during severe frost. *H. Harpur-Cress, Drayton-Beauchamp, Tring, Feb. 13.*

Double-flowered Auricula.—I have a few plants of a double white variety that I have obtained from a specimen I got from M. Louis Van Houthe, of Ghent, some four years ago, at a cost of 5 fr. It has mealed foliage, but is not a good grower, perhaps because I have treated it a little unskilfully. The flowers are not fully double—no nearly so double as those of purple and other fine varieties I have; and the colour is creamy rather than pure white. It throws up a strong truss of flowers. I hope to be able to exhibit it in the coming spring, when perhaps its identity with the form mentioned by Mr. Duncan Murdoch on p. 192 may be determined. The flowers of my double white are fairly well perfumed. The hard winter of the early part of 1881 had affected my double Auriculas, and they are only just recovering from its effects. *Richard Daint, Ealing, W.*

Ice Storing in Sawdust.—The antiquity or otherwise of the practice of preserving ice out-of-doors in sawdust is not a question which need take up much of your space. Mr. Ward tells us, however, in the *Gardeners' Chronicle* of January 8, 1876, that he used it then, a few inches in depth, on the surface of the ice, and over that 2 feet of leaves, and a covering of litter. Some of the correspondents who took part in the dis-

cussion then, say they knew of sawdust being used for covering ice many years before that time. Mr. Inglis mentions its being used at the Hurburton House in 1863. So bear in mind the priority of the practice, which probably dates much further back than that time, if we only knew where to lay our hands on the records. Ice stacks covered with various materials, such as straw, leaves, turf, &c., were common enough in Loudon's time, but they do not seem, notwithstanding their cheapness, to have become very generally adopted as a means of preserving ice. That has been no doubt due to their uncertainty. It was nothing unusual to bear on the ice stack in one situation and find it keeping ice fairly well some distance, while another stack, made on the same principle, and in another locality, turned out an utter failure. Mr. Ward kindly informs me and your readers generally that it is not necessary to incur the expense of excavating pits, &c., in order to have a supply of ice all the year round. Mr. Inglis says stacks aboveground will answer the purpose quite as well and of course cost less. If anything will preserve ice, above or under ground, I think the best sawdust will, but my experience on this aboveground is, that it does not keep nearly so well as in a sawdust pit, lined with wood, as described in the *Gardeners' Chronicle* for January 14 of the current year. I worked this question out for myself in 1874, 1875, and 1876, with stacks of ice, principally aboveground, before incurring a farthing of expense in the making of a sawdust pit. The results may be interesting to those who have not the opportunity to test the matter for themselves. In December, 1874, we stored 150 loads in a stack, and covered with wet sawdust; this furnished supplies till about the middle of October, 1875. In December, 1875, we stored 200 loads in the same way, which yielded supplies for season 1876 up to October 23, when the old ice-house had to be resorted to, to continue the supplies into November. These results, while better than those obtained by using leaves, straw, &c., seemed still to leave considerable room for improvement. It occurred to me, therefore, to get three-fourths of the bulk below the ground level, in a thoroughly drained, wood-lined pit, that the ice would be easier managed in every way, better isolated, and less influenced by atmospheric changes than in a heap aboveground. It is true that a pit cannot be excavated, lined with wood, and thoroughly drained for nothing; but results often justify a little initial expenditure. It was so in this case. We generally finish the year with seventy or eighty loads at least to the good now after meeting all demands, besides saving the expense of filling the old ice-house, and that is worth something. While on the question of initial expenditure I may remark, for the comfort of Mr. Ward, that if an annual saving is thereby effected a few pounds once for all may be well spent. As an instance our freezing ponds were fully half a mile distant from the ice store. We spent a few pounds in making two natural depressions in the park, close to the store, available for flooding in winter with a view of procuring a good sheet of ice close at hand. The result is that we get a large supply of ice run in, in exactly half the time we used to require, and that, too, with less labour and fewer carts. Where the ice can be got close at hand, and carts keep coming in rapidly, the advantage of a pit will be apparent, as the ice can be sent out of the carts directly into the pit by its own gravity, there to be spread about and broken. Were 200 to 250 loads to be built up entirely aboveground, and supposing there was no valley handy, as in Mr. Ward's case, to admit of the carts being taken to a higher level, I am afraid the annual expense would be something considerable, and the height of the heap would be something for the workmen to remember by the time they had got the last load to the top. *D. Melville, Dunrobin Castle Gardens, Sutherland.*

Winter Acacia as a Pot Plant.—This is a particularly pretty little plant grown in pots for conservatory decoration, and one that associates well with Crocuses and Snowdrops. It flowers freely if treated in the same manner as Crocuses for pot culture, plunged after setting in cocoa-nut fibre or some such material till the roots are well up through the soil, when it will soon come into flower in a cool house near the glass. *H. H.*

Setting of Peaches.—Complaints are often made regarding the dropping of Peach-buds when they begin to expand, and when such occurs it is very tantalising, and the loss is a serious matter. Numerous reasons may be assigned for such misfortunes: over-cropping the season previous, especially when trees are not vigorous; dryness at the roots (often this is the case when it is least suspected by the surface being wet, and perhaps a foot or more downwards, when the feelers may be feeling dry at a depth not reached by moisture); fire-heat judiciously applied is most destructive to Peaches in their early stages of growth. But there is another evil very common, and not generally suspected, viz., crowding of buds. When a tree becomes thoroughly ripened buds are very abundant, and far too much for the

strength of the tree to combat with—its smother each other, and become so thoroughly delimitated that setting is almost impossible; all the manoeuvres to circulate the pollen and do justice in every respect are of no avail. For about twenty years past we have thinned the flower-buds unsparingly, allowing them to stand quite clear of each other, and leaving those best placed to receive light and air, as well as to be in the best positions when the fruit swells. During many years we have had to set the fruit in January or February, but do not remember at any time seeing buds drop, and crops have always been abundant. When the fruit-buds are being thinned we, at the same time, reduce the wood-buds, which are then just perceptible, often using the point of a sharp knife to pick them out, and when the work is finished all the wood not wanted for next season is disposed of; one is left to top each shoot and lead up the sap, and another at the base for next year's duty, and except a little topping and tying no further trouble is necessary with the current year's growth, we therefore make our Peach crops very inexpensive so far as labour is concerned. But the conditions to secure unflinching success in setting is abundance of fibry roots, matted not far from the surface, in thoroughly firm but porous soil; under such circumstances, abundance of fresh air, thinned off and heavy crops always ripened. A.



Reports of Societies.

Royal Horticultural: Feb. 14.—At the annual general meeting, held on Tuesday, there was but a small number of Fellows, and the proceedings were of but short duration. The President, the Right Hon. Lord Aberdeen, occupied the chair, supported by the following members of the Council:—Sir Trevor Lawrence Bart., M.P., the Rev. H. Harpur-Crew, Mr. G. F. Wilson, Mr. G. T. Clarke, Colonel Trevor Clarke, Major Mason, and Dr. Hogg. The minutes of the last annual general meeting having been read and confirmed, Dr. Masters and Mr. John Lee were appointed scrutineers of the ballot. The names of thirty candidates for the Fellowship of the Society were next read, and the whole unanimously elected. The following report of the Council for 1881 was then taken as read:—

ANNUAL REPORT, 1881.

The Council have again to congratulate the Fellows on the increase in their numbers and in their income, which the past year has shown, and the more so as such increase has for several years past been progressive in both respects. The receipts from the Great Show again stand far in advance of any similar gathering, the effect of the brilliant display made by the exhibitors and seriously affected the attendance of the public. The loss entailed thereby upon the finances of the Society fortunately was small, and the evening *fête*, which gave great satisfaction, cost more than the usual amount of its expenses. The promenade shows in the conservatory, which are steadily growing in the public favour, did not in any way interfere with the scientific work of the fortnightly committee meetings, of which they were an extension. They have been a source of enjoyment to the Fellows and their friends who attended them, and have contributed large and attentive audiences at the interesting lectures delivered at them, some of which have been published *in extenso* in the Society's *Journal*. The other minor shows, including those of the Auricula and Pteridophyte Societies, met with their usual high standard of excellence, and afforded much pleasure to visitors. The lawn tennis courts have been much used and appreciated by the Fellows resident near the South Kensington Gardens.

The International Medical and Sanitary Exhibition, for the purposes of which the Council granted the use of a part of the grounds of the Society, proved a success financially, and, the Council trust, has been useful to the nation, by teaching in a visible and practical way the leading principles of sanitation and the best external means of preventing and alleviating disease. The Council wish to record their sense of the cordial and pleasant nature of their relations with the gentlemen who represented the executive committee of this exhibition.

The Smoke Abatement Exhibition, which is still in progress, will, the Council hope, effect practical good in the inhabitants and destruction of plants which smoke occasions in and around our great cities, towns, and manufacturing districts.

The Council have no doubt the aid they have given to the laudable objects of these exhibitions will have the approval of the Fellows.

The suit by the Commissioners of the Exhibition of 1881 against the Society and the debenture holders, the position of which was fully explained to the Fellows in this year's report, was referred to Mr. Justice Fry in January last, and was, after hearing, dismissed with costs, to be paid by the Commissioners to the Society, and to the representative of the debenture-holders. Against

this judgment the Commissioners have appealed, and the Council believe the appeal will very shortly come on for hearing. If the decision of Mr. Justice Fry be affirmed, as the Council have reasonable grounds for hoping will be the case, the Society will be placed in a much more advantageous position than it has occupied for many years.

The scientific work of the Society has been carefully attended to during the year.

The Chiswick Garden has been maintained in a high state of efficiency, and has enabled the Council to have much useful experimental work carried out there. In this work the Fellows appear to take an increasing interest, and the public generally receive as authoritative the results which have been attained.

The Fruit Committee have had under examination 242 different sorts of Potatoes, and from America a number of unnamed seedlings. The season proving favourable for these, the experiments were very successful, and the committee were enabled to recommend seventeen varieties for the Society's certificates on account of their improved quality and appearance. Some new Peas were also grown, and of these three kinds received certificates. There were also many minor varieties of vegetables which received attention.

The kinds of Raspberries in cultivation being numerous, has been thought desirable to institute a trial to ascertain their respective merits and character. With this view a large collection has been secured, and the result of the investigation will, when completed, be published in the *Journal*. Experiments will also be instituted in the coming season to ascertain the distinctness of Tomato, and Shallot.

The Floral Committee has been mainly occupied in examining Begonias, of which the Society possesses one of the most complete collections existing; and of Begoniums, of which many striking varieties were presented by Lemoine, of Nancy, Pompon Dablas, Nasterius, Pentstemon, Gloxinias, Ceanothus, Neriums, and other miscellaneous plants, have been examined.

The crops of fruit, though below an average, nevertheless furnished good opportunities for pomological investigation, to acquire a knowledge of the subject, there being a collection of 265 varieties of Apples alone, arranged for examination in the fruit-room. The Vines in the great conservatory continue to supply abundant crops.

The Tea Roses, which, in accordance with the intention announced in last year's report, have been planted in the orchard-house, are making satisfactory progress.

The rockery, which was formed a few years ago, has been a great attraction to the Fellows and visitors. It is planted with the choicest rock and alpine plants, which are now well established, and has during the year been considerably enlarged.

To aid in fostering a taste for hardy border flowers the Council have largely increased the number of those formerly in the garden.

As applications of 912 Fellows were granted as follows:

18,886 plants.
19,644 packets of seeds.
4,000 Gladiolus bulbs.
5,272 Strawberry runners and cuttings of fruit trees.
45,002 total distribution.

In addition to the usual choice varieties of vegetable and flower seeds, seed of a selected strain of Begonia was distributed during the present year.

The sales of garden produce during the year appear in the accounts. A large quantity of Grapes still remain, which are being disposed of.

A requisition having been made by the Chiswick, The Royal Horticultural and the Royal Botanic Society, of which the Duke of Devonshire is President, for the use of the garden in which to hold an exhibition, the Council gave their consent, and a show was held, which was so numerously attended and successful that the Council hope that at some future time they may be encouraged to make a similar use of the garden.

The Council have pleasure in acknowledging the liberal donations made to the Chiswick garden, among which are:—

- The Royal Gardens, Kew, sixty-eight herbaceous plants.
- The Royal Botanic Society, a specimen *Araucaria excelsa*.
- Botanic Garden, Cambridge, seventy-seven herbaceous plants.
- Mr. T. S. Ware, 141 herbaceous plants.
- Mr. F. Wilson, Esq., thirty-seven herbaceous plants.
- Messrs. Lane & Son, a collection of Roses.
- Mr. Turner, a collection of Roses.
- Messrs. Paul & Son, a collection of Roses.
- Messrs. J. Laing & Co., a collection of Roses.
- Mr. J. Fraser, a collection of Roses.
- Mr. Turner, 111 varieties of Chrysanthemums.
- Mr. H. Brist, a collection of Palms.
- Baron Ferdinand von Mueller, of Melbourne, collection of seeds.

The Society is indebted to many Fellows and others for liberal donations of plants.

Lord Aberdeen, in moving the adoption of the report, desired that all who supply an omission in it, in reference to the death of Dr. Denny, whose loss his colleagues greatly felt, the deceased gentleman being a most ardent horticulturist, and an indefatigable worker in the interests of the Society. With reference to the work of the Society, its position and prospects, he, the Chairman, had little to say that was not contained in the report. He had

to congratulate them on the satisfactory increase in the number of Fellows during the past year, and also on the increase in the receipts, from £6820 in 1880 to £7031 in 1881. The expenses, however, were still somewhat large, but he hoped that with increasing prosperity the number of Fellows, and consequently the subscription lists would ere long show larger returns. Their receipts last year had been greatly reduced by the unfavourable weather which prevailed while their large summer show was being held, but he was glad to say that all their liabilities as contained in the revenue account, had been paid since January 1. The principal increase in the expenditure had been incurred by the appointment of the Rev. G. Henslow as lecturer, whose services he believed had been much appreciated by the Fellows. The decision of Mr. Justice Fry alluded to in the report had been appealed against, and the case was to have come on that day. It was probably at that moment before the court. If the Society gained it they would have another five years' tenure, irrespective of any further arrangement they might make. The exhibition held in the gardens by the Medical and Sanitary and Smoke Abatement Committee, had done good service, but he was afraid they must expect to receive so much from the latter as they had from the former. Mr. Guedalla seconded the motion, which was carried unanimously.

The scrutineers then announced the result of the ballot—the unanimous election of Mr. E. Giles Loder, Mr. J. H. Mangles, and Mr. William Lee, as members of Council; and of the following gentlemen as office-bearers for the ensuing year:—President: Right Hon. Lord Aberdeen; Treasurer: Mr. William Haughton; Secretary: Major F. Mason; Expenses Committee: Lord Alfred S. Churchill, Major F. Mason, and Mr. William Haughton; Auditors: Mr. K. A. Aspinall, Mr. John Lee, and Mr. James F. West. A hearty vote of thanks was accorded to the Chairman, and the meeting closed.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Malformed Acorns of Quercus Ilex.—Specimens were sent from the Isle of Wight by Mr. F. Moore, which were referred to Dr. Masters for examination and report.

Disease of Carnations.—Mr. W. G. Smith exhibited specimens, furnished by Dr. Hogg, of what is termed "gout" in Carnations. The disease is caused by minute nematoid worms attacking the collar of the plant, and eating upwards through the parenchyma to the very tips of the foliage. The female worms are very prolific, and the plants mentioned were swarming with the worms and their eggs. The disease was illustrated in the *Gardener's Chronicle*, December 3, 1881.

Deformed Root.—The specimen from Mr. Ingram, figured at p. 147, was exhibited.

Lobed Leaves of the Pear.—Mr. R. D. Blackmore exhibited a three-lobed leaf, which had been produced on one of his trees after root-pruning, which led to some discussion.

Coloured Stages.—Mr. English, of Epping, exhibited specimens of flowers and fungi prepared by the process mentioned in his work on the subject, which originated a remark from Professor Church as to the use of plaster of Paris mixed with dry sand, for the purpose of speedily drying and retention of colour in flowers.

Apparent Superfertility in the Pea.—Mr. T. Laxton, of Bedford, forwarded a communication describing some experiments in fertilisation of the garden Pea. Taking Laxton's *compe* as the standard, he impregnated a pea flower with the pollen of the other varieties. The pod thus treated bore eight Peas, which, on germination, were distinguished as *a*, *b*, *c*, &c.; and *b* had purple flowers, the rest white; *a* and *g* followed very nearly the type of the seed-bearer, Prolific Long-pod; *b* approached No. 4 variety; *c* more nearly resembled No. 3; *c*, *f*, and *d* differed in various particulars from *a* and *g*, but these had pretty nearly the same characteristics of the pollen-bearer, Early Maple, or No. 4. Mr. Laxton drew the following conclusions as to the influence of the pollen of the different male parents:—*a*, from some of the Peas being wrinkled, were influenced probably by the pollen of Nos. 2 or 4, as both had taken effect; *b*, the colours of the seeds of some of which are wrinkled, indicating probably the influence of 2 or 4, or both; *c*, from the same appearances and from the position of the flowers, probably Nos. 2, 3, and 4; *d*, from the colour of the flower and the height, probably Nos. 1 and 2; *e*, from the colour and shape of the seeds, some being wrinkled, and the shape of the pods, probably No. 2, and perhaps 4 or 5; *f*, from the colour and wrinkling of some of the seeds, probably Nos. 1 and 2, or 4; *g* (similar to *a*), Nos. 2 or 4, or both; *h* (similar to *f*), Nos. 1 and 2, or 4. From these facts he deduces:—1. That the pollen of more than one variety of Pea used to cross-fertilise the same flower may influence more than one ovule in the same ovary. 2. That there is some evidence of the pollen from more than one variety affecting the same ovule.

Report on Winter Losses, &c., in Plants.—The Secretary, the Rev. G. H. Rowley, in a number of the press he had made in compiling statistics for a "Report on the Meteorological Phenomena of, and consequent Injury to Plants in Severe Winters." He had obtained particulars of several winters from A.D. 220 to 1881, but those during which destruction of, and injuries to, plants had been especially recorded, were the following seven:—1851-2, 1852-3, 1859-60, 1860-61, 1878-79, 1879-80, 1880-81. He had collected all the information he had at present been able to find with reference to these winters, and had drawn up first a short account of the principal meteorological phenomena of the year preceding each winter, as well as of the winter itself, as the behaviour of a plant under frost so much depends upon its previous conditions; in each case such was followed by details of injuries to, and losses of, plants over as many places in the British Isles as possible. The importance of registering meteorological phenomena and the losses in several winters lay in the fact that the conditions of the winters respectively differed in many ways from one another. The consequence was, that the immediate cause of a plant's succumbing to frost was not always the same. There would be an introduction dealing with several interesting matters bearing on meteorology and plant injuries, and it is proposed to complete it with copious indices, so that no difficulty would be met in finding the exact behaviour of any particular plant in any county and in any winter.—A discussion followed, in which the great importance of elaborating the report as fully as possible, and of speedily publishing it, were insisted on.

Specimens Exhibited.—Mr. Houston showed specimens of dissections of flowers mounted in preservative fluid, and intended for use in classes in the winter, when fresh specimens are not available. Mr. G. F. Wilson showed a pretty little creeping Oxalis, well adapted for borders in conservatories or other places, where its objectionable facility for getting beyond bounds, and on the kert, and the one Mr. Joseph Hooker identified it with O. microphylla. Mr. Harpur-Crewe showed the new and pretty Muscari linguatum, a native of Celcia, one good point in which is its habit of flowering early.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair.—Fine groups of Cyclamens, Primulas, and Cinerarias, and a few other interesting objects made the Council-room quite gay for the annual meeting. Of the first-named flower Mr. Clarke, of Twickenham, sent a very fine group, the plants having good foliage and large flowers, pure and clean in colour, and well varied. A very fine white, named giganteum compactum, was much admired. A fine bank of Primulas and Cinerarias came from Mr. Henry Little, of Hillingdon Court, Uxbridge, included amongst the former being several well marked varieties, and one named Magneta Gem, a fine rich honours in colour, which was singled out for the highest honours. From Sir Trevor Lawrence, Bart., of Hillingdon, (Mr. Spyers) came one of the finest specimens ever seen of *Odontoglossum pulchellum majus*, a plant with nearly forty spikes of flowers, many of which bore nine blooms on a spike. This was awarded a Cultural Commendation and recommended for the further distinction of a Medal. *Odontoglossum Ruckerianum*, from the same collection, was also shown in fine condition. The weeping form of *Wellingtonia gigantea* sent out some years ago by Messrs. Little & Ballantyne, was well represented by a specimen about 6 feet high from the nurseries of Messrs. W. & J. Brown, Stamford. Mr. C. Edmunds, of Hillingdon, had in *Cyclamen persicum giganteum roseum compactum* [?] a good but much over-named plant, with light marbled leaves and large rose flowers. From Heatherback the Chairman brought a very handsome spike of fourteen flowers of a fine unspotted variety of *Odontoglossum crispum*—a perfect wreath in itself; also a nicely sized variety of the same species. Messrs. James Veitch & Sons showed a small group of fine white Cyclamen and other plants, including the excellent *Crocodyne cristata Lemniana*, which has a pale lemon-yellow crest on the lip; and a hybrid *Rhododendron* named Queen Victoria, with flowers in colour a pretty shade between buff and nankin. From Mr. Gilbert, of Burchley, came a very striking white hardy Primrose, named Gilbert's Harbinger, with flowers 1½ inch in diameter, profusely produced, and much in the way of variety names, and certified several years ago. A pretty lot of hardy Primroses of different colour also came from Mr. Anthony Waterer. A very fine mass of the extremely showy *Cineraria cruenta*, and flowers of the pretty "blue Marguerite," *Agathe celestis*, came from Messrs. Cannell & Sons. Mr. James brought up some cut blooms of his fine strain of *Cinerarias*. Mr. Turner had some nice Tree Carnations, and from Chiswick came an excellent group of plants of the old double white and other double Primulas, *Cinerarias*, &c.

The following are the awards:—

First-class Certificates.

To Messrs. W. & J. Brown, Stamford, for *Sequoia* (*Wellingtonia*) *gigantea pendula*.

To Mr. C. Edmunds, Hillingdon, for *Cyclamen persicum giganteum roseum compactum*.

To Messrs. James Veitch & Sons, for *Crocodyne cristata Lemniana*.

To Messrs. Veitch & Sons for *Rhododendron* Queen Victoria.

Mr. Gilbert, Burchley, for *Primrose* Gilbert's Harbinger.

To Mr. K. Clarke, Twickenham, for *Cyclamen persicum giganteum compactum*.

To Mr. H. Little, Hillingdon, for *Primula sinensis* Magneta Gem.

To the Rev. H. Harpur-Crewe, for *Muscari linguatum*.

Cultural Commendations.

To Sir Trevor Lawrence (Mr. Spyers, gr.), for *Odontoglossum pulchellum majus*.

To Messrs. H. Cannell & Sons, for *Cineraria cruenta*.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. Mr. J. Atkins, gr. to Col. Lloyd Lindsay, M.P., Locking Park, Wantage, showed at this meeting nine of the most perfect bunches of Black Alicante Grapes ever seen in the month of February, each bunch being a model of compactness and good finish, and in all respects as fresh as in the month of October—a triumph of skill all the more remarkable as the present has been one of the worst seasons for keeping Grapes that has been experienced for several years. The committee recommended the award of a Bronze Medal, but on what principle we failed to see, as on two former occasions Mr. Atkins received Silver Medals for examples unequal in merit to these Alicante. Lady Dorothy Nevill contributed a number of Tangierine Oranges, fine, fresh, and pleasant in flavour. Messrs. Geo. Bunyard & Co., Maidstone, sent specimens of Smart's Prince Arthur Apple, a conical and somewhat angular fruit, streaked with crimson on the sun side, and supposed to be locally favoured in East Kent. Mr. J. F. Barber, of the Harrow Road, again showed some good Mushrooms grown in beds in the open air; and Mr. Green, gr. to Sir Geo. Mackay, contributed some ripe Bananas.

Edinburgh Botanical: Feb. 9.—The Society met this evening in 5, St. Andrew Square, Professor Bailour in the chair.

The following communications were read:—
I. "Notice of the late Sir Robert Christison, Bart." by the Chairman.

II. "Obituary Notice of the late Professor George S. H. Apple, M.D." by John Sibbald, M.D., F.R.S.E.
III. "Definition of a New Tree from East Australia (Dysoxylon Schifferi)." by Baron Ferd. von Mueller, Ph.D., M.D., F.R.S., K.C.M.G.

IV. "On Tilling." by A. Stephen Wilson, Esq., North Kinnmundy, Aberdeenshire. Illustrated by photographs.

By the word "tilling," as applied to a cereal grass, is meant the producing of more stalks than one from a single seed. The plumule of the embryo grows into the first or primary stalk, and all the secondary stalks arise either directly from the primary stalk or from secondary stalks which first arise from the root. All the secondary stalks are buds growing out of stalks, and not out of roots. Indeed it cannot be properly said that the primary stalk itself grows from the roots; its stalk and the roots grow simultaneously, and have a biological interdependence. When the roots produce the stalk than a man's legs produce his head.

All the tillers or secondary stalks are thus of the nature of branches, the buds or beginnings of which arise from the two or three lowermost nodes of the primary or internodes. No such buds are thrown out upon the internodes. The secondary stalks or tillers, which are really branches, throw out roots from their bases and lower nodes, but no stalk whatever arises directly from any root. In some plants a stalk may arise directly from a root, or a root may arise directly from a stalk, but in the great majority of cases the roots grow off a root.

But this note is not intended to be an exposition of the principle of tilling, but merely an introduction to the accompanying photographs of Barley and Oat plants.

These plants were grown in the garden at North Kinnmundy, where I have sown a great number of ears in order to test the limits of tilling. Previous experiments had shown that the main conditions necessary to ensure tilling is shallow planting. When a seed is put down 2 or 3 inches the plumule is drawn out and exhausted ere reaching the surface where the tillering takes place. When the seed is merely covered when it goes into tilling at once. The first set of seeds were sown up by the sparrows, so that a part of the tillering season was lost. The second set were protected until sown. The best Barley plant produced about 140 stalks, 120 of which showed the ear out of the sheath. The second had 121 ears; others had fewer, diminishing down to about fifty. The Oat plant submitted stood through the winter and produced about 10,000 returns.

Now, as the tillering process in the Barleys was going on during the whole season, some of the ears were not sown when the plants had to be pulled. But notwithstanding this, there can be no doubt that, in order to reap the full advantage of seed corn, it should be sown or deposited as near the surface as possible. This would be true of autumn sowing as well as spring sowing were it not for the effect of frost; but a severe winter renders deeper seeding advisable for other reasons than those directly connected with the development of the seed.

V. "On the Phenology of the Upper Ward of Lan-

arkshire in 1799." By Henry Buchan, S.S.C., in a letter to the Assistant-Secretary. Quoted from an old manuscript diary, Mr. Buchan showed that at Brownlee, near Carlisle, on January 24, 1799, "Wind was west on a very mild warm day. The whole of this winter remarkably mild and fresh. Polyanthus, Primrose, and Auricula in blossom. A Carnation has commenced putting forth flowers all winter. Some Beans in blossom." On February 21 of the same year the bees were carrying on work, and on March 28 the Jargonelles began to blossom, while on April 4 a Cherry tree on the wall began to blossom; and on May 2 Cherries, Plums, and Pears were in blossom. But this mild winter and favourable spring of ninety-two years ago were not followed by an early harvest. September was very rainy; the depth of rain on the 19th of that month—3 inches at 8 o'clock at night—being the greatest the observer had ever noted. On October 6 the harvest was general; and on the 24th the corn was mostly cut down, but on November 7 some "victual" was still out. This, however, is a district in which early harvests are hardly looked for in any season.

VI. "On Temperatures at the Royal Botanic Garden, and Effects thereof on Vegetation." by John Sadler, Curator.

Since the year commenced the weather has continued very open and mild. During the month of January the thermometer at the Royal Botanic Garden only fell below the freezing point on six occasions, as compared with twenty-seven occasions in January, 1881. The two hardest mornings were on the 4th, when there were registered 28°, or 4° of frost; and on the 25th, when there were 29°, or 6° of frost. There were registered collectively for the month 227° of frost, while 359° were registered the same month last year. Since February commenced the thermometer has been below the freezing point on three occasions, viz. on the 2d, 29°, or 3° of frost; on the 3d, 30°, or 2° of frost, and on the 7th, 28°, or 4° of frost. Owing to the mildness of the season and the occasional blinks of sunshine, many of the spring flowering plants are now in bloom. The growth of the young shoots of Roses, and flower and leaf-buds of many shrubs are further forward at this date than they have been for many years past. The following are some of the more conspicuous plants present in flower on the rock garden.—*Galanthus plicatus*, G. Elwellii, *Crocus biflorus*, C. erucicus, C. imperati, *Lecocyan vernum*, *Dulciodendron vernum*, *Orubus elegans*, *Primula denticulata*, *Sisyrinchium grandiflorum* (purple and white varieties), *Hebeborus colchicus*, and other species, and white and blue Hepaticas, &c. The Botanic Garden purple variety of the common Primrose is now in full flower in the roseary and rock garden. Yews, certain species of Alnus, Hazel, &c., are flowering freely. Grass has recently commenced growing, so that the scythe will ere long be in requisition.



Natural History.

HABITS OF BIRDS AND ANIMALS FREQUENTING THE GARDEN.—In a former communication on this subject, at p. 25, I am made to say that the common kite is in some parts of the country regarded as a bird of ill-omen, &c. I intended to have said the common yule or yorling, which in some parts of the country are names applied to the yellow ammer or yellow bunting (*Emberiza citrinella*). But why he should be regarded as a bird of ill-omen, or why the following doggerel couplet should be made to apply to him, I am quite unable to say; as he is certainly a very pretty bird, and although not much of a songster, he is nevertheless perfectly harmless. The couplet is as follows:—

"Part Paddy, part Taid, part Yellow Yorling,
I drink a drop o' the Deil's blind every Monday morning."

I ought also to have mentioned another nocturnal bird, allied to the owl, which in some parts of the country frequents light gardeners, or gardens where the cockchafer abounds—I mean the nightjar (*Caprimulgus europaeus*), which is not only a perfectly harmless bird, but does good service in gardens, where this horribly destructive insect abounds, as they feed greedily upon them. And any one who has witnessed the ravages which these terrible insects commit upon crops of various kinds, as well as upon trees and plants of nearly all species, will hardly fail to encourage by all possible means the nightjar, which, like the owl, passes noiselessly through the

summer evening's air in quest of its favourite food, which it seizes while on the wing, as well as when settled upon the leaves of fruit trees, &c., while the sharp snaps of his small, though powerful bill, may be distinctly heard in rapid succession. This bird, like many others, is migratory, and generally arrives upon the south-east coast about the middle of May, and departs towards the end of September. They form no nest worth calling such, and the female deposits her eggs upon the dry soil, not infrequently in Asparagus plantations, or other sheltered and quiet situations, and like the partridge when disturbed while sitting upon her eggs or young, instinctively flutters upon the ground as if disabled, in order to draw attention from them. The bird also utters a peculiar quivering or jarring note, which when heard in the stillness of evening-tide is considered to indicate or foretell fine and settled weather. Although the bill or beak of this bird is small in proportion to its size, and is surrounded by long stiff bristles which point forward—a provision which no doubt assists it in capturing large insects, such as the cockchafer, and other large moths in flight—its gape is something enormous; so that in some parts of the Eastern Counties it is not unusual to hear it said of its one possessed of a wide mouth that he or she is like a nightjar—when his mouth is open his head is half off. Its legs are short, but its wings and tail are very long, which enables it to perform the most sudden evolutions, and to mount from a level flight instantaneously like a sky-rocket. This pretty and inoffensive bird is often wantonly shot, which is much to be regretted, as it is seldom or never numerous, and being entirely insectivorous, is of great service in the garden and elsewhere.

THE RAT.—Of all the rodents which are apt to infest gardens, the most mischievous, as well as the most destructive, is the ubiquitous rat—next to him, his troublesome little relative the mouse; and to diminish or check the increase of such vermin many well-known expedients are had recourse to, with varying success. The mole, too, when he finds his way into the garden, often proves exceedingly troublesome, not on account of what he eats, which no one would begrudge him, consisting as it does of earthworms and various noxious larvae, but on account of his excavations and consequent injury to crops of all kinds, and his disfigurement of lawns, &c., which renders his presence in the garden anything but desirable.

THE COMMON SQUIRREL, (*Sciurus vulgaris*) is the most sprightly, active, and elegant member of the order Rodentia, and if he would restrict his diet to acorns and Beech mast, and forbear biting the tops off rare Conifers, &c., he would, no doubt, be universally respected and protected, as he is, in spite of his many shortcomings, universally admired. But unfortunately if he once discovers where the Filberts and other nuts are growing, nothing short of the gun will prevent him from transferring the whole or the greater portion of the crop to augment his store of provision for the coming winter—an example, it is true, of foresight and industry, but one which the owner of the nuts may fail to altogether approve of.

THE SHREW is one of the smallest of British quadrupeds, and is not infrequently found in gardens, but being, as far as I know, strictly insectivorous, does no harm, but probably some good.

THE WEASEL preys upon the shrew, as well as upon the more formidable rat, and the mouse; indeed, this wonderfully agile little creature is possessed of such courage and ferocity that he does not hesitate to attack even the rabbit and the hare. So that while he keeps in the garden he is useful rather than otherwise, but when he gets into the covert the gamekeeper generally takes account of him, and weasels are consequently becoming very scarce.

THE HEDGEHOG seldom finds his way into the garden, and when he does so he does no harm whatever, but much good. This very inoffensive little animal is well known on account of his singular but most efficacious means of defence. His pace is very slow, and he cannot flee from the face of danger, nor has Nature furnished him with any effective means of defence further than the sharp prickles of his coat, and his power of so contracting his body as to effectually hide his head and feet, and so form himself into a prickly ball which few animals care to interfere with. Few animals have, however, been

more maligned than this poor little persecuted creature, who is accused of robbing orchards, ascending Apple and Pear trees like a squirrel or a cat, biting off the fruit, and carrying away the same upon the points of his spines. This he is, of course, supposed to do under the cloud of night, but I wonder if any of your readers ever met with him so encumbered. I never did so, and I have sometimes been abroad at night too; but by far the most extraordinary of his depredations is asserted to be that of milking cows. It was seriously stated in a country contemporary some time since that a valuable cow belonging to an extensive dairy from some inexplicable cause withheld her milk [?Query, from aversion to the animal?], or a portion of it, until the cowman solved the mystery by discovering in her immediate vicinity the cause of all the mischief in the person of a full-grown hedgehog, upon which he at once inflicted condign punishment, for an offence of which he may have been about as guilty as the yellow yorling alluded to in the foregoing couplet is of taking his Monday morning draught.

It is strange, however, to think that such a belief should ever have been formed as to the existence of either the will or the power in this little animal to perform such an operation. It feeds, however, chiefly during the night, and may occasionally have been found in close proximity to reposing cows or other stock, and it is possible that it may seek such company for the sake of the warmth and shelter it affords. He is also, with possibly more feasibility, strongly suspected of sucking the eggs of the partridge and the pheasant, &c. This may or may not be the case; it is possible that in such matter he may sometimes finish what the rats have begun. At all events, there is a doubt in the case, the benefit of which, unfortunately for him, he never gets, as the gamekeeper invariably kills him wherever he finds him. His principal food is no doubt worms and insects of various kinds, even reptiles, as it has been ascertained that he will kill and eat even so formidable a reptile as the snake. He will also, to some extent, feed upon vegetables and fruit, and when in a state of domestication feeds on soaked bread or boiled Potatoes, &c. They are sometimes kept in kitchens and cellars, and are said to soon free them from cockroaches, blackbeetles, and other troublesome insects. They are also susceptible of kindness, and will allow themselves to be fondled by those who may have gained their confidence. When at liberty they form for themselves snug, warm nests of moss and dry leaves in some dry bank or similar situation, where in pairs they pass the winter coiled up in a state of semi-insensibility. *P. Grievé.*

THE WRYNECK (*Yunx*) has been heard in this neighbourhood for some days. On Sunday the 12th I first heard it myself, and remarking to a friend that it was very early for its arrival, he said that his attention had been called to it some days before by a person asking him to listen to "that strange bird," and he went on to say that there was a common opinion that after the advent of this bird little more severe weather was to be expected. Although one swallow does not make a summer, a wryneck before the middle of February is an early note that spring is coming. *M., Ilustrierpoint.*

CANADIAN NOTES.

We had a very peculiar fall. The Maples and Beeches remained green for a long time, and then all at once cast their leaves, and left us minus their usual autumn glories, and the only piece of agreeable scenery left us was in our woods of evergreen trees—the tall, jagged-topped Pines, and the towering pyramidal Spruces contrasting finely with the lighter green of the graceful Cedars and the pert little Balsams and the decided russet of the elegant Tamaracs. However, these effects are passed away, and after some fitful weeks of alternate snowing and thawing—requiring buggies to start out on a journey and cutters to return home—we now have winter nicely upon us, and delightful sleighing, and the roads are all alive with farmers drawing their grain and hay to market, and the woods are equally swarming with gangs of men either lumbering or getting out timber for paper manufacture or for all kinds of railway material for the Canada Pacific Railway, and all the various ramifications of lines intended to be connected with it. There have been considerable purchases of excellent

horses sent northwards for railway purposes, and the large sums of money spent in the work, although doubly paid for by the Dominion in both money and land, have put us all into good spirits, coupled with and principally on account of the favourable results of a generally good harvest and of high prices for all our produce. Wheat has realised from 1 dol. 18 c. to 1 dol. 32 c., and 1 dol. 18 c. again, for the bushel of 60 lb., and Hay 12 to 15 dol. per 2000 lb., and Oats and Peas proportionately high. Potatoes, which began at 40 c. for the bag of 90 lb., are now worth, in consequence of extraordinarily large exportations to the United States, 1 dol. *Mtiness, Ontario, Canada, January 20.*



Florists' Flowers.

CYCLAMENS.—An entire house devoted to the blooming of Cyclamens in a private garden is not a common feature; still less unusual do we see Cyclamens well done in such places. But at Syon Mr. Woodbridge has not only a house full of these plants, but they are also remarkably good; still more, they are useful to an extent that cannot easily be calculated. The Cyclamen is one of the most fertile producers of winter flowers we have; strong plants may be pulled from incessantly, and seem none the worse for the robbery. Then the blooms are so happily fitted for decorative uses; they have long stems that need no wiring, are stout and enduring, and generally give those light pleasing hues of colour that are so acceptable during the winter months. Any gardener who may contemplate the constant culture of the Cyclamen should first ensure the possession of a good even growing strain; one that produces very many flowers and good even heads of bloom is preferable to those leggy large-flowered strains that are not nearly so floriferous. The raising of a batch of seedlings need not be a work of difficulty, as for these a gentle heat will suffice to germinate the seed, and also to promote growth in the seedlings when they are pricked out into small pots. Any shelves, especially those used for the fruiting of Strawberries, and near the light, will suffice for the summer growth, as Cyclamens do not need heat when there is plenty outside. The great necessity in connection with the Cyclamen is a fitting house in which to bloom them, for they never thrive well if mixed up with other plants. They need plenty of light, to be near the glass, and to enjoy an even and fairly dry temperature, as damp brings spot in the flowers, and robs them of their highest charm—purity of colour. There ought to be no more difficulty in growing Cyclamens well in private gardens than is found in market growing establishments. A good deal is made at times of clever growers and secrets of culture, but there is much more in suitable houses and careful attention.

PLANT PORTRAITS.

GOMEZA PLANIFOLIA, Lindl., VAR. **CROCEA**, Regel, *Gartenflora*, t. 1053.—A Brazilian Orchid, chiefly of botanical interest.

GRAPE EARLY MONTREUIL, *Rev. Hort.*—A very early Grape, used for wine-making. Berries small, globose, black; flavour acidulous. Ripens at Paris in September.

LILIU RUBESCENS, Watson, *Garden*, Nov. 12.—The plant sometimes called L. Washingtonianum purpureum but here considered as a separate species by reason of its smaller erect darker coloured flowers.

LILIU WASHINGTONIANUM, *Garden*, Nov. 12. **MALIXILLARIA OCHROLEUCA**, *Belg. Hort.*, t. xviii., 1880.—Pseudobulbs elongate, oblong leaves, strap-shaped flowers in loose racemes, perianth segments narrow, lanceolate, pale yellow, lip three-lobed, orange.

NYMPHEA TUBEROSA, A. Paine, *Bot. Mag.*, t. 6536.—Chiefly distinguishable from *N. odorata* by the small tubers on the sides of the rootstock. *Kew.*

OPHIPOGON JABURAN VOL., *Rev. de l'Hort. Belg.*, December.—Leaves linear, strap-shaped,

green, prettily striped with white; flowers small, lilac, in long dense spikes.

PELAGONUMS. *Floral Mag.*, t. 467.—Show varieties:—1, Chivalrous; 2, Martial. Mr. Charles Turner.

PHILODENDRON BIPINNATIFIDUM, *Gartenflora*, t. 1029, f. 1 and 2.—A noble Aroid, of semi-scandent habit and large, long-stalked, cordate ovate, bipinnatifid leaves, from the axils of which proceed the brownish, boat-shaped spathes, which enclose the thick columnar yellow spadices.

PTICARIA ZEPHYLLA, Koch, *Bot. Mag.*, t. 6535.—A Bromeliad with tufted leaves, in shape like those of the Maize, and with erect spikes of long curved white flowers emerging from scarlet boat-shaped bracts. Central America.

SALVIA COLUMBARIÆ, Benth., *Bot. Mag.*, t. 6595.—Annual, 1—2 feet high, with bullate, pinnatolobed leaves, and close heads of amethystine bracts and flowers. Native of California and Arizona. Introduced by Mr. Thomson, of Ipswich.

SPARAXIS PULCHERRIMA, *Garden*, Dec. 17.—Leaves lanceolate. Flower-stems slender, wiry, peduncles recurved, flowers 6-parted, bell-shaped, lilac. The plate of this beautiful flower was drawn from specimens in the Caledonian Nursery, Ghersey.

STATHYPHYLLUM PATINI, N. E. B., *Illustr. Hort.*, t. 397.—A dwarf tufted Aroid, with elongated stalks supporting lanceolate leaves, and surrounding stalked spadices, with narrow white spathes. See *Gard. Chron.* 1876, p. 199; 1877, p. 139; 1878, p. 662, 783.

Obituary.

THE announcement of the death of Mr. WILLIAM HURST, formerly of 6, Leadenhall Street, and lately of 152, Houndsditch, which occurred on the 11th inst. at his residence, 16, Kensington Gore, at the age of fifty-two, will be received with general regret, especially among the representatives of the seed trade throughout the United Kingdom, among whom he was more generally known than in other branches of horticulture. At the head of what is unquestionably the largest wholesale seed establishment in the United Kingdom, with a high reputation both at home and abroad, his position was one of great importance and responsibility. Unfortunately, during the last two years he was afflicted with loss of sight, which necessitated his entire withdrawal from business at intervals, and this loss of sight seemed to be the precursor of a painful malady, to which he has in the prime of life succumbed. On leaving school at fourteen years of age, Mr. William Hurst was taken into the seed warehouse of Messrs. Hurst & McMullen, of 6, Leadenhall Street, his father being one of the founders, and the head of the business. Here he made himself thoroughly acquainted with the details of the trade, and travelled important business journeys, making himself acquainted with the leading customers in all parts of the country; and about twenty years ago, when Mr. McMullen retired from the firm, he was taken into partnership with his father, and the business was conducted under the designation of Hurst & Son. From this time onwards the business increased very largely both at home and in the colonies; at the present time the firm has extensive transactions with New Zealand and Australia. The late Mr. William Hurst was one of those men of whom it may be said his heart was thoroughly in his business; he gave his whole time to it, and under his generalship the firm consolidated and extended the high reputation it now enjoys.

As one of the trustees of the Gardeners' Royal Benevolent Institution Mr. Hurst was well known; he was a liberal supporter of the charity, and took a great interest in its progress and work. Mr. Hurst was the last surviving son of the Mr. William Hurst who founded the business; and the only remaining member of the family is his sister, the wife of Mr. Sherwood, a partner in the firm, who under the terms of the will of the deceased becomes the sole residuary legatee. The business of the firm will still be continued under the old and familiar designation by Mr. Sherwood, assisted by Mr. J. S. Johnson. It is not too much to state that the feeling of regret to which allusion has been made will be felt throughout the country, as well as Ireland and Scotland, where a visit from Mr. Hurst was looked upon in many cases as a leading event of the year. The business was carried on for forty years in Leadenhall Street, and two or three years ago was transferred to Hounds-

ditch, one of the City improvements requiring the premises hitherto held by the firm.

—Mr. CAREY TYSO, of Wallingford, whose name has been so long associated with the improvement and culture of the Anemone and Ranunculus, died at Wallingford on the 21st inst. at the age of sixty-seven. He was one of the oldest inhabitants of the town, and identified himself closely with many matters of public interest. He went to Wallingford with his father, the Rev. Joseph Tyso, as long ago as the year 1821. The Rev. Joseph Tyso was an enthusiastic cultivator of the flowers above-named, and this regard was shared by his son, the result being that the Rev. Joseph Tyso started in business at Wallingford fifty years ago. It gradually grew from a florist's into a general nursery business, and three years ago it was sold by Mr. Carey Tyso, when he retired, to Messrs. Pounsett & Son, who now carry it on. 1 or many years it was Mr. Tyso's practice to issue a catalogue of Anemones and Ranunculus, and he was the author of treatises on the cultivation of these flowers.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 15, 1882

Table with columns: MONTH AND DAY, BAROMETER, TEMPERATURE OF THE AIR (Highest, Lowest, Range, Mean bar, Daily, from average of 50 years), Hygrometric Deductions (Wet Point, Degree of Sat. in 100, Average Direction), WIND, RAINFALL.

Feb. 9.—A fine day, but overcast and dull. A fine night, with dark sky. 10.—A fine morning, sky overcast; a fine bright afternoon. Fine clear night. 11.—A fine bright day, sun shining brightly. A fine, nearly calm night. 12.—A very spring-like day. Fine clear night. 13.—A fine day, but windy. Windy night. Highest temperature of the day took place at midnight. 14.—A fine bright day. Rain at night; dark sky. 15.—A dull, miserable day; overcast and rainy. A fine clear, cold night.

LONDON: Atmospheric Pressure.—During the week ending February 11, the reading of the barometer at the level of the sea decreased from 30.49 inches at the beginning of the week to 30.37 inches by 3 P.M. on the 5th, increased to 30.53 inches by 9 A.M. on the 6th, decreased to 30.51 inches by 3 P.M. on the 6th, increased to 30.58 inches by midnight of the same day, decreased to 30.42 inches by 3 P.M. on the 8th, increased to 30.55 inches by 9 A.M. on the 9th, and was 29.83 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.35 inches, being 0.11 inch lower than last week, and 0.40 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 50°.5, on the 11th. On the 9th the temperature did not rise above 36°.5. The mean of the seven high day temperatures was 42°.3.

The lowest temperature in the week was 28°.2, on the 5th; on the 7th the lowest temperature was 38°. The mean of the seven lowest temperatures was 33°.3.

The greatest range of temperature in one day was 16°.5, on the 11th; the smallest was 5°, on the 9th. The mean of the seven daily ranges was 9°.

The mean daily temperatures were on February 5, 34°; on the 6th, 37°.2; on the 7th, 40°.7; on the 8th, 37°.5; on the 9th, 34°.4; on the 10th, 38°.3; on the 11th, 41°.0. Of these the 7th and 11th were above their averages by 1°.6 and 2°.0 respectively; all the rest were below their averages by 5°, 4°.6, 1°.6, 4°.7, 0°.7 respectively.

The mean temperature of the air for the week was 37°.8, being 1°.2 higher than last week, and 1°.3 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 160°, on the 11th; the highest, on the 9th, was 39°. The mean of the seven readings was 61°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 22°, on the 5th. The mean of the seven readings was 28°.4.

Rain.—No rain fell. Fog prevailed on the 6th and 7th.

ENGLAND: Temperature.—During the week ending February 11, the highest temperatures were 54° at Sunderland, 53°.2 at Cambridge, and 53° at Truro. The highest temperature at Wolverhampton was 44°.6, at Brighton 45°.2, and at Nottingham 46°.7. The general mean was 49°.4.

The lowest temperatures in the week were 26° at Truro, 28°.2 at Blackheath, and 28°.7 at Cambridge. The lowest temperature at Leeds was 37°, at Bradford 39°.6, and at Liverpool 36°.2. The general mean was 31°.7.

The greatest ranges of temperature in the week were 27° at Truro, 24°.5 at Cambridge, and 22°.3 at Blackheath. The least ranges were 11° at Leeds, 11°.3 at Liverpool, and 12°.2 at Wolverhampton. The general mean was 17°.7.

The mean of the seven high day temperatures was highest at Sunderland, 49°.7, at Truro 49°.4, and at Plymouth 47°.4; and was lowest at Brighton, 42°. at Blackheath 42°.3, and at Wolverhampton 42°.8. The general mean was 45°.2.

The mean of the seven low night temperatures was highest at Bradford, 30°, at Liverpool 38°.7, and at Truro 38°.6; and was lowest at Cambridge, 32°.8, at Blackheath 33°.3, and at Brighton 35°.4. The general mean was 35°.8.

The mean daily range was greatest at Sunderland, 11°.6, at Cambridge 11°.5, and at Leicester 11°.4; and was smallest at Bradford, 6°.7; at Liverpool, 6°.8; and at Leeds, 7°.9. The general mean was 9°.4.

The mean temperature for the week was highest at Truro, 43°.6, at Sunderland 43°.5, and at Bradford 42°; and was lowest at Brighton, 37°.3, at Blackheath 37°.8, and at Cambridge 38°.2. The general mean was 40°.2.

Rain.—The largest falls were 0.41 inch at Truro, 0.25 inch at Wolverhampton, and 0.24 inch at Liverpool. The least falls were 0.01 inch at Sunderland, and 0.02 inch at Bristol, Bradford, and Leeds; no rain fell at Brighton, Blackheath, Cambridge, or Hull. The general mean fall was 0.08 inch.

SCOTLAND: Temperature.—During the week ending February 11 the highest temperature was 54°.8, at Edinburgh; at Dundee the highest temperature was 49°. The general mean was 51°.1.

The lowest temperature in the week was 31°, at Dundee; at Greenock the lowest temperature was 36°. The general mean was 33°.7.

The mean temperature for the week was highest at Paisley, 44°.3; and lowest at Dundee, 40°.9. The general mean was 33°.7.

Rain.—The largest falls were 1.47 inch, at Greenock, and 1.69 inch at Paisley; the least falls were 0.08 inch at Aberdeen, and 0.11 inch at Leith. The general mean was 0.53 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

CYPRIPEDIUM: B. Fines. We do not recognise the Cypridium, but it is somewhat in the way of C. thalianum. It has small yellow flowers, which will hardly command themselves to dried herbar.

ECHEVERIA JACQUINIELLOEA: J. B. P. If the old plants have done flowering cut them down, and as soon as they break fresh put in open peat and loam, and grow on in a stove. The young wood strikes freely in sandy soil in a good brick bottom-heat. If the flowers are wanted for cutting, a good plan is to strike them later on, and flower them in the cuttings-pots.

INDOOR CLIMBERS: F. Freeman. We recommend the following:—For stove—Allamanda Hendersoni, or A. Schottii, Clerodendron Balfourianum, Passiflora racemosa and P. Buonanotte, Vignona venusta and B. Chamberlayni, Thunbergia Harrisii, Hæxentricus myrsocentris, Combretum purpureum, Stephanotis floribunda, Sigmaphyllon cilium, Desmanthus grandiflorus. To these might be added some of the beautiful Escyanthuses, which will clothe the damp walls, rooting like Ivy. For intermediate Stove—Bougainvillea glabra and B. speciosa, Mimulus saxifolius, Vignona Carrii and B. speciosa, Passiflora luteo-rosea and P. Impatiens Eugenia, Solanum venustum, Hoya carnea, Aristolochia Duchartrei, Dipladenia boliviensis, Bouamara Garden. There are some other fine Escanthes which might be added. For green-house—Lapageria rosea and L. rosea alba, Vignona jasminoides, splendida, Passiflora cinnamata and P.



SEVENTY-FOUR ACRES OF FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarf, Pyramids, Bushes, Cordons and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1d. stamp.

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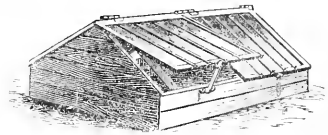
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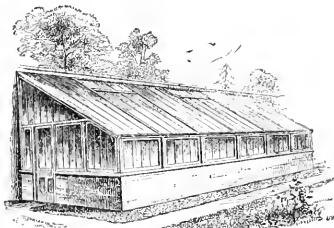
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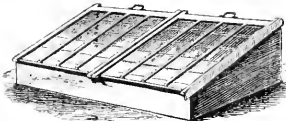
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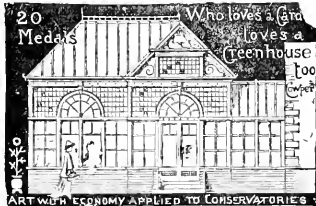
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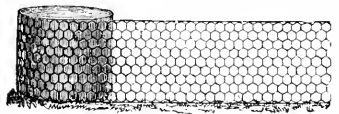
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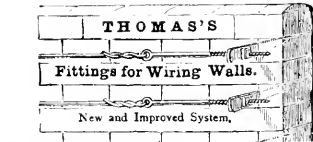
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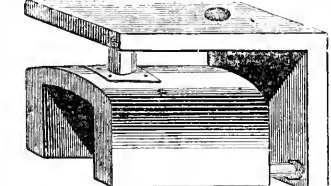
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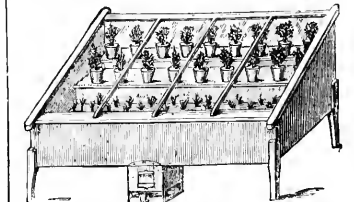


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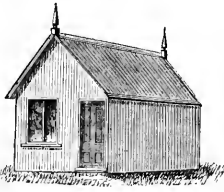
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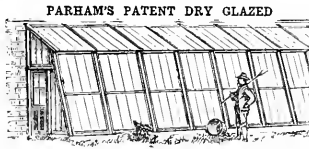


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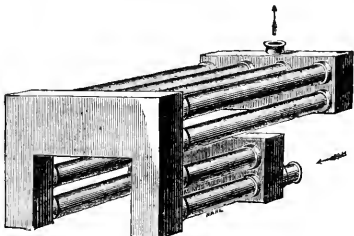
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WANTED, at once, a quick and active young MAN, accustomed to Nursery Work.—T. JANNOCK, Dersingham, Norfolk.

WANTED, a respectable, industrious LAD, who has been used to Nursery Work, to take Charge of a Seed Shop and Conservatory. Must have first-rate character.—E. C. 1, Pilgrim's Lane, Hampstead, N.W.

WANTED, IMMEDIATELY, a HEAD SHOPMAN. Must be well up in the Retail Seed Trade generally. State age, experience, references, and salary required.—W. B. HARTLAND, 24, Patrick Street, Cork.

WANTED, a JUNIOR CLERK and to assist with the Seeds; must be quick, active, and respectable.—Apply, in own handwriting, to H. CANNELL AND SONS, Swanley, Kent.

WANTED, an active YOUTH, to assist in Seed Shop and Conservatory.—Character must bear strict investigation. Good opportunity for learning the Florist Business.—GEO. EDWARDS, Bellham Nursery, London, S.W.

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

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, are in a position to recommend an exceptionally good man GARDENER, or STEWARD and GARDENER, to any Nobleman or Gentleman requiring such.—Address the MANAGER, Vineyard and Nurseries, Gatson, near Liverpool.

To Nobleman and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS. JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. CARTER.—Enquiries should be made to 237 and 238, High Holborn, W.C.

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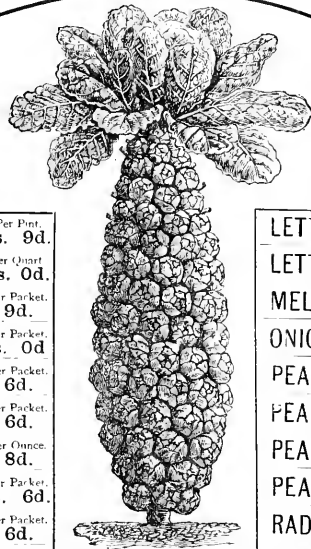
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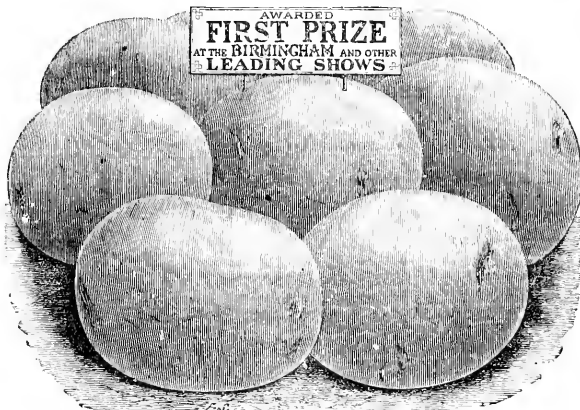
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RETIREMENT OF MR. THOMAS MOORE.

On the retirement of Mr. THOMAS MOORE from the joint Editorship of the *Gardeners' Chronicle*, a committee was formed for the purpose of arranging for a suitable recognition of his eminent services to Horticulture and Botany, as well as of his disinterested devotion to social and philanthropic movements in connection therewith.

The step thus taken has met with general approval, and the Committee have obtained many promises of support from horticulturists and florists, so that it is anticipated that a substantial presentation may be the result of this endeavour. It is, however, important that all who sympathise with this proceeding should manifest their sympathy as promptly as possible.

Mr. Moore is so well known, and his labours are so generally appreciated, that to urge the merits of the cause would be a waste of words. But it is pertinent to this appeal to say that the Committee have definite objects in view, and wish to carry them into effect without delay. The Committee are of opinion that the subscriptions of Gardeners—without regard to their respective amounts—would be not only appropriate to the occasion, but peculiarly gratifying to Mr. Moore.

Intending subscribers to the MOORE PRESENTATION FUND are desired to communicate to the Treasurer or Secretary, or any member of the Committee, naming the amounts promised by themselves and their friends.

Cheques may be crossed Union Bank of London, and Post-office Orders may be made payable at the Chief Office in London. Subscribers who cannot conveniently send Cheques or Post-office Orders may remit their amounts in Postage Stamps, in which case it will be advisable to forward them direct to the Secretary.

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WEBBS' DEFIANCE AURICULA.

From Mr. R. P. INSALE, *Cottager*—"This Defiance Auricula is a splendid variety, far surpassing the old kind."
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- 5 per Cent. for Cash within Three Months of date of invoice.
- After Three Months no discount can be allowed.

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 - " Dwarfs of Teat and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 100.
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 - " French Varieties of 1880, 18s. per dozen, 120s. per 100.
 - CURRANTS—Black, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100; cheaper by the 1000.
 - NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6s. to 9s. per dozen, 40s. to 60s. per 100, £18 to £27 per 1000.
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 - PLUM (Prunus)—Variegated, common (P. domestica variegata), a very striking and easily grown variegated tree, 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.
 - ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
 - POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 50s. per 100, 240s. per 1000.
 - WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 35s. per 100; 10 to 12 feet, 6s. per dozen.
 - " Cereulan, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
 - ASH—(Fraxinus excelsior) atrovirens, 3 to 4 feet, 12s. per dozen, 10s. to 15s. per 100; 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
 - " spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
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 - WEeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
 - CHERRY PLUM (Prunus Myrtilarum)—Early flowering and very ornamental, fine Standards, 2s. and 2s. 6d. each, 15s. to 24s. per dozen.
 - HOSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
 - " Scarlet-flowered, 6 to 8 feet, 18s. per dozen, 8 to 10 feet, 24s. per dozen.
 - ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
 - " Giant or Huntingdon (macrophylla), 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
 - " Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
 - " Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per dozen; 12 to 15 feet, 36s. per dozen.
 - MAPLE—Norway (Acer platanoides), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen.
 - WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lambs tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 15s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
 - EUNONYMUS—radiata, argentea variegata, a very useful plant for edges to winter beds, 3 to 4 ft., 2s. per dozen, 12s. per 100; 4 to 6 ft., 3s. per dozen, 18s. per 100.
 - ELDER—"Sambucus nigra" variegated; a beautifully variegated plant, which fades close up to the sea; 6s. per dozen, 40s. per 100.
 - " cut-leaved—a handsome lacinated form, and like other Elders, extremely useful for planting close to the sea. 6s. per dozen, 40s. per 100.
- A slight extra charge must in some cases be made for packing. Where cash in payment of goods is sent with the order, the amount for postage may be forwarded in stamps after despatch of goods. All the above prices are subject to the discounts named at head.

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will be forwarded Gratis and Post-free to all applicants.

N.B. Post-office Orders should be made payable to EWING & CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.

THURSDAY NEXT.GREAT CATTLEYA SALE.

SECOND PORTION OF

CATTLEYA LABIATA PERCIVALIANA

(Rehb. f.)

TRUE AUTUMN-FLOWERING LABIATA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on THURSDAY NEXT, March 2,

THE SECOND PORTION OF A WONDERFUL IMPORTATION OF THIS MAGNIFICENT CATTLEYA.

It is well-known there are numerous varieties among the old *Cattleya labiata*, such as *PESCATOREI*, *PICTA*, &c., and the varied Bulbs show that many varieties are among the lots offered. It is true Autumn-flowering. Flowers will be on view of this the finest Brazilian *CATTLEYA*—sepals and petals broad, deep rose or light purple; lip broad, large, splendidly fringed, lower part deep velvety-purple: in some varieties quite one-half of the lip is dark; throat golden-yellow. We have never previously seen imported a *Cattleya* so floriferous: there is hardly a Bulb which has not flowered, and whose spike does not show three and four flower-seats. Mr. Seidl, the lucky discoverer, states that one mass alone had 380 flowers fully expanded when collected, and many others had faded. This piece had to be cut into four, to facilitate its transport to the far-distant coast. We are extremely pleased at being able to offer it to the public, having looked for it without success for many years. The green and red-leaved varieties are among the importation, which altogether is in simply superb condition.

CATTLEYA TRIANÆ, ALBA, DELICATA, &c.,

from Mr. Schmidtchen, and from the same locality whence our last year's importation came, many of which have flowered, and are unsurpassable. The importation consists of grand masses, in extraordinary health.

CATTLEYA DOWIANA
CATTLEYA ELDORADO
CATTLEYA WALKERIANA

CATTLEYA DAYANA
CATTLEYA MOSSIÆ
CATTLEYA SKINNERI ALBA.

ONCIDIUM LANCEANUM—grand lot, with extra large leaves, and consisting of finest varieties.

ONCIDIUM MACRANTHUM HASTIFERUM—from Mr. E. Klaboch.

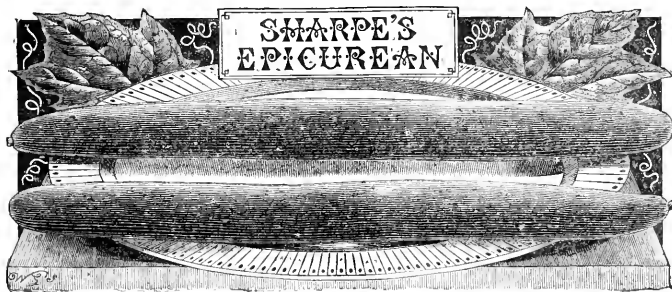
LÆLIA FLAVA,
very fine lot.

MASDEVALLIA SPECIES,
lovely rose-coloured.

CATTLEYAS from the Brazils, sent home as **AMETHYSTOGLOSSA**.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.



This, the perfection of frame Cucumbers, is a cross between Telegraph and Tender and True; in form it has a resemblance to Telegraph, but is of a darker green and much longer—fruit 31 inches in length having been cut from it. In flavour it is superior to Tender and True, but its chief recommendation is its marvellous productiveness, in which it excels everything that has come under our notice, as many as 300 and 400 fruit having been cut at one time from twelve plants, in a 3-light pit 3-quarter span.

For succession it is unequalled, bearing as abundantly at Christmas as Midsummer; and in addition to its handsome form and lovely colour, it is a variety that seldom produces seeds, not one in a hundred containing a trace. This peculiarity has delayed sending out the stock for a year or two, and at one time it was so nearly lost that only by striking cuttings could it be preserved.

Retail Price per Packet, 3s. 6d.

THE DESIDERATUM IN POTATOS. SHARPE'S DUKE OF ALBANY.

The Editor of the *Gardeners' Chronicle*, in the number for September 24, 1881, makes the following remarks in his report of the International Potato Exhibition, held at Manchester:—

"But we want other improvements; we want more large cropping, earlier kinds, and of the late sorts' considerable disease-resisting powers. First early sorts are rarely affected by the destructive fungus. Their season is short, their haulm growth usually of a medium character, and, as a rule, they ripen ere the disease becomes dangerous. Large cropping kinds, that will give a big bulk of good tubers capable of carrying on the useful supply for the family, or for the nation till Christmas, yet lifted ripe in August, would be an immense boon; and these, it is hoped, may come soon, because well-directed efforts in the shape of cross-fertilisation to secure the desired end are being made. . . . Although no special prizes were offered for these, there can be no doubt but that the special encouragement given to new sorts will tend to promote that desirable object."

Duke of Albany so exactly corresponds to the requirements above indicated, that had it been written for us as a description, it could not have been more exact.

Duke of Albany is a white Kidney—a cross between Beauty of Hebron and Early Goodrich; it has a short haulm with a pale flat leaf, is quite as early as Myatt's Prolific; as large in size, and as heavy a cropper as Magnum Bonum—than which it is ten weeks earlier; it is ripe early in August, and will keep until Spring, being a first-class Potato from the middle of July until the month of March. For flavour, quality of flesh, and good cooking properties, it leaves nothing to be desired.

Retail Price per Pound, 6d.

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ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants. Tens of Thousands of Plants to select from.

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Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

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Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

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VEGETABLE and FLOWER SEEDS OF SUPERIOR QUALITY.

CARRIAGE PRE-PAID.

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12, OLD MILLGATE, MANCHESTER

Offer the following extra choice Seed:—

	Per packet.—s. d.
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CUCUMBER—D. & R.'s Improved Telegraph	1 6
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LETTUCE—Early Paris Market	1 0
MELONS—Best of All, flesh whitish	1 0
Eastern Castle, Green flesh	1 0
ONION—Magnum Bonum	1 0
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PEA—Culverwell's Telegraph	per quart 3 0
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McLean's Best of All	per quart 2 0
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No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
12s. 6d.	12s. 6d.	12s. 6d.	12s. 6d.	12s. 6d.	12s. 6d.

For contents of these Collections, see Seed Catalogue.

COLLECTIONS of CONTINENTAL and ENGLISH FLOWER SEEDS.—

No. 1	No. 2	No. 3	No. 4	No. 5
10s. 6d.	15s.	12s. 6d.	12s. 6d.	12s. 6d.

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Also SMALLER COLLECTIONS of CHOICE FLOWER SEEDS, 1s. 6d., 2s. 6d., 3s. 6d., 5s. and 7s. 6d. each.

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Buy your Potatoes Now, while they are Cheap. S. BIDE has to offer a fine Stock of MAGNUM BONUM and SNOWFLAKE, a special price for which will be given for large quantities; also READING ABBEY and MYATT'S ASHLEAF. Prices on application to S. BIDE, Alma Nursery, Farham, Surrey.

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SEED POTATOS.—A quantity of Schoolmaster for sale, guaranteed true, grown on red land from the purchase of Messrs. W. & A. Wood, 2s. 7d. per bushel of 30 lbs. Half a ton and upwards considerably less by special arrangement. R. ROBINS, The Hollies, Kenilworth.

CEDRUS DEODARA, 4 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen; 7 feet, 36s. per dozen. PICEA NORONA, 2 1/2, 3 1/2, 4, 5, 6 feet, 24s., 30s., 36s., and 42s. per dozen. NOBILIS, 3 to 4 feet, 6s. per dozen. LARCH, 2 1/2 to 3 feet, 2s. 6d. per 100. ABIES ORIENTALIS, 4 feet, 6s. per 100. CRYPTOMERIA ELEGANS, 3 to 4 feet, 18s. per dozen. THUYOPSIS DOBRAKIA, 2 1/2 to 3 1/2 feet, 4s. per dozen. RHODINOSPORA FLUMOSA, 2 1/2 feet, 20s. per dozen. CUPRESSUS MACROCARPA, 3 1/2 feet, 22s. per dozen. THUYA LOBBII, 1 1/2 feet, 30s. per 100.

Finest specimens, and will receive with safety. GARLICK MITCHELL, Nurseryman, Stranraer. GORDON'S NEW VICTORIA POTATO.—This Potato was awarded the Special Prize of the Highland and Agricultural Society's Silver Medal, at the Northern Counties Show at Inverness in December, 1882, and also the First Prize in the Regent Class. It somewhat resembles the Paterson's Victoria, being of good shape, moderate size, and a heavy cropper, and has hitherto almost entirely resisted disease or blight. It is of excellent cooking quality, long-keeping and mealy, with little waste, is a good keeper, and may be freely cut into sets. Sample Cwt. Bag sent on receipt of Postal Order for 7s. 6d., payable to R. STUART, Dundale Farm, Gravesend. Price per Ton on application.

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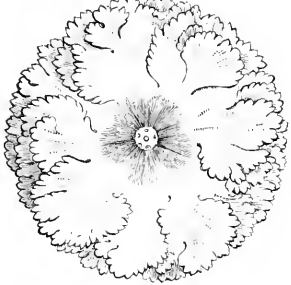
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- ... yellow centred.
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POST-FREE.

The quality of all is alike, the difference in price applying to the quantity of Seed put in the packets only.



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THE **Gardeners' Chronicle.**

SATURDAY, FEBRUARY 25, 1882.

THE FORCING SEASON.

WITH the exception of the paucity of sunshine and the prevalence of fogs, the winter so far has been favourable to early forcing. Fortunately, too, these drawbacks are less felt in the earlier than in the later stages of growth. During the former, in fact, growth is more a manifestation of stored up force, the result of the previous season's work, than a building up of new, independent products; hence obscure light and the comparative absence of direct sunshine inflict but little injury on vegetation in its earlier growths. On the contrary, under certain conditions, as recently shown in our pages and abundantly illustrated in practice, tender dormant crowns and semi-dormant buds may be stimulated rather than retarded or injured up to a certain stage by semi-darkness, or the total absence of light; hence, with the exception of very early Peaches, Pines, Cucumbers, and Melons, probably vegetation has suffered but little by the comparative sunlessness and abnormal foginess of the winter.

Be this as it may there can be no question that the mildness of the winter has resulted in an enormous saving of coal. The importance of the saving can hardly be exaggerated in a season like the present, while horticulture in nearly all private places is suffering more or less severely through the general depression of agriculture. Next to labour probably coal is the most expensive item in horticulture. It is, therefore, most fortunate that this far coal bills have been a half or three quarters lower than the average for December and January. In gardens where little or no forcing is indulged in coal bills have been well-nigh abolished. This fact is important in other ways than the mere saving of coal or money. Occurring at a time when many are meditating a reduction of their gardens, or the giving up of gardening for a time altogether, the saving of money in coal may help many to tide over the difficulty and keep up their gardens as heretofore. Already there are signs that the agricultural depression has reached its lowest limits and that things have begun to mend. We hear that the flocks and herds, notwithstanding a few outbreaks of disease, seldom were more thriving. It is certain that the Wheats never looked better.

Rent reductions have also reached their lowest limits, and farmers and others are once more indulging reasonable hopes that as the seed time so far has been so favourable a good harvest may also follow. Neither has the saving of coal through the mild winter been enjoyed only in gardens. The owners, occupiers, and workers on land, as well as the dwellers in towns and cities, and our trade and commerce, have all been assisted through a trying time by the boon of cheap coal. It has been affirmed, with some truth we believe, that commercial horticulture has suffered less than many other industries during the general depression, though the losses during the two

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THE QUEEN'S SEEDSMEN,
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H.R.H. THE PRINCE OF WALES,
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severe winters must have been serious, as well as the extra cost of maintenance and the diminished trade. We know for a fact that it has suffered, and that the saving of coal bills through the mildness of the winter will prove a most welcome boon to our nurserymen and florists.

What is economised in fuel will be expended in other and more profitable directions, and ultimately part of the benefits will be reaped by the nation at large. In this case there will be a double benefit; for less coal consumed means cheaper coal to purchase, and as coal is one of the most costly items in horticultural productions, such commodities are likely to prove more plentiful and more cheap, owing to the mildness of the season.

A mild winter also saves labour as well as coal; it becomes continuous, and not intermittent, and thus more work is done: the labour of covering and stoking are also reduced or abolished—these are often serious and expensive items in severe seasons. And then, too, time is saved as well as labour. It is immense gain in horticulture to be able to keep quite abreast or slightly ahead of the work to be done. Managed thus, horticulture may be carried on at little more than half the trouble or the cost. There is no work so expensive in its performance, so unprofitable in its results, as that which is done a day, or week, or month in arrear.

Those, however, must indeed be unfortunate or incompetent who are not abreast or ahead of their work at this time. Whatever amount of winter may yet be in store for us, the sun from henceforth works for us with increasing power; the heat of the sun carefully husbanded will render less coal necessary, and his increased energy quickens growth to such an extent that much more may be done in a given time than in December or even January. This suggests a large subject that we may probably return to again soon—whether time, coal, labour might not be saved, and equally good results obtained, by quickening the speed of some of our horticultural practices. Tropical produce races from the start to the finish as contrasted with that of more temperate climes, and in this age of telephones and telegraphs, electric light and motion, and rush and run and struggle of and for life, it may be wise and well to see whether weeks and days might not be saved in the production of many of our crops under glass. The idea that the pace kills—that is, weakens overmuch—has been accepted on insufficient evidence, much of which has been collected from conditions widely different to those within reach of the horticulturists of the present day, or, if it is not so, at least increased supplies at a cheap rate can readily be made to compensate for speedy exhaustion of worn-out material.

Thus, even where individual plants are killed in the race of rapid production the killing proves profitable. It does so virtually in regard to Lilies of the Valley, Spiras, bulbs, and other plants by millions annually, and might yield a similar profitable result in regard to other plants. As our material grows the modes of propagation and the means of increase multiply almost to infinity, and as the demands for horticultural products become more urgent, the importance of individual plants sinks into comparative insignificance beside the one great problem of how to reap the largest profits at the least cost in the shortest space of time. A great step would be taken towards the profitable solution of this problem could the orthodox time between the start and the finish be shortened. For example, if Grapes can be finished in four and a-half or five months from the start instead of six, less coal and labour would be needed for their production—and so of other crops. To this end the electric light

may ultimately aid, though the cost of its production at the present time would of course be out of proportion to the results.

By deferring the start for a month, sometimes almost half the coal expended on the entire crop might be saved. The subject of thus economising the cost of production, important at all times, is vitally so in these seasons of severe rural depression, and we shall be very glad to hear what our practical readers have to say on the subject, and especially to chronicle facts relating to the actual periods within which ripe Grapes, Peaches, Cherries, Plums, Apricots, Melons, Cucumbers, Pines, have been cut or gathered from the starting of the buds, seeds, or suckers.

New Garden Plants.

DENDROBIUM LEECHANUM, *n. sp.* (fig. 35.)

A hybrid between *Dendrobium aureum*, Lindl., and *D. nobile*, Lindl., the last being the seed parent. It is well compared by Mr. Swan, who succeeded in raising it, with *Dendrobium splendissimum*, but it deserves a name of its own, as Mr. Swan also



FIG. 35.—DENDROBIUM LEECHANUM.

thinks. The petals are narrower, more acute, very wavy. The lip is lobed, and this reminds one of *Dendrobium aureum*, Lindl. The flower bears the finest white of the best varieties of *Dendrobium nobile*, Lindl., the tips of the sepals, petals, and lip are of a rich rose-purple, and this appeared to me most striking when I opened the box, though it contained but a single flower of the novelty, which is always a very great embarrassment, in this case the less explicable, as it flowers in such profusion, as stated by Mr. Swan. Both sepals and petals are nearly totally rose-coloured outside. The anterior disk of the lip is occupied by a very large-toothed, dark purple blotch. Towards the base runs a broad callous line with fine purple stripes, and there are on each side radiating purple lines running outside. The column is quite green with purple longitudinal stripes, not with an ochre foot as is seen in *Dendrobium splendissimum*. Mr. Swan is very eloquent in pointing out the numerous good qualities of this novel hybrid, the best one being that bulbs of but 4 inches in height produce flowers. I entertain no doubt that Mr. Swan understands keeping the resting stems rather dry, not too wet, as Continental growers the Orchid growers often do. Mr. Swan expressed a strong desire that the new citizen in the State of Orchids might bear the name of Mr. W. Leech, Fallowfield, which we certainly agree to with pleasure. As to the names *Dendrobium aureum* and heterocarpum, we should finally adopt Dr. Lindley's name of *D. aureum*, and sink (as Professor Oliver is accustomed to say) Dr. Wallich's, which was only given to an Oriental drawing, most probably not representing *D. aureum*

at all, but *aureum* B. rhombicum, Lindl. (*rhombeum*, Lindl.), and though published in the same sheet with *D. aureum* yet enumerated after it, and with an unsatisfactory description from want of sufficient documents. *H. G. Rehb. f.* [The chief points in the crossing, sowing, and raising of this and other hybrids was given in our vol. xv., p. 302. Ed.]

LONGICERA ALBERTI, *Rehb. f.*

We have frequently of late had occasion to refer to the flora of Central Asia, especially in connection with the discoveries of Mr. Albert Regel. Of the numerous plants introduced into the Petersburg Botanic Garden by that gentleman, *Loniceria Alberti*, lately figured and described in the *Gartenflora*, is said by Dr. Regel to be the most valuable shrub. It is a very distinct and pretty species of the *Nyctostemum* section, having quite narrow leaves, usually less than an inch long, and rosy, fragrant flowers, about the size of those of *L. Nyctostemum* itself. Seeds of this hardy new Honeysuckle were collected in the alps of Eastern Tarkestan, and plants were raised therefrom in the Petersburg garden, where they have proved perfectly hardy and where they flowered for the first time last June. Here is a translation of Dr. Regel's description:—A dwarf, glabrous, branching shrub, with diffuse, slender, dependent branches. Leaves opposite, glaucous, linear-oblong, rather obtuse, shortly petiolate, entire or furnished with two teeth on each side near the base. Peduncles axillary, shorter than the flowers. Outer bracts similar to the leaves, inner connate, forming a two-toothed involucre half as long as the calyx. Flowers fragrant, in pairs, but the ovaries not united. Corolla rosy-lilac, with a cylindrical tube and an almost regular 5-parted limb. In foliage this is not unlike a *Lycium*, but it grows only 2 or 3 feet high. It has proved perfectly hardy at St. Petersburg.

DENDROBIUM ARACHNITES, *n. sp.**

A curious botanical species with bulbs much like little *Cheerkins*, ultimately furrowed, and exceeding an inch in length. The flowering-stem has no perfect bulb, this swelling later as in many plants of the *Catolopogon* group. The single leaf is cuneate-oblong acute midulate, about 3 inches long by 1 inch in width over the most distinctly stalked base, of this parchment-like texture. The peduncle slightly exceeds the leaf and bears a loose raceme of light greenish flowers having both sepals and petals tailed. The bracts are very narrow, almost linear, apparently persistent, exceeding the stalked ovaries. Lip cuneate-ligulate acute, with three keels from the base to the centre, which are confluent. Column with a membranous toothletted margin around the anther and lower side laminae of rather falcate outline. It was introduced by Mr. Stuart Low from the Philippine Islands. I have a nice living plant at hand, but I am afraid the novelty will create no sensation in the horticultural world. *H. G. Rehb. f.*

ODONTOGLOSSUM ACUMINATISSIMUM, *n. sp.*†
(fig. 34)†

Whether this is a hybrid or a species I cannot say. Its hybrid nature might be inferred from the fact that it came amidst a great lot of *Odontoglossum crispum*, but this proves nothing. If I were to guess, I might conjecture its descent from *Odontoglossum Lindleyanum* and *cristatum*. Be this as it may the plant is remarkably distinct. The great pear-shaped acniphous bulb has three ribs each side, and some of those flat impressions which are so distinct in *Odontoglossum nevium*, Lindl. The leaves are linear-ligulate, acute. The peduncle at hand is a few-flowered raceme, but it may well turn out a panicle, when the plant is more at home in Europe. The stellate flowers are nearly orange, with few large crimson bars. The lanceolate, acuminate, dark yellow lip has a broad cinnamon bar.

*Pseudobulbus aggregatus cylindricus demum laevis, impressis; caule supra basin monophyllis. Folia brevia petiolato cuneato-oblongo acuto uncinato, involucre petalisque longis in apicem versus racemosis. Bractea linearilanceolata ovata pedicellata superstitibus; sepalis petalisque linearilanceolatis, lobello cuneato-oblongo ligulato acuto, apice reflexo, linea callosa confluentibus tenuis a basi in discum; columnae bifidae laciniis lateralibus lideatis, circolo circa andrincium denticulato; filibus viridibus.—Es. Ins. Philippin., imp. cl. Low. *H. G. Rehb. f.**

† *Odontoglossum a subrotundatum*, *n. sp.* (c. hybrid. c. = *Odontoglossum pseudobulbus pyramicum* ancipiti; utrinque cristato, planis, pubulsum impressis. Filis linearilanceolatis racemose (nunc paniculo) panceolatis sepalis petalisque linearilanceolatis acuminatis, lobello subaequali acuto basin flexo, lamella elongata pluridenticulata arcuata; lobis in medium, demum subulatis; columna trigona medio angulata, alis falcatosubulatis denticulatis adveniens in margine inferiori. *H. G. Rehb. f.*

There is a double lamellar keel from the base towards the middle with six to seven teeth on each side. The trigonous column has an angle in the centre, and a fine falcate-semilunar wing each side. This very curious novelty was sent by Dr. Wallace, New Plant and Herb Company, Lion Walk, Colchester. *H. G. Rob. f.*

DIOSCOREA MULTICOLOR. *Lind. et And., Ill. Hort.* 1871, vol. xviii., p. 52, t. 53.

This member of the Yam family was figured in the *Illustration Horticole* from barren specimens, nothing being known at the time of either male or female flowers. A plant has lately produced male flowers at Kew, enabling us to extend the description of an ornamental climber which should in the future occupy a place amongst our fine-foliage stove plants. It appears to be a free grower, the stems twining round their supports, and producing cordate leaves 3 to 5 inches long and 2½ to 3 inches wide, of a rich green, beautifully spotted and variegated with pale spots and blotches, most numerous near the principal veins; the under surface is uniformly pale lurid purple. In the young state a metallic blue pervades the leaves, vanishing with age. The panicle is gracefully branched, the branches (in our plant) numbering twelve to eighteen and measuring from 1½ to 2½ inches, on which the tiny flowers, scarcely a line long, are thickly arranged about eighteen to the inch. The bracts are minute, broadly ovate, lengthened into an acuminate point and closely adpressed to the flowers (in the dried state a slight space intervenes, owing to the shrinking of the perianth tube). The perianth is narrowly campanulate, the dark purple oblong segments equalling only half the tube, which is yellowish-green. The three perfect stamens equal the perianth tube in length, the minute anthers are oblong, and the pollen bright yellow. The female flowers are unknown. It is a native of Northern Brazil, and was introduced from Rio Negro by M. Barazin, in 1868.

The figure cited represents leaves of six varieties—1, *chrysophylla*; 2, *sagittaria*; 3, *melanoleuca*; 4, *metallica*; 5, (sp?) *Eldorado*; and 6, (sp?) *prismatica*: of these our plant most nearly resembles *melanoleuca*. There seems no apparent reason why the first five may not be a variable forms of one species, probably not permanent and unworthy of varietal names.

The sixth appears different, the veins only being partly white and the rest purple; the shape of the leaf also differs somewhat. *R. A. Rolfe, Kew.*

NEPENTHES KENNEDYANA * (fig. 36).

The genus *Nepenthes*, as we have seen, is one that has headquarters in the Malay Archipelago and the large islands of the Indian Ocean, especially Borneo. The species occur also at the extreme end of the Malay peninsula, in Ceylon, and in Cochin China. It is, therefore, quite in accordance with what might have been anticipated, to find the genus represented in North Tropical Australia. The present species, *N. Kennedyana*, comes from Cape York, in North Australia, and is abundantly distinct as a species. Our notes on the living plant were made in Messrs. Veitch's nursery, and have been checked by reference to dried specimens in the herbarium, and descriptions in the works of von Mueller, Bentham, and Hooker. The leaves in Messrs. Veitch's specimens taper at the base into a broadish stem-clasping stalk. In form they are oblong lanceolate, very acute, the parallel veins being nearly equidistant, though this is not so in the dried specimen, wherein, as is usually the case, the veins nearest the margin are much closer together than those near the midrib. The pitchers, which measure over 5 inches in length by 1½ inch in width [less in the dried specimens], are reddish, elongate cylindrical, slightly dilated below the middle, tapering at the base, and with deep, sharply fringed wings; the mouth is oblique, surrounded by a narrow finely-ribbed rim; the throat is glaucous violet; the lid suborbicular, as large as the mouth of the pitcher, glandular on the lower surface, and with a simple spur at the base. *M. T. M.*

A RAILWAY IN THE TREE
TOPS.

The following paragraph, from a recent issue of the *Argos* of Petaluma, California, has lately been communicated to *Notes and Queries*:—"It may not be known outside of the neighbourhood where it is situated, but it is nevertheless a fact that in Sonoma County (Cal.) we have an original and successful piece of railroad engineering and building that is not to be found in the books. In the upper part of this county, near the coast, may be seen an actual roadbed in the tree tops. Between the Clipper Mills and Stewart's Point,

where the road crosses a deep ravine, the trees are sawed off on a level, and the timber and trees laid on the stumps. In the centre of the ravine mentioned two huge Redwood trees standing side by side form a substantial support, and they are cut off 75 feet above the ground, and cars loaded with heavy saw logs pass over them with as much security as if it were framed in the most scientific manner. All roads lead to Rome except this one. The builders never contemplated a terminus at San Francisco, Petaluma, or Chicago, but merely to convey heavy timber from the woods to their mill. There are many places in our Redwood forests where this example might be followed profitably, as it would be cheaper to grade

THE AMARYLLIS.

ADMIRERS of the *Amaryllis* cannot have forgotten the large collections of these plants exhibited in London from the Chelsea nurseries of Messrs. James Veitch & Sons during the early months of the past year. Since that time a new house of considerable dimensions has been built specially for *Amaryllis*, and seems to be very well adapted for their culture. It is a span-roofed structure, in two divisions, and furnished with beds in the centre, as well as along the sides. Besides being efficiently heated with 4-inch pipes, there are also two rows of inch pipes fixed near the base of the rafters; and these two pipes, heated on one side of the house only, will keep the temperature up to 55° when it has fallen to 35° outside—an interesting fact when it is stated that the house is 70 feet long and 20 feet wide. All the beds are heated with pipes sufficient to do without fermenting material, the pots containing the plants being plunged in spent tan. Referring to the extensive groups of plants exhibited last year, it will be well understood by those accustomed to prepare plants for exhibition that in order to have from 200 to 400 in flower at one time it is necessary to retard some and push others on too fast; the plants have then to be taken out into a temperature near the freezing-point sometimes to get them to the show, which has seriously crippled very valuable plants.

Mr. Harry Veitch, who takes a great personal interest in the *Amaryllis*, has determined not to publicly exhibit them—at least, not to a large extent—this year, but has prepared a large show-house for them in the Chelsea nurseries. There is at present a very brilliant display, which will be kept up during the next two months. There are at present 600 in flower or showing their spikes, and the two houses contain altogether about 6000 bulbs. It is a most interesting and instructive study to trace the lineage of the newest seedlings from the original types and varieties to the present well-formed flowers with broad massive petals like the variety *John Neal*, and a new form with broad petals of considerable substance of a rich crimson colour flushed with lake, named *James Douglas*. *A. ulica* and *A. Leopoldi* gave the size and form to *John Neal*; crossing again with *A. Ackermannii pulcherrima* gave the colour. Both these fine varieties are in flower. Other new varieties are *Coningsby*, purplish-crimson, the centre of the petals marked with lake. The petals are not so broad as some, but it is distinct in character. *Madame Antoinette Sterling* is a fine variety, producing four flowers on a spike; it is from *Thalia* crossed with pollen from *Leopoldi*; and the colour is crimson-purple with whitish margins, and more white in the centre than usual. *Chelsoni* and *Brilliant* are two very fine varieties raised by crossing *Ackermannii pulcherrima* with *pardina*. They are both rich brilliant crimson in colour, the latter having much of the spotting of *pardina*. These two are also remarkable for the small size of the flowering bulbs.

Empress of India is again flowering very freely. This fine variety produces six of its very large brightly-coloured flowers in an umbel. Duke of Connaught is another flower of the type that produces six flowers on one stem, but it is still very scarce. Amongst lighter-coloured flowers *Sybil* is a distinct novelty. The flowers are 9 inches across, petals broad, tipped creamy-white, being curiously flaked and spotted with crimson. The *Syren* is a very fine form of the marginata type, also producing six flowers on a stem. The colour is light scarlet, the edges of the petals broadly marked with white. *Thomas Speed* is another six-flowered form, and one of the best for decorative purposes, as it is so free in growth. *Lucretia* of Connaught produces four flowers on a stem, which are pure white, and very pleasing. Amongst the edged flowers *Cecilia* is a remarkably pretty flower of the *Leopoldi* type. The white is very pure, and the broad well-formed petals are of a rich crimson. *Lady Musgrave* is an older flower, but a fine showy variety of a crimson-scarlet colour. *Boscawen* of Cornwall, a seedling of the *Hon.* and *Rev. T. Boscawen's*, is very fine, and of free growth. The colour is dark purplish-crimson. This variety has been crossed with the Chelsea seedlings, and some very fine richly-coloured varieties are the result. *Sir Garnet Wolseley* is the best of the true scarlet varieties in flower. It is quite a rich bright scarlet.

Of the true *pardina* type *Orsini* is a beautiful flower; it is densely spotted with reddish-

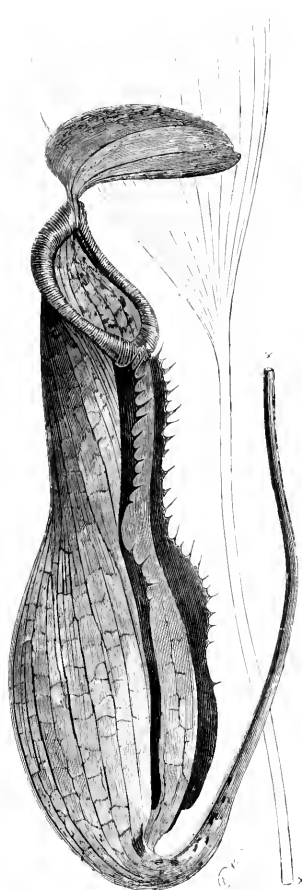


FIG. 36.—*NEPENTHES KENNEDYANA*.

through with a cross-cut saw and lay the ties on the stumps then to remove the trees. We can boast of a broad gauge, a narrow gauge, and a road in the tree tops—yet we are not all happy."

NEWFOUNDLAND TIMBER.—The most valuable timber grown in Newfoundland is the white variety of Pine (*Pinus Strobus*). It is especially prized for the manufacture of lumber. In the Gander country alone Mr. Howley estimates there are 850 square miles covered with this growth easily accessible by means of small boats on the Gander River. The yellow or red Pine (*Pinus resinosa*) is another well-known variety. Neither Beech, Elm, Oak, nor Cedar are found. Around St. George's Bay, and in the valley of the Plumber also, are fine forests of timber. The colony derives no revenue from its forests, which are cut at will by all comers. *Journal of the Society of Arts.*

* *Nepenthes Kennedyana*, F. v. Muell. *Fruchtg.* v. 134; *Benth. Flor. Austral.* vi, 1873, p. 41; Hook. I. in DC. *Prod.* xvii, 102.

scarlet. There is also a goodly number of plants of Autumn Beauty, recently certified. This has many of the characteristics of *A. reticulata*, with the larger better-formed flowers of the ordinary type, and flowers in winter or late in autumn. There are many new seedlings opening their flowers every day, besides a collection of all the best named varieties. Some novel forms have also been introduced from the Continent, and the collection altogether is the most representative one that has yet been formed.

ALPINE RHODODENDRONS.

If *Pinus Cembra*, of which I spoke in a previous article, is the most beautiful tree of our Alps, the Rhododendron is their most brilliant decoration. It bears among our peasants the name *Rose des Alpes*, and is the alpine plant *par excellence*. It occurs indeed in the Pyrenees, but it may be supposed that it migrated there from the Alps. M. Boissier did not meet with it on the Sierra Nevada, nor does it occur in the Apennines. Dr. Christ, of Bâle, believes that this plant is of Asiatic origin, but modified by our climate. Its introduction goes back to the first glacial period, at which time immense glaciers covered the central plains of Europe, and the moraines of these glaciers that rose above their sides were covered with alpine vegetation such as we now see it.

There are in Switzerland two species of Rhododendron and a hybrid variety between the two. The range in altitude of the Rhododendrons averages from 1000 to 2500 metres. They generally form the transition between the forest vegetation and that of the alpine pastures. Dushes of them occur in vast masses, with which nothing else grows. Often they cover abrupt and rocky slopes, and prove of great assistance to travellers in scaling the rocks. It often happens also that isolated masses of Rhododendrons are met with on the great blocks of stone thrown down from above. These blocks in falling have carried with them a little humus filled with seeds of Rhododendrons, so that they retain the covering which characterised them at a higher elevation. It has been said that Rhododendrons grow on the slopes and in the meadows in a northern aspect and avoid a southern exposure. This is a complete error, as I may remind all those who have climbed the Alps and who have observed these delicious plants. The Rhododendrons have no marked preference, except that they love a damp and cool soil. In certain parts of the Ormonts or the Vaudois Alps they adorn the northern slopes it is because they alone are sufficiently moist; but I have seen clumps of Rhododendrons exposed to the full south.

R. hirsutum is so little affected by the sun that it descends into the plain in certain localities. It is likewise found in abundance on the rocks which border the lakes of Thun and Lowerr. At Vira, on the borders of the Lago Maggiore, it is met with at a height of 2400 metres braving the rays of the Italian sun. My friend Dr. Silvio Calloni saw, at the end of last October, on the borders of the Lago Maggiore, a group of Rhododendrons the flowers of which were completely open, and as beautiful as in July. In this delightful country of the lower Ticino, where the flora of the glacial countries mixes with that of sunny Italy, where the *Anemone* of the high Alps, the Edelweiss, the *Primula viscosa*, and many other alpine plants, mingle with the Fig and the Pomegranate—where the *Aroële* (*Pinus Cembra*) is associated with the Chestnut, and the Larch with the Olive—we find the alpine Rhododendron nearly everywhere. This is explained by the fact that in these countries water is very abundant, and descends from the Alps during the great heats. Evaporation goes on much more freely under a high degree of heat, and the atmosphere is never dry, as it is in the Canton of Valais, where the flora is well-delimited.

R. ferrugineum, L., is the most beautiful species as far as regards the leaves and habit. The leaves are large, of oblong form, rusty-brown underneath (hence the name *ferrugineum*), and of a dark shining green above. The foliage recals on a small scale that of the Laurel, and on a large scale that of the Myrtle. From this point of view alone this species is worth cultivating. But what gives it its charm and constitutes its greatest attraction are its flowers. Grouped in little terminal clusters of a bright rose colour, and of a very graceful shape, these charming flowers are the admiration of all travellers. It is a species for the most part peculiar to granitic soils, but it is occa-

sionally met with on limestone mountains. It is certain that the summits of the Jura which surround Geneva contain it in great abundance.

Rhododendron ferrugineum often ascends to higher elevations than *R. hirsutum*, but it never descends into the plain. It is also more difficult to cultivate.

In *R. hirsutum*, L., the foliage is bright green, and covered with hairs, the leaves are smaller and less beautiful than those of the preceding species, but the flowers are even more beautiful. The colour is much brighter than in *R. ferrugineum*, and it seems to flower more freely. This species grows on limestone rocks, and descends into the plains, and flowers on the borders of some of our lakes.

R. intermedium is rarely met with in Switzerland. It is a hybrid between the two preceding species, of which it combines the characteristics. M. Paris, a nurseryman of Geneva, cultivates some fine examples of it.

R. chamæcistus, L., is a charming Tyrolean species, the flowers of which are quite different to those of the other species, *Cistus*-like in shape and of a beautiful rose-colour. This species is very free-flowering but its foliage is small and not ornamental.

The white flowered Rhododendron is a very beautiful variety that is rarely met with in our Alps. M. De Candolle has from time to time distributed seeds to the directors of various gardens, but unhappily these gentlemen have not informed him if the seeds have germinated. If any of your readers can supply information on these points I should be gratified if they would do so, as it will be interesting to know if the peculiar characters of this extraordinary plant are reproduced by seed.

The Curé of Salvan, in the Valais, has in his garden a magnificent specimen of white Rhododendrons (of a very pure white), which flowers abundantly every spring.

Rhododendrons are exceedingly capricious and difficult to cultivate. Nevertheless they may be acclimated if care be taken to study the conditions under which they grow naturally and to imitate them. Generally they like a light, porous, and damp soil. *R. ferrugineum* grows generally on the granite and the other generally on the limestone soil, though there are sometimes exceptions to the rule. Whoever has a rock-work can have Rhododendrons upon it. In the rock garden at Valleyes (Vaud), M. Edmond Boissier possesses a fine collection of Rhododendrons which flower abundantly every year and are very thriving. The botanic garden at Geneva possesses a very beautiful specimen, 0.75 m. in height, which is covered with flowers every year. We have also nursery clumps covered with buds. M. J. Paris, nurseryman, has a large quantity growing in pots, and which sometimes flower when thus grown. To succeed well a mixture of leaf-mould, peat and sphagnum, moss and sawdust must be used, with a little sand, granitic or calcareous according to the species. Young plants are potted in this soil, raised in pots, until they are strong enough to flower in the open ground. Then they are placed on the rockery in a position well exposed to the light, well drained and frequently watered. In winter they may be covered with branches of Pine, but this would not be necessary in England. It is a long tedious process to secure them from seed. But it is not always easy to raise young specimens of Rhododendrons in the Alps. It is useless to look for young plants among the great masses of Rhododendrons on the stones, or the rocks covered with these shrubs. They must be sought in the sandy wastes that border the torrents on the edge of the moraines and in the pasturages bordered by the masses of Rhododendrons. But it is especially in the sands that the seedling plants are met with in abundance. On the Pennine Alps in the Valais there are great tracts of micaceous sand brought down by the torrents. In this sand there are hundreds and thousands of young plants of Rhododendron ferrugineum. These sands cannot supply the necessary nourishment for the plants, hence they never become covered with masses of Rhododendrons. The little plants, when at the age of five or six years, perish and get burnt up; thus it is a positive advantage to transplant the plants to a better soil, where they will not fail to succeed. Such sands are also met with near the Lake of Thun, and in these *R. hirsutum* as well as *R. ferrugineum* grows. I have never attempted to multiply these plants by grafting, but I am told that this plan is not without good results. *Henry Correvon, Inspector of the Botanic Garden of Geneva.*

PLANT LABELS.

HAVING occasion to use some thousands of labels in my field and wood garden, and not having found one which answered all requirements, I suggested to the secretary of the Society of Arts to offer a prize to be provided by me. The Council agreed last year to offer a medal and a prize of £5. The reason why the Council of the Royal Horticultural Society was not applied to in preference is that horticulturists had already tried their hands on the subject, while to the large body of members of the Society of Arts, many of them with mechanical and inventive power, it was new ground. A number of labels were sent on competition, some quite new—to me, at least—others of different degrees of merit, others showing great ingenuity, but equal ignorance of what hardy plant labels are exposed to when in use. The medal and prize have been again offered for labels sent in before May, 1882. The labels sent in last year have most of them been exhibited in the arcade of the Royal Horticultural Society.

We have some zinc labels, made by Yates, I believe, on Rose trees, which are perfectly legible after fifteen years' exposure, while some in the cool Orchard-house have become indistinct in less than two years. We have tried heating the labels after writing, the better to fix the ink, and have varnished them afterwards; but the writing still is not as clear as could be wished. One of the most serviceable upright zinc labels I have seen at Mr. P. Neill Fraser's, near Edinburgh; he uses them extensively. They are made of stout zinc, 9 inches long, and $\frac{3}{4}$ inch wide; they stand well up from the ground, and are not pushed out by frost; they were not exhibited. Among the best which were shown were ordinary zinc labels hung on galvanised iron stout wire.

Mr. Wolley Dod gave me an ingenious label which I have tried with success, and which is useful when you have a Hazel in the hedges; a stick is cut into about 1 foot lengths, and a slice at the top taken off sufficiently long for the writing. Mr. Ewbank has improved on Mr. Wilson Saunders' good old label; he uses a small wooden label with two galvanised iron supporters; the label is painted white, and when used a thin coating of black paint is put on; the writing is done with a painted stick—this, by removing the black, shows the letters in white. Col. Trevor Clarke has a small wooden label stuck into an Elder stick to raise it up, the point of the label sticking in the pithy centre of the Elder.

There appears to be a number of serviceable labels for permanent use: but what is required in addition is a cheap rough-and-ready label, to be used when putting in a number of plants with little time to do it in, and this, I think, to be sought in some modification of the present wood labels. Among the wooden labels exhibited which were new to me were Teak wood labels, from Mr. Johnston, of Renfrew, and Holly and Boxwood labels from Messrs. Wolstenholme & Son, of Manchester; these two last were cheap, and found favour with the committee as far as appearance went; Mr. Joad, whose death we have lately had to deplore, was much taken with them, and I know that many orders have been sent to the manufacturers. I have been trying these labels carefully in frames, and have exposed them to the severest test in a cool damp Orchard-house. The Holly wood is more affected by damp than the Box, soon becoming mouldy; the Box is discoloured after a longer time. Remembering that the committee in their report had suggested that some preparation should be used to make labels waterproof the words of the report were these—"Wood is probably the cheapest and best material for cheap labels. It is at present liable to the objection that the part in the ground rots, and the writing on the label becomes illegible. If by some process, such as perfect kyanizing, or treatment with paraffin, these objections could be removed, an excellent label would be the result.

In accordance with this suggestion I got some friends to dip for me in their laboratory some of the Holly and Boxwood labels in hot paraffin (I should say, as it has been confused with paraffin oil, that paraffin is a hard white substance, which, as its name denotes, does not change, and can have no injurious action on plants); the result was promising, but the small quantity of paraffin absorbed showed that the labels could not have been dry. Some thoroughly dried Boxwood labels have since been soaked for forty-eight hours in hot paraffin, of which they absorb

about 12 per cent.; these have so far stood the severest tests in the cool Orchid-house, and have the merit of not requiring any paint, the writing both in ink and in gardeners' pencil being easy, and showing clearly. Having plenty of gardening work I cannot undertake the label experiments, but strongly recommend label manufacturers to take them up. Paraffin is not now an expensive material. As it is not always easily procurable I have ascertained that Price's Patent Candle Company will supply it to label makers of sufficiently hard quality at 5d. per pound. I send specimens of labels—Hollywood and Box, as supplied by the makers; Hollywood exposed in damp Orchid-house unprepared; Boxwood exposed after being paraffined. The subject excites interest abroad as well as at home. I have received a paper from M. C. Joly, of Paris, on *Les Etiquettes Horticoles*, which carefully sums up the merits and demerits of the labels now in use. *George F. Wilson.*

THE TONGA PLANT.

In consequence of the statement made by me in my note upon the Tonga plant on p. 180 of this volume of the *Gardeners' Chronicle*, that *Rhaphidophora pinnata* was the same plant as *Epipremnum mirabile*, I have received from Mr. Lynch, the curator of the Botanic Garden at Cambridge, a fine flowering specimen of an Aroid that is grown there under the name of *R. pinnata*, but which is in fact the Indian *R. decursiva*, and is quite distinct from the Tonga plant. As I have no doubt that *R. decursiva* is also grown at other places under the wrong name of *R. pinnata* (it was so named at Kew a few years back), and cultivators having it so named may fancy they have the Tonga plant, a few words upon the most striking distinctions between the two plants may not be out of place.

The Tonga plant, *Epipremnum mirabile*, Schott (synonyms, *Rhaphidophora lacera*, Hassk., *R. pinnata* and *R. vitensis*, Schott), is distinguished by having its adult pinnatifid leaves cut down to within about $\frac{1}{2}$ — $\frac{3}{4}$ inch of the midrib; the segments are of nearly equal breadth throughout, and have one nerve up the centre of each, which runs out to the apex without branching, merely giving off slender veins, or in the case of two or more segments being united into one, there are two or more nerves in it, as many in fact as there are segments united, but the nerves are quite separate, and run from the midrib to the margin without branching; the leaf is also well characterised by the presence of numerous small perforations and pellucid spots, chiefly scattered along the region of the midrib, which are well seen if the leaf be held up to the light. But in *Rhaphidophora decursiva* the adult leaves are cut into segments right down to the midrib, the segments are broader at their middle than at their base or apex, and the rib of each segment divides into three near its base; there are no perforations or pellucid spots in the leaf.

When in flower the two plants may be readily distinguished by the structure of the ovary and number of ovules; in *R. decursiva* the ovary is incompletely 2-celled, with numerous ovules, whilst in the Tonga plant it is 1-celled, with only two basal ovules. *R. decursiva* was described and figured some years back in Regel's *Gartenflora*, vol. xiii., p. 5, t. 423, as *R. dilacerata*, C. Koch. On what authority Regel quotes it as *R. dilacerata*, Koch, I do not know, as I cannot find that Koch has anywhere described it under that name; but I presume that Regel thought it to be the same as *Monstera dilacerata*, Koch, and changed the genus without changing the authority for the specific name. As to *Monstera dilacerata* if any readers of this should possess that plant I should deem it a favour if they would send me a specimen, as the only specimen I have seen is the type specimen in Koch's herbarium, which consists of a bit of a juvenile stem and a few leaves only, but they are quite different from those of *R. decursiva*, and more like the juvenile form of leaf of the Tonga plant. *M. E. Brown, Herbarium, Kew.*

BOTANIC GARDENS, CAPE TOWN.—Mr. Robert Templeman, who has managed the seed and plant sales for several years, has now retired to establish a business of his own; and this department of the botanic gardens will henceforth be under the charge of Mr. Stephen Solly, son of Mr. S. Solly, of Akeley, S.E.



The Nursery.

MULCHING THE ROOTS OF ROSE STOCKS.—Not many Rose growers take the trouble to mulch the surface of the ground between the rows of Rose-stocks, as is done by Mr. D. S. Thomson, of the Wimbledon Nursery. Mr. Thomson finds it pays better to grow strong healthy Roses at a trifle more expense than to grow cheaper ones, which in the end are less satisfactory. When the stocks are planted the ground is covered with half-rotted litter to a depth of about 3 inches, and there remains during the whole season. It is a warmth and protection to the roots of the stocks, is conducive to the formation of healthy fibrous roots in greater number than would otherwise be obtained, and prevents evaporation in summer, by which the roots of the plants are kept in a medium moist state, and their leaves clean and healthy. It must not be supposed that this system is confined to the cultivation of a limited stock of extra fine plants, all the breaks of Rose-stocks in the nursery are so treated; and, after all, the labour is little compared with the excellent results obtained from the system.

ROSES FROM THE GENOÈSE RIVIERA.—We have received from Dr. Bennett some lovely cut blooms of three of the Roses mentioned by him in our last issue (p. 220) as flowering in the open air in his garden at Mentone. Of Safrano and Madame Falcot we need say nothing as to their qualities, but the flesh or light salmon-coloured *Mlle. Nabonnard* is not so well known, and we would add as to this that the blooms are large, very pleasing, and deliciously but not strongly scented.

THE SHEEN NURSERY.

This interesting nursery establishment, the property of Mr. F. R. Kinghorn, is situated in the centre of one of the most populous and fashionable districts in the vicinity of the metropolis, and is but a few minutes' walk from Richmond Station. The main walk of the nursery runs north and south from the Richmond Road to the South-Western Railway. Within the nursery gates a semicircle is described which is planted with ornamental and flowering shrubs, which gives the entrance an appearance so attractive that the show-houses, containing so many choice Palms and foliage plants, are closely rivalled by the unusual display of flowering shrubs in front of them. Notable among the latter are two extra large bushes of *Tyrus japonica* and *P. japonica alba*, in full flower at the end of January. The two varieties, planted in juxtaposition as Mr. Kinghorn has them, give a very cheerful effect. Why should we not plant alternate lines of them for early spring effects, or group them in large shrubbery beds, as we do Ghent Azaleas and Rhododendrons? This is a very interesting plot indeed. A row of golden-topped Yews is planted by the margin of the rail fence bordering the main road, which is much admired by visitors and others interested in plants, and gives evidence of skill in treatment and cultivation. Then follows a selection of more graceful habited plants, including a very fine specimen of *Berberis stenoophylla*, which, when adorned with its rich orange flowers, which droop and overlap each other, is a pretty sight indeed. During the summer months single Dahlias, Hollyhocks, Marguerites, and other flowers are planted among the shrubs, in order to have a seasonable display at all times, by which a visit to the nursery is removed above the dull sphere of business to that of pleasure.

The first of two span-houses is crammed with plants in or coming into flower, and a sprinkling of other plants grown for the beauty of their leaves, and, therefore, useful and valuable for the approaching busy season of decorating and furnishing. But although the plants are now arranged "show fashion" it is evident they have had plenty of house-room during their season of growth, for they are as perfect in form and as healthy as plants need be. The centre row,

elevated above the rest, consists of *Aralia Sieboldii*, with large glossy leaves, indicating both substance and vigour—the remainder of the plants on the centre stage being very fine samples of *Cytisus racemosus*, from one to three years old, just coming into flower: these plants are numbered by the thousand in this house alone, and in addition the side stages are bright with Cyclamens, Primulas, Hyacinths, Tulips, and *Erica persolata alba*. There are some grand spikes of Hyacinths, including Charles Dickens (blue), and Grande Vidette (white), popular kinds of the first order. The next house, by the side of the one just noticed, is the conspicuous house of the nursery. It not only contains the finest and most valuable plants, but it is also the largest, in fact the central figure of attraction in the whole establishment. Mr. Kinghorn is his own architect and builder, and he evidently intended, when designing the house, to be able to sleep soundly during the equinoctial or other gales, for the substantial construction of the house renders it proof against all weathers. It is, however, while simple and substantial in design, also ornamental in appearance. The house is over 90 feet long and 20 feet wide, with a brick pit in the centre, and a flag path all round. The pit is low, in order to provide head-room for tall specimen plants. The house is supported by upright iron columns and horizontal cross stays fastened to both sides of the roof. Oblique bars of the same size are also used to tie the sides of the house with the roof, so that it is secured at all points against the violence of the weather, from whatever quarter it may proceed. All the ironwork is painted blue as a contrast to the woodwork, which is a clear white, and where the ironwork is not heavy the two contrasting colours have a very lively appearance. The hot-water piping is arranged in single rows above each other, by the sides of the paths, where the heat directly ascending from them does not come into immediate contact with the roots or leaves of plants.

Large Palms occupy the centre of the house, well raised up, and intermixed with *Pandanus Veitchii*, fine plants of which are splendidly coloured. The specimens in the centre consist of *Lantana borbonica*, *Scapharbia elegans*, *Arca lutescens* and *Verschoffii*, *Chamaedorea glaucitola*, *Phoenix reclinata*, *Chamaerops Fortunei*, and many other popular kinds suitable for general purposes of furnishing. These plants are not grown by the score or hundred, but by the thousand. Of *Lantana borbonica* 10,000 plants are grown, and others in proportion. Nor must it be understood that small quantities of anything mentioned are grown—all are cultivated by the hundred or thousand, according to their popularity, and in sizes varying from the young seedling to the specimen ready for exhibition. There is another point in the cultivation of these plants which is deserving of mention, and that is, that such a thing as insect-pest of any kind is not tolerated, owing to the strict supervision under which the plants are cultivated. Indeed, the health and cleanliness of the whole collection cannot be excelled.

But to proceed with a notice of the plants that seem to be the most largely grown, the two *Dracaenas*, *rufra* and *congesta*, so commonly used for furnishing, are here grown in immense numbers, clearly proving the popularity of these well-known varieties for decorative purposes. Mr. Kinghorn has a large stock of the "true variety of *rufra*" which is not so common as people think. There are several varieties which are easily distinguished in a large collection, when seen growing side by side with the true variety, which have no claim to the title of *rufra*, although in other respects they are not so unlike in appearance. There is a green variety of pendent habit after the style of Cooperi, which requires cooler treatment than the true *rufra* to keep the leaves in their normal rigid state, which makes an excellent table plant, and of which large quantities are grown by Mr. Kinghorn. The same characteristic is noticeable in the stock of *Dracaena congesta*. Some of the plants have much broader leaves than others, while many more have the leaves more thickly produced on the stems, and are gems of their kind for decorating rooms in "pairs to match," or indeed for any modern purpose of decoration.

It is a great advantage to be able to compare notes, or rather to take notes, of the different varieties of certain species of plants, all of which are erroneously supposed to require the same treatment and temperature, whereas, upon becoming better acquainted with their habits and characteristics, we find how accom-

modulating many of them are, and how well they stand a moderately low temperature, which enables amateurs and others to enjoy the possession of plants which under other circumstances would be useless to them. Arent the existence of so many varieties, they are of course obtained from seed, but Mr. Kinghorn takes care that choice kinds are perpetuated from cuttings only, so that the stock of plants may be kept perfectly true to name.

Next to the plants already mentioned the stocks of Ferns are the most interesting and useful. It is a rare sight indeed to see *Pteris tremula* with such fronds and the plants grown in 6-inch pots; also young *Dicksonias*, *Asplenium Delangeri*, *Pteris serrulata cristata* (the common variety), and many other kinds for cutting and furnishing, including *Laetrea opaca*, quite handy. Thousands of *Erica gracilis* are in this which is housed on shelves near the glass; sturdy little plants of their kind, looking thoroughly prosperous and healthy. The main block of houses upon the north side of these, although not so showy to look at, is equally useful for plant growing—most of them could not indeed be much better for the different purposes for which they are required. The collection of stove *Draenas* occupies the greater part of a house by themselves, and comprise well grown plants of Mrs. Willis, D. Kossi, anerylensis, Frederici, Salmonia, Mrs. C. J. Freake (very finely coloured), and many others; also *Crotons* and *Aralias* in variety. Another house contains a healthy and numerous stock of *Corypha australis*, *Ficus elastica*, and *Azaleas*. The collection of *Camellias* (also occupying the greater part of a house to themselves) consists of several choice specimens, of which a large bush of elegans is a show in itself, its pretty pink flowers being very conspicuous among scarlet and white and colours of various other tints. In this house also there is a good stock of the red and of the white *Lapageria*, and some beautifully grown specimens of *Todea superba* in a glass case, where they are specially attended to.

From the *Camellia*-house the visitor proceeds through extensive ranges of houses filled with soft-wooded plants, chiefly *Pelargoniums* and other useful subjects, such as *Rapala corcovadensis*, *Eurya latifolia*, golden *Euonymus*, and *Azaleas*. Other houses are stocked with *Ophiopogon spicatus*, *Aralias* of sorts, Maidenhair Ferns, *Abutilons* of all kinds in cultivation, *Epacris*, *Ficus elastica*, *Aspidistra lurida variegata*, and many others. The stock of show and fancy *Pelargoniums* consist of all the leading kinds, such as Digby Grand, Triomphe de St. Mandé, Duchess of Edinburgh, and La Patrie, which are grown under exceptionally favourable conditions in light-span-roofed houses, where they enjoy abundance of light and air, and are therefore stocky and hardy in addition to being handsome in shape, with leaves covering the rim of each pot. *Primulas* are equally well grown, the old double white still being a great favourite in this nursery. Stock plants of *Fuchsias*, *Solanums*, *Bouvardias*, &c., are counted by thousands, most of them indeed showing signs of active growth, and producing healthy cuttings at every joint, which will soon be ready for the propagator to commence operation for another season.

The next house, or rather pit, is filled with small *Palms*, 2000 *Cocos Weddelliana*, and equal numbers of *Latanias*, *Scaevolarias*, *Phœnix reclinata*, *Areca lutescens*, and others. From this interesting department, the visitor is taken to a north house filled with *Camellias*, *Azaleas*, greenhouse *Rhododendrons*, golden *Euonymus*, *Clematis*, and small plants of *Acaëa Ricana*, which makes the finest of conservatory bushes when planted out. Upon the south side of this house, a lean-to structure is filled with *Pelargoniums*, *Crasulias*, and Ivy-leaved *Pelargoniums*; the latter in grand trim and in great variety. A span-roofed Heath-house, running north and south, contains over 2000 plants, of one single variety—*Erica gracilis*; and the propagating-house already shows signs of briskness and preparation for the spring season. Pits and frames are filled with thousands of *Ericas*, *hymcalis*, *gracilis*, and *Caëra ventricosa*, also *Chrysanthemums*, young *Conifers*, and over 5000 Golden *Euonymus*. *Epacris* of sorts occupy a considerable area of pit-room, as also *Ceanothus*, *Gloire de Versailles*, *Veitchii*, and *divaricatus*. I noticed a very superior stock of Grape Vines in fine condition for planting, and an endless variety of herbaceous and alpine plants.

Talk about *Hellebores*: they are here by the thousand—white, or brown, or green, as the cultivator may choose to purchase them. For the writer's

part he still gives preference to the white varieties, and he would advise inexperienced purchasers to do the same, or at least not to purchase largely of the many varieties recommended without a trial. Large beds of *Euonymus* and other plants requiring partial protection in a young state are in a very satisfactory condition after the mild winter, and promise to shoot ahead vigorously during the coming season of growth. The outdoor nursery stock consists of the usual variety of ornamental trees and shrubs, *Conifers*, fruit trees, and *Koses*. A choice selection of all the finest plants are well arranged in borders on either side the principal walk before referred to. The walk itself is ornamented with two fine Weeping Elms, one planted about its centre, and the other at its extremity bordering upon the South-Western Railway. The weeping trees forming the back row are both choice and numerous, as also the great body of other plants, including *Juniperus chinensis*, *Cryptomeria elegans*, *Keteleporas*—all the leading kinds, *Cupressus* of sorts, *Thuysas*—all the finest kinds, and a sprinkling of spring and summer flowering shrubs. The great features, however, of the borders in summer are the pillar *Roses* and *Clematis*, which have an exceedingly graceful effect, and which are far too sparsely used in private gardens.

The specialties in outdoor stock consist largely of *Limes*, *Poplars*, *Chestnuts*, over 15,000 *Aucubas*, *Clematis*, a fine stock of *Deutzia scabra*, thousands of *Fives*, dwarf *Roses*, *Euonymus radicans variegatus*, *Rhododendrons* in bud in all the best hybrid kinds, brakes of *Conifers*, quarters of fruit trees, and young stocks of *Caucasian* and other *Laurels*, flowering shrubs, &c. Before concluding this notice I may mention two fine samples of plants that are very uncommon which are within the gates of this nursery, and which would make elegant specimens planted singly in pleasure-grounds, if, indeed, they are to be readily obtained. One is the Chinese Lace-bark Pine (*Pinus Dungeana*), and the other *Torreya grandis*, a plant well named, but if appearances go for anything it bears a close affinity to the genus *Taxus*. W. H.



The Arboretum.

NOTES ON WESTERN CONIFERS.—In another publication I intend to give a full account of the observations on *Conifers* made in the Pacific States, when with Professor Sargent and Dr. Parry I explored their forests, but it seems proper that I should not withhold any longer the principal results arrived at.

Abies amabilis (Douglas), Forbes, is not a variety of *A. grandis*, as I had assumed; but a very distinct species peculiar to the higher mountains of the Cascade Range from Oregon to British Columbia. It is easily recognised by its dense, dark green, glossy leaves, very white underneath, usually emarginate, but on the fertile branchlets acute; by its large very thick purple cones, and oblanceolate acuminate bracts. [See *Gard. Chron.* 1880, vol. xiv., pp. 720, 725.]

Abies nobilis (Douglas), Lindley, is peculiar to the higher mountains of Oregon, and has not yet been found in California, nor, as far as I can learn, in Washington Territory. Its grooved leaves crowded on the branchlets, and its large purple cones with long exsert recurved bracts, well characterise it. The tree on Mount Shasta, which has gone by this name (also in the Flora of California), is distinguished by its quadrangular leaves, keeled on the upper side; its large cones considerably resemble those of *nobilis*, and have often, not always, exsert and recurved bracts; it is a form of *A. magnifica*, Murr., the common Red Fir of the Californian Sierras, which has bracts normally enclosed.

Pinus reflexa, n. sp. (*P. flexilis* var. *reflexa*, Eng. in Rothrock's *Rep. Bot. Exp.*, Wheeler), proves to be quite distinct from *flexilis*, not only by the reflexed scales of the cone, but also and principally by the long peduncled cylindrical female anthers, erect in the first, recurved in the second year, which associate it with the true *Strobbi*, while the large wingless seeds distinguish it from the other species of that section.

P. albicaulis, Eng., is specifically distinguished from *P. flexilis* by its subglobose purple cones with short, thick scales and its thin white at last scaly bark.

P. chihuahuana, Eng., observed by us in the Arizona Mountains, proves to be of peculiar interest as maturing its cones in the third year, the only American species with this character, which I have found only once more in the Mediterranean *P. Pinæa*.

P. Jeffreyi, Murr., holds its characters well wherever we have seen it from the mountains west of Mount Shasta, where it was first discovered, down to the San Bernardino Mountains, affecting more particularly the eastern slopes. The glaucous branchlets, with pleasantly aromatic fragrance, thinner glaucous foliage, the great size of the cones, with thin, spiny recurved mucro on the scales, large seeds and more numerous cotyledons, distinguish it from *P. ponderosa*, which has brownish-green branchlets, with a turpentine odour, and dark green coarser foliage.

Pinus arizonica, Eng., has also been repeatedly collected by us as well as by subsequent explorers, and the question has been agitated whether it may not be also a form of *P. ponderosa*. The fact is that five-leaved forms of this species do occur on the Californian Sierras (Lemmon) and on the Arizona Mountains (Lemmon, Pringle), but the larger number of leaves is here a casual occurrence; the branchlets show the brown-green colour noticed above, the leaves are dark green, and have the structure described by me in Wheeler's report. *P. arizonica* has glaucous branchlets, thinner leaves, constantly in fives, and of different structure; its cones are thicker and shorter, with much more prominent umbos, but with so much weight can be put on this last character. G. Engelmann, in the "*Botanical Gazette*."

DRACÆNA ELLIPTICA.

NOT long ago we had an opportunity of figuring *D. Goldieana*, and now, as a contrast to it, we lay before our readers the portrait of another *Dracæna* which flowered in Mr. Bull's establishment about the same time as the *Goldieana* (fig. 37). The plant has long been known, and was figured in the *Botanical Magazine*, t. 4787. The species is mentioned by Mr. Baker as occurring in North-East India and in the Malayan Islands. The variety figured has the leaves spotted with white, hence the name *maculata* given to the variety in question. The real nature of the inflorescence is the same as in *Goldieana*; but in this one the main stem is elongated in place of being contracted. The greenish flowers were observed by Mr. Smith to be protogynous, that is, the stigmas were ripe before the anthers, and protruded beyond the flower even in the bud stage, as shown in the figure, so that access of the flowers' own pollen was impossible. The flowers, therefore, though structurally hermaphrodite, are, as in so many similar cases, functionally unisexual at any given time. This separation of the sexes is carried a step further, as Mr. Smith figures some of the flowers with imperfect stamens only, others with perfect stamens and no ovary. The pollen is stated by Mr. Smith to be precisely like that of *D. Goldieana*. In the figure the plant is shown of natural size, and the floral details magnified.

NEW ZEALAND GRASSES.

TRIODIA ENIGMA, T. Kirk, sp. nov. (*Danthonia pauciflora*, Buchanan, *Grasses of New Zealand*, t. xxxvi. n. 1; not of K. Brown.—A small grass, forming a compact sward, root creeping, leaves tufted, 1 inch long, filiform, rigid, involute, pungent, glabrous, mouth of sheath clothed with a minute pencil of hairs, ligule o. Culms 1—2 inches high, slender, naked above; panicle reduced to a single spikelet, or rarely two, when the lower spikelet is pedicellate. Spikelets 2—3 flowered, empty glumes larger than the flowering, obtuse, flowering glume three-toothed at the apex, ciliate, nerved palea notched at apex. Caryopsis free.

Habitat: South Island, Canterbury, Broken River basin, 2500—3000 feet. Terraces of the Upper Waimakiriiri, 1600—2500 feet (J. D. Enys and T. Kirk); Otago, Mount St. Bathans, and many places in the interior of the district (D. Petrie).

Mr. Enys and myself collected a few specimens of this grass several years ago, but as the season was so far advanced that little more than the outer glume remained, it was not possible to make out its affinities. Last year Mr. Enys visited the locality, and kindly sent me a supply of good specimens; I am also

indebted to Mr. Petrie for good specimens from Otago. In his *Indigenous Grasses of New Zealand* Mr. Buchanan has wrongly referred Mr. Petrie's plant to *Danthonia pauciflora*, Brown; but it is clearly a *Triodia*.

Triodia exigua occurs in great abundance in the

informs me that horses are especially fond of it, notwithstanding its dwarf habit.

Danthonia pauciflora, of Brown, is a more robust grass, with keeled leaves and culms, with sub-erect or drooping panicles, which are usually more or less branched, while the flowering glume is never three-

linear oblong, strict, rarely exceeding 1 inch in length, simple or with one or two short branchlets at the base. Spikelets minute on short capillary pedicels, 2-3 flowered, outer glumes unequal, obtuse; flowering glumes convex obtuse with five faint nerves; palea ciliate at the apex. Caryopsis oblong, free.

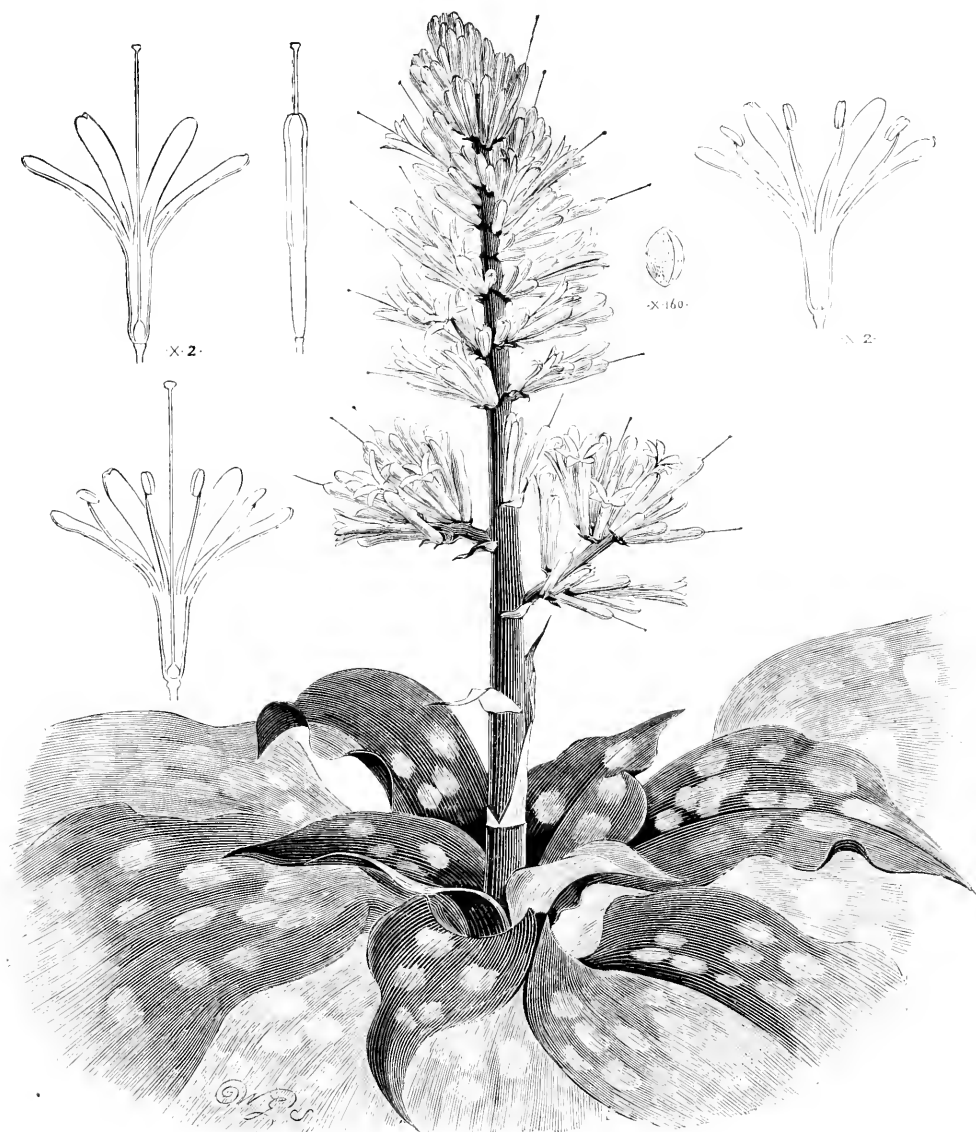


FIG. 37.—DRACENA ELLIPTICA MACULATA. (SEE P. 260.)

Broken River basin and in the Waimakiriri terraces, often forming a close sward, to the exclusion of all other grasses. Its red anthers, as I learn from Mr. Enys, give a perceptible tinge to the pasturage, which catches the eye when riding. Nearly all the specimens in this locality have the panicle reduced to a single spikelet. Some of Mr. Petrie's specimens are more robust, and exhibit two spikelets, the second, however, being often imperfect. Mr. Enys

toothed, and the lodicules are never ciliated, as in our plant. It has not been observed in New Zealand.

ATROPIS PUMILA, *T. Kirk, sp. nov.*—A slender tufted grass, 2-8 inches high, leaves 1-2 inches long, spreading, filiform, involute, with a minute pencil of hairs at the mouth of the sheath, and a few loose hairs at its base. Culms erect, extremely slender, leafy for over one half their length, panicle

Habitat: South Island. Common in the Otago district at an elevation of from 2000-3000 feet. D. Petrie.

This is one of many interesting plants added to our flora by Mr. D. Petrie, to whom I am indebted for all the specimens I have seen at present. It slightly resembles some forms of *Danthonia nuda*, but its nearest ally amongst New Zealand grasses is *Glyceria stricta*, Sm. *T. Kirk, F.L.S., Canterbury, New Zealand.*



Orchid Notes and gleanings.

WORK IN THE HOUSES.—With the view of bringing the plants into a little more active growth with the lengthening of the days, a slight rise of temperature in all the houses will prove to be beneficial. The 1st Indian-house should now stand at 65° by night and 70° by day; the Mexican-house 60° by night and 65° by day; cool-house about 53° at night, and from 55° to 60° during the day; but should much fire-heat be needed to maintain these temperatures in the cool-house, it will be safer to lower them about 3° day and night. Any plants of *Odontoglossum* or *Masdevallias* in this house that need re-potting, or fresh surfacing, should now be done. All our plants of *O. crispum* that have recently flowered will be gone through during next week. The compost we use for this and most of the *Odontoglossum* is equal parts of selected peat and good sphagnum moss. The peat is first partially dried, and then rubbed through an inch mesh sieve; this process disintegrates it thoroughly; when we put a small quantity at a time into a sieve, the bottom of which is made of perforated zinc, and through this all the earthy matter is got rid of, and the fibry matter only retained. The sphagnum moss is chopped a little, and the two are thoroughly blended together. This, with a dash of silver-sand and a moderate quantity of charcoal pounded pretty fine, forms our favourite compost. In a soil prepared as above described there is very little cohesion, and the sand is only added to fill up the interstices of the soil, and as a root-preserve also. The effect of the charcoal is that it tends to keep the foliage of the plants a good colour. Too great cohesiveness in the soil would round the roots of most Orchids has long been the bane of Orchid growing. When we see cool Orchids retain their old foliage for four or five years, and the plants continually gaining strength, flowering profusely, and often making double breaks, we may rest assured that this condition—the standard of excellence—has not been brought about by using pasty soils, as it is impossible to retain the roots more than a season or two in such soils, and as fast as the roots go off on the back bulbs the foliage is not slow in following suit. Many of the cool-house plants will now be in flower or showing their spikes, and any that may be in a weakly state or poorly rooted should be relieved of their flowers as soon as they open. The earliest plants of *Dendrobium Warlianum*, *D. nobile*, *D. crassinode*, *D. Pierardi*, and others that may now have finished flowering, should be taken in hand at once and receive a shift or resurfacing according to their requirements. Others, such as *D. clavatum*, *D. moschatum*, *D. Farmeri*, *D. thysiflorum*, and *D. densiflorum*, should be kept dry for the present, and if it is desired to retard them for early summer blooming they should be placed in a steady temperature of about 50° in a position free from cold draughts, with scarcely any water applied to their roots while in this temperature. In the East Indian-house the plants should now be beginning to root freely, and as these young roots are a favourite dish to the cockroach no effort should be spared to try and diminish the number of the latter, for it seems impossible to exterminate them. For their destruction we find nothing better than Chase's beetle poison, laying it in their haunts about twice a week for a short time, when we are generally free from them for two or three months. *J. Roberts, Gimmershury.*

ODONTOGLOSSUM EDWARDI.—This species, which was introduced two or three years ago by the brothers Klaboch, and named in compliment to the late Mr. E. Klaboch, is now in flower in the collection of Walter Cobb, Esq., at Sydenham. It is not only distinct from any other *Odontoglossum*, but distinct in colour from any other Orchid. Mr. Cobb's plant produced a large branched spike on which were 120 flowers. These are about 1/4 inch across, and of a deep violet-purple colour, except the crest of the lip, which is orange. The two colours remind one of a flower of *Iris reticulata*. Mr. Sander, by whom it was distributed, told me he had dried spikes with stems as thick as a man's finger, and the collector had counted nearly 1000 flowers on one spike.

If it can be grown like that in England, it will be indispensable in every collection. Mr. Cobb says it requires very cool treatment. *J. D.*

ODONTOGLOSSUM LONGIBEROUGHIANUM.—The largest plant, or rather moss, of *Odontoglossum Longiberoughianum* in Sir Trevor Lawrence's collection, has furnished a number of long-branched spikes. Mr. Sayers thinks highly of this species, and probably it has not had full justice done to it in some gardens. The flowers are distinct in character, their best feature being the clear golden-yellow lip; the sepals and petals of the same colour are barred with brownish-crimson.

CYPRIPEDIUM SPICERIANUM.—This remarkable and beautiful species has now been imported in considerable quantities, and we may expect to see it much cheaper than heretofore. Mr. Sander, by whom the consignment was distributed through Mr. Stevens, says that the collector found it growing on the face of almost perpendicular rocks which were very moist; indeed the leaves themselves showed the state in which they were found, as they were covered with mud. As a hint to cultivators, Mr. Sander says that the plants were found growing in loam, so that they will succeed in cultivation under the same conditions as *C. incanum*. The plants must also be placed in the warmest house. *J. D.*

BLOCKS FOR CULTIVATED ORCHIDS.—Some time ago Sir Joseph Hooker, in discussing the cultivation of tropical Orchids, suggested to me the advisability of growing such species as were suitable for the purpose on blocks made from the stems of Tree Ferns. I thought the suggestion a remarkably happy one, and proceeded immediately to carry it into execution. It will be remembered that at the base of nearly all the large Tree Ferns there is a large compacted mass of root-fibres (no doubt induced by the moist surroundings of moss, grasses, and vegetable debris usually accumulated there), measuring 3 or 4 feet in diameter, which admits of being sawn or cut, without breaking, into any shape desired. When carefully trimmed, blocks of this black mass, almost like charcoal, may be hung up in the Orchid-house by a hook or piece of wire; and they form, with the aid of some fibrous peat or sphagnum, a most congenial home for a large number of our smaller Orchids. Such blocks are superior to the coco-nut husks and blocks of wool ordinarily in use, as they keep sound for many years; and, moreover, are always sweet and clean, and never infested with rot or fungus. Those of your readers, placed within easy reach of districts where Tree Ferns abound, as in the mountain slopes of Jamaica, may have already tried the plan; if they have not the inevitable clearing of land for Coffee and Cinchona and the cutting down of these beautiful ornaments of our forests may, at least, be thus utilised. For the cultivation of such plants as *Compertia falcata*, the smaller *Epiphyllums* and *Oncidium*, *Ionopsis*, *Brassavola*, *Stellis*, *Pleurothallis*, *Octalemia*, &c., nothing could be better than these Tree Fern blocks. *D. Mori & Co., Jamaica, Jan. 29.*

ORCHIDS IN FLOWER AT BRENTHAM PARK, STIRLING.—The following Orchids are now in bloom in Mr. Smith's collection here:—

- Agaveum cirratum*
- Brassavola nodosa*
- „ *glauca*
- Burlingtonia candida*
- Cattleya choisyana*
- „ *Titum* (several)
- „ „
- „ *Vesta*
- „ *Venus*
- „ *Wardianum*
- „ *Wardianum* alba
- „ *amethystoglossa*
- Cymbidium Lowianum*
- Cypripedium magnum* (several)
- „ *Sedeni*
- „ *Eschallii*
- „ *Hookeri*
- „ *Argus*
- Collegiole cristata*
- Leontium*
- Dendrobium Pierardi*
- „ *latifolium*
- „ *Domaui*
- „ *aggregatum majus*
- „ *Wardianum* (several)
- „ *montanum*
- „ *primulinum giganteum*
- „ *notule* (several)
- „ *limbatum*
- „ *leucolatum*
- „ *leucolatum*
- „ *Furmei*
- „ *Somneri*
- Dendrobium glaucum*
- Epiphyllum evictum*
- „ *Wilckii*
- „ *latifolium*
- Lycia thalictroides*
- Lycia skauensis* (several)
- „ *alba*
- Masdevallia Estradae*
- „ *tovaraisis*
- „ *lignea*

John MacLeod.



The Flower Garden.

PLANTING.—The weather has been and is so favourable for the purpose that the planting of Roses, deciduous trees, and evergreen shrubs, &c., may still be carried on, but it is imperative that it should be brought to a close as soon as possible. So many things are now pressing for attention in the regular routine of operations, that unless there is an unlimited command of labour the gardener's hands ought not to be hampered with extra work at this season. It would be well for all concerned to remember that there are recognised times, the result of long experience, for the performance of certain operations, and that if this is not attended to at the proper time it will not be apparent at once, but the result will be certainly entail disappointment four, or five, or even six, months hence, when the cause has been entirely forgotten.

SHRUBBERIES.—In such a season as this has been, the digging of the borders of the shrubberies and re-arrangement of the shrubs should be well forward; the soil need only be turned over sufficiently deep to insure neatness of appearance, and to put fallen leaves and weeds out of sight. I do not agree with those who argue that this operation is superfluous, and ought not to be practised for the benefit of the shrubs, as I have observed that strong rooting sorts get possession of the ground, and gradually exterminate the weaker and often more valuable plants; but by annual, or in some cases half-yearly, diggings over, we ensure a neat appearance, a more certain destruction of weeds, and, by checking the strong surface-rooters, give the weaker a better chance. As this operation proceeds, the knife should be freely used upon such plants as Laurels, Portugal Laurels, Aucubas, Golden Yews, and other evergreens, to keep them in shape, and prevent crowding. Even such evergreen trees as *Thuja*, *Cupressus*, *Thuyopsis*, and other Conifers, may be greatly encouraged to grow thick and shapely by being shortened back freely, and notably so the *Deodar*.

BEDDING PLANTS, &c.—Plants of these in store-pots and boxes should be potted off at once, and immediate means be taken for the propagation of any sorts which may be deficient, particularly such as are usually required in large numbers, as, for instance, *Alternanthera*, *Mesembryanthemum cordifolium* variegatum, zonal *Pelargoniums*, of which the store plants potted up in the autumn, and forwarded in heat as before recommended, ought now to furnish plenty of cuttings for present propagation. Remember that they must have very little water until they are on the move; but the medium on which the pots are stood or plunged should be kept constantly moist.

HERBACEOUS BORDERS.—As the renovation and digging of these should now be in full progress, it may be as well to observe, that in rearranging the disposition of the plants a good effect may often be obtained by repetition of some conspicuous plants at equal distances throughout the mass, and a plant well adapted to illustrate the subject is the very common tall double white Rocket; *Agrostemma atrorubra* is another; it is the *Fritonia avaria* and *grandis*, and several others are conspicuous by their colour and habit for the production of good effect; but the principle must not be carried too far, or it will degenerate into formality. The entire interest of these borders consists in their variety, and they will generally present a mixed and sometimes muddled appearance, but the lover of plants will always appreciate their merits and beauty individually, and would not look for effect in a mass like bedding-plants, at the same time a determination of design may be admitted without detriment (if not carried too far; and whilst on the subject I would particularly recommend the *Hydrangea paniculata* *grandiflora* as a plant well adapted for the purpose in the autumn. It is impossible to speak too highly of the usefulness of this very fine flowering plant, and where cut flowers are in much request it is invaluable; it should be well cut back every year. *John Cox, Redleaf.*

- Masdevallia ignea superba*
- „ *rubescens*
- „ *aurantiaca*
- „ *Shuttleworthii*
- „ *polysticta*
- „ *xanthina*
- Millettia grandiflora*
- Miltonia cuneata*
- Odontoglossum citreum*
- „ (several)
- „ *Rosa majus* (several)
- „ *crispum* (several)
- „ *Pescatorei* (several)
- „ *Audersburgianum*
- „ *citratum*
- „ *palchellum majus*
- „ *condictum*
- „ *Uro-Skinneri*
- „ *gloriosum*
- „ *nevadense*
- „ *triumphans*
- „ *russett*
- „ *bandum*
- „ *Roeblii*
- „ *Halli*
- Pulmonaria fragrans*
- Phloxopus grandiflora*
- „ *rosea*
- „ *Schilleriana*
- Scutellaria argenteum*
- Vanda lamellata Boxallii*
- „ *Cochetii*
- „ *tricolor* (Dallwitz var.)
- Siphonanthus grandiflora*
- Oncidium Weltoni*
- „ *Cavendishianum*
- „ *chrysanthum*
- „ *Species*
- „ *fulvum*
- „ *cauciliatum* (several)
- „ *ornithorynchum*
- Zygopetalum intermedium*

Grapes and Vineries.

THE Grapes in the earliest vinery will be swelling fast, the mild weather being very favourable for forcing. Still keep the night temperature at 65°, and raise the temperature to 75° early in the day if the weather is bright, and admit air on the back ventilators early in the morning. Close early in the afternoon so that the thermometer may run up to 85°, and keep the evaporating pans filled with weak manure-water. Damp the paths and borders down several times daily with tepid water, but use much less atmospheric moisture on dull days. As a general rule, when the Grapes are swelling, no stopping is required; but sometimes a few laterals will require taking out if the Vines are very strong. Water the border thoroughly when dry with tepid manure or guano-water at 85°. Attend to the fermenting material on outside borders, and add fresh manure and leaves as the heat declines. Succession Hamburghs started in the early part of the year will soon be coming into bloom, and must be kept at 65° at night, with a rise of 10° by day. Tie the young growths down to the trellis, and stop them just before they come into bloom, and then let them go until they are set. It is a good plan to water the inside border a few days before they come into bloom, so that no more water will be required until they are set and thinned. If many bunches show cut off the surplus before they come into bloom, as the others will set better. When in bloom keep them as advised in previous Calendars. Muscats started on January 1 will be showing bunches, and can be kept at a night temperature of 67°, raising it to 70° when they are in bloom. Stop them at about four joints beyond the bunch, according to the room there is on the trellis, leaving sufficient to cover it without crowding. Water when necessary with clear tepid water, for if the borders are well drained they will take liberal supplies. Admit air early in the day on all favourable occasions, taking care to avoid cold draughts, and close the house early in the afternoon. The latest house of Muscats can be started now or left a few days longer, say till March 1. Before starting water the border thoroughly with clear tepid water at a temperature of 85°. If any borders of late houses require top-dressing do it at once, so that it can be completed and the houses be thoroughly watered before it is time to start them, for all late Grapes ought to be started gently by March 1. When starting such late varieties of Grapes, as Lady Downe's, Alicante, and Gros Colmar, keep them at a night temperature of 50°, with a rise of 10° by day. Keep the rods well syringed several times daily, and the paths and borders well damped down with tepid water. Late houses of Hamburghs must have the ventilators open night and day, for if this mild weather lasts there will be great difficulty in keeping them back. Early pot Vines must now have liberal supplies of tepid manure-water at the roots, and if wanted very early they will now stand a few degrees more heat in the day time, but 65° is sufficient for the lowest night temperature. Vine eyes in pots or on turves can be kept at 55° to 60° at night, with a rise of 10° by day. Late Grapes hanging in the fruit-room will not require any fire-heat if the temperature does not fall below 45° and the atmosphere is dry. Fill up the bottles with soft water as they require it. *Toshua Atkins, Lockinge Gardens, Wantage.*

The Pine Stove.

FRUITING plants in various stages should have every facility afforded them to make a sound growth, and all due precautions should be taken that no check occurs to diminish the size of the fruits. Attend assiduously to the ventilation and temperatures for the next six weeks, as any inattention during that time will affect them the whole season. Keep all fruiting plants about 70° at night, with a rise of 10° by day, and close the houses up early, so that the temperature may rise as high as 85° for a short time. Do not keep to a rigid line, but rather be guided by the state of the weather. The bottom-heat for fruiting plants should be kept steady at about 60°. Carefully examine all newly made up beds, and if they are too hot lift the pots, which will make an opening for the rank heat to escape. Let the atmospheric conditions be equable and genial, but if too much moisture should accumulate in the axis of the leaves change the conditions by decreasing the moisture until the water has

evaporated. Keep the newly potted plants about 65° at night, with a rise of 10° by day, and in mild weather, with the aid of sunshine, it may rise to 80°. Give them a little air on every favourable opportunity, but ventilate cautiously. The plants should be plunged near the glass, with a south aspect, and the glass should be kept clean both inside and out, so that all the light possible may be diffused over and among the plants. These plants at this stage require careful watering for the next two months, and the soil should only be kept moist; if too much water is given the young roots will rot. The making up of hotbeds should be completed without delay, so that time is allowed for the heat to subside; make them of a good size, and build up the sides firmly, using the longest litter for this purpose, and let the inner layers bind the sides together, which will prevent them giving way. Use about two-thirds oak leaves and one-third long litter. Place the frames over them as soon as the beds have settled down; this keeps out the rain and prevents a too rapid decomposition of the materials—a point of importance in Pine beds. Those rooted suckers that were not large enough for putting into fruiting pots this month should have a small shift into 8 and 10-inch pots; these will form a second batch for transferring into fruiting pots during May. This, with the early lot, will form the principal succession for next year's fruiting. Those who only grow a few or a medium number should pot at either of these times, as they are not only more easily managed but the fruiting is more dependable and results alike satisfactory. *D. Wilson, Castle Hill, Devon.*



The Hardy Fruit Garden.

THE slightly lower temperature we are experiencing with the lengthening days will prove advantageous in retarding the already too advanced buds of fruit trees, which were certain to be more rudely checked later, had they continued to advance as rapidly as they were doing. Those who leave the pruning of their Peaches and Nectarines until the spring will do well to proceed with such work without any undue delay, in order to have the work executed before the buds become so far developed as to be easily broken off in the performance of the operation. Where the whole of the available space on walls has not been covered, branches required for extension may be left entire, or of such length as the ripeness of the wood justifies. Growths in the interior of the tree that have borne fruit can be cut out and replaced by the shoot arising from the lowest break of last season. Prune such shoots of a suitable length to reach nearly to the next above, and do not risk crowding the tree by retaining more than are really necessary for the furnishing of the wall with growths at such distances as will allow of full development of the foliage without that of one branch overhanging that of another.

The growths being generally well ripened this season, and very full of bloom-buds, more than a sufficiency of bloom, if protected from frost, may be expected to set on trees with even sparsely arranged shoots. Should any gross growths that destroy the balance of the tree have been suffered to remain unchecked last season they should be entirely removed to prevent the emission of others of a like nature, which would result from cutting back such shoots at this season. If it be necessary in order to furnish thin portions of old trees with blooming wood to retain some of the weaker growths, see that a wood-bud be retained by putting in the shoot at full length if no triple buds exist. In nailing-in use no more fastenings than are absolutely necessary to straighten the shoot and support the probable weight of the crop, and avoid ugly bends at the base of shoots by fastening into a sufficiently acute angle with neat matting ties. If the trees are entirely retained, as Peaches ought to be, there will be no need for noting the necessity of looking carefully after the removal of all tight ties, which work especial injury on all fruit trees liable to form gum when the bark is broken. Young trees can have all weak growths cut

well back where required to form branches, or removed entirely where not wanted in the formation of the tree; and well ripened strong shoots can be nailed in at full length, trusting to after-attention in restricting the summer growth where necessary to improve the balance of the tree. The leader can be well cut back, in order to furnish a sufficiency of shoots for the centre of fan-trained trees, or for modified forms of the same. Strawberry plantations may now have all old leaves cleared away, also weeds where such exist. The decayed manure may then be lightly pointed in with digging forks, carefully avoiding injury to the roots in executing the work, and if convenient a good dressing of long stable litter may be at once applied, which if thickly used will last in good condition until the fruit is ripe, and will have more time to be washed thoroughly clean than when applied late in the season. Where it is intended to make spring plantations of Strawberries from stone beds the work may be proceeded with at once on well prepared ground which has been thoroughly enriched.

Raspberry plants for autumn bearing must now be cut over close to the ground, and new or extended plantations may be made at the present time, choosing an open situation well exposed to the sun, which is so necessary to the proper ripening of the fruit maturing in October, and which helps to arrest its speedy decay in damp weather. Where the tops of other Raspberries are left at full length until the spring, they may now be cut back to a little above the stakes or wires, and the surface-dressing applied in the autumn can be worked over, and the rougher portion removed for the sake of appearances. Now that the pruning of fruit quarters is all completed, and the faking over of fruit borders done, the department ought to present a neat and dressed appearance throughout, and if any arrears of work of any description, yet remain they ought to be seen to at once, before it is too late and a season lost. *Ralph Crossing, St. Façan's Castle.*

The Orangery.

THOSE trees from which all the fruits have been gathered may now be re-potted, and any that do not require it should be surface-dressed. Sometimes the drainage becomes imperfect, and does not allow the water to pass through freely. When the trees are turned out of the pots, and it is found that the ball of earth is packed full of healthy roots, a pot one or two sizes larger will be required; put in plenty of drainage, and some tough fibrous loam over it. The potting material should be good moderately clayey loam, with a fourth part of rotten manure and some crushed bones added to it; some broken bits of charcoal will also help to keep the soil open. The compost must be packed in firmly round the sides of the ball. When the roots are not in good condition it may be necessary to pick out a considerable portion of the compost from amongst them, and in that case the trees may be transferred to the same sized pots. When surface or top-dressing only is required, the surface soil should be removed as deep as possible, so that the roots are not materially injured. The compost used to replace this should be rich, and contain a double quantity of manure and loam to that used for potting. The position of the trees in the house is another important element in their culture. We have always grown them on the back stages of the Pine-stove or Cucumber-house, as they require the same treatment. I find, however, that the trees keep in better health, when the pots can be plunged to half their depth in a bark bed, with a bottom-heat of about 55°. It will be a good opportunity when working amongst the trees to wash the leaves and stems with strong soapy water. Treat the trees that may have fruit ripening on them to a temperature of 65° at night. Those that have ripe fruit on them should be in a cooler drier atmosphere and be kept rather dry at the roots. *J. Doolittle.*

TOBACCO IN KAFFRARIA.—Our contemporary, the *Colonist and India*, says Tobacco has long been grown successfully in Kaffaria, and its cultivation is rapidly extending. On a farm about 15 miles from the mouth of the Kl. Mr. Keightley is planting out about 9000 plants. In virgin soil the weed grows most luxuriantly, quite rivaling anything produced in America or elsewhere.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb 27	Sale of Imported Orchids, at Stevens' Rooms.
WEDNESDAY,	Mar 1	Sale of Imported Orchids, Lilies, Hardy Plants, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Mar 2	Linnæus Society's Meeting at R.F.M. Rooms.
FRIDAY,	Mar 3	Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY,	Mar 4	Sale of Hardy Plants, and Bulbs, at Stevens' Rooms.

THE annual PRUNING OF THE SHRUBBERY is one of those things that is too often pushed aside through stress of other matters, or wholly ignored or neglected; and yet, perhaps, there is not a more important matter within the entire range of gardening. We do not mean by this that all shrubs are to be cut back or beheaded as Gooseberry and Currant bushes mostly are, but rather that they should be looked over and moulded into form or kept within bounds, as the case may be. The common practice of planting shrubberies in mixtures renders this the more imperative, for, with the different species and varieties found in most shrubberies, the predominance and final prevalence of the strongest speedily ensues, unless the more robust are repressed, and the weaker are encouraged by wise and judicious pruning.

In other cases, too, where shrubs, such as Laurels, Yew, Box, &c., are planted in groups to form masses of verdure at given elevations, it is needful to prune them in a more formal and regular manner; otherwise what was designed for a green carpet often grows up into anything rather than green blinds. Good illustrations of this style of planting may be met with at Dalkeith, and many other places in Scotland, Sandringham, Eastwell Park, and many more in England. Such verdant carpets need cutting almost smooth once or twice a year, as otherwise they soon get out of condition. The question now before us is, not the policy of planting such masses in situations where grass might be more telling, effective, or enjoyable, but the necessity of care in pruning such masses where they exist, so as to keep them even as a bowling-green, and green as the best velvet lawn. This used to be attempted by clipping the surface even; but it was found that the shears cut so many leaves in halves and mutilated so many more, as to ruin the appearance as well as impair the health of the shrubs; so that now the knife is generally used, and with such skill, that not a mutilated leaf is seen, and hardly a twig seems out of place. But the pruning, or rather beheading of such shrub masses is simplicity itself compared with the pruning of mixed shrubberies in such a skilful manner as to bring out all the most telling features of each specimen and group in due prominence, without totally or partially hiding the effects of others. In such prunings, a good many plants may have to be cut right down to the ground, in order that they may form, as it were, a green base for others.

Inequality of height and distances are also among the most charming characteristics of the well managed mixed shrubbery. Originally planted at well-nigh equal distances, as most of them have been, to grow up rapidly into a thicket or screen, the greatest danger before them is that of growing up into dense monotonous masses, as like the masses of Laurel we have described as may be. But these are the very opposite of what a good shrubbery should be. The skilful pruner breaks up its uniformity by the process of keeping much of his material near to the ground by severe pruning. This not only fosters the rapid growth of the shrubs left intact, but adds by contrast to their apparent height. In this way it is possible, by pruning with skill, to create bold swelling projections and deep dark recesses, though the base line may be level. Of course, where these are varied, less pruning

may be needful, and what is given has far more effect. Laurels, Box, Rhododendrons, make admirable base lines for Hollies, Yews, &c.; and even where the shrubbery is mostly of one uniform character, such as Laurels, Hollies, Rhododendrons, &c., the effect may be very much heightened by encouraging the growth of many perfect specimens and groups among and above the others. Some of the finer and stronger growing Rhododendrons reach to the stature of trees thus encouraged to rise above the others, and indeed there is no single shrub that so much can be done with in the hands of skilful planters and pruners as the Rhododendron. Some of the species are very dwarf, others of them rise to considerable elevations, and their natural qualities and diversities of stature may be intensified by culture and treatment. Hence we often see Rhododendrons so dwarf and prostrate as to lie upon the turf, and others reaching up to the dignity of dwarf trees.

Hollies also form capital base lines as well as being among the richest furniture of shrubberies. Single plants or groups of these allowed to run up and out into full-sized specimens, are simply magnificent. With sufficient space to enjoy light and air all round, no plant needs less pruning than the Holly. But to maintain a good close base for cover or shelter, an annual pruning will probably be found the cheapest and easiest in the end. For nothing works more mischief among shrubs than the occasional slaughterings which some dignify with the name of pruning. Drawn up into a smothering thicket by overcrowding, the shrubs have become abnormally tender as well as weakly. Severe thinnings under such circumstances invite disease, arrest growth, and not seldom totally ruin shrubberies. Hence it is often better to stub up neglected shrubberies root and branch than to attempt to prune or cultivate them back to symmetry and beauty. The evil is in the neglect. Nothing takes a more severe revenge for neglect than the shrubbery. An annual examination or pruning is one of the surest antidotes to neglect. It lightens the work so very much to do it often, if possible annually; not that there may be very much to do every year, and so much the better. The mere examination will prove an antidote against neglect, and even neglected shrubberies may be resuscitated with skill, care, and patience. The pruner needs not only to know when and where and how to act, but also when to stop, the latter being the more important of them all.

As to the time to prune shrubberies no hard and fast lines are observed. Writing broadly, from October to March, inclusive, is the best time to prune deciduous shrubs, and from April to July evergreens. Though little has been said about the pruning of the former, it is as necessary to prune deciduous shrubs as evergreens, though it is seldom needful to prune them so often.

How many beautiful Lilacs have been helplessly ruined for lack of pruning? Fine bushes have run up out of sight for lack of timely and judicious cutting back. Bushy specimens full of bloom have grown into something akin to Willow stools for lack of the timely removal of suckers and the thinning of their heads; and the same remarks are almost equally applicable to Spiræas, Loniceras, &c. An occasional overhaul, an annual pruning, would keep each shrub in its place, and also enable it to fill its own niche to the best advantage; while it would also preserve and heighten the general effect of the entire shrubbery, and prevent it degenerating into seediness and weediness, which it too often does.

— FICUS ELASTICA.—We owe to Dr. TRIMEN the opportunity of figuring the remarkable group of indiarubber trees which bound one of the entrances to the Royal Botanic Garden at Peradenya, Ceylon (fig. 38).

The curious aerial roots, descending Banyan-fashion from the branches, and the bold, undulating buttresses which run along the ground, are very striking features, and must tend to prevent the trees from being overthrown by hurricanes. We cannot hope, even with the resources of a Kew, to produce such growth in this country, but as the means of travelling increase the numbers of those privileged to witness such marvels increase likewise. The mode of formation of these buttresses and the reason are not generally understood, and would form a good subject for further investigation. They are not confined to Figs, but occur on many other tropical trees, as may be seen in several fine sections in the Wood Museum at Kew. A figure of these buttresses, taken from an isolated tree, was given at p. 681 of our volume for 1873, after a sketch by Captain OLIVER.

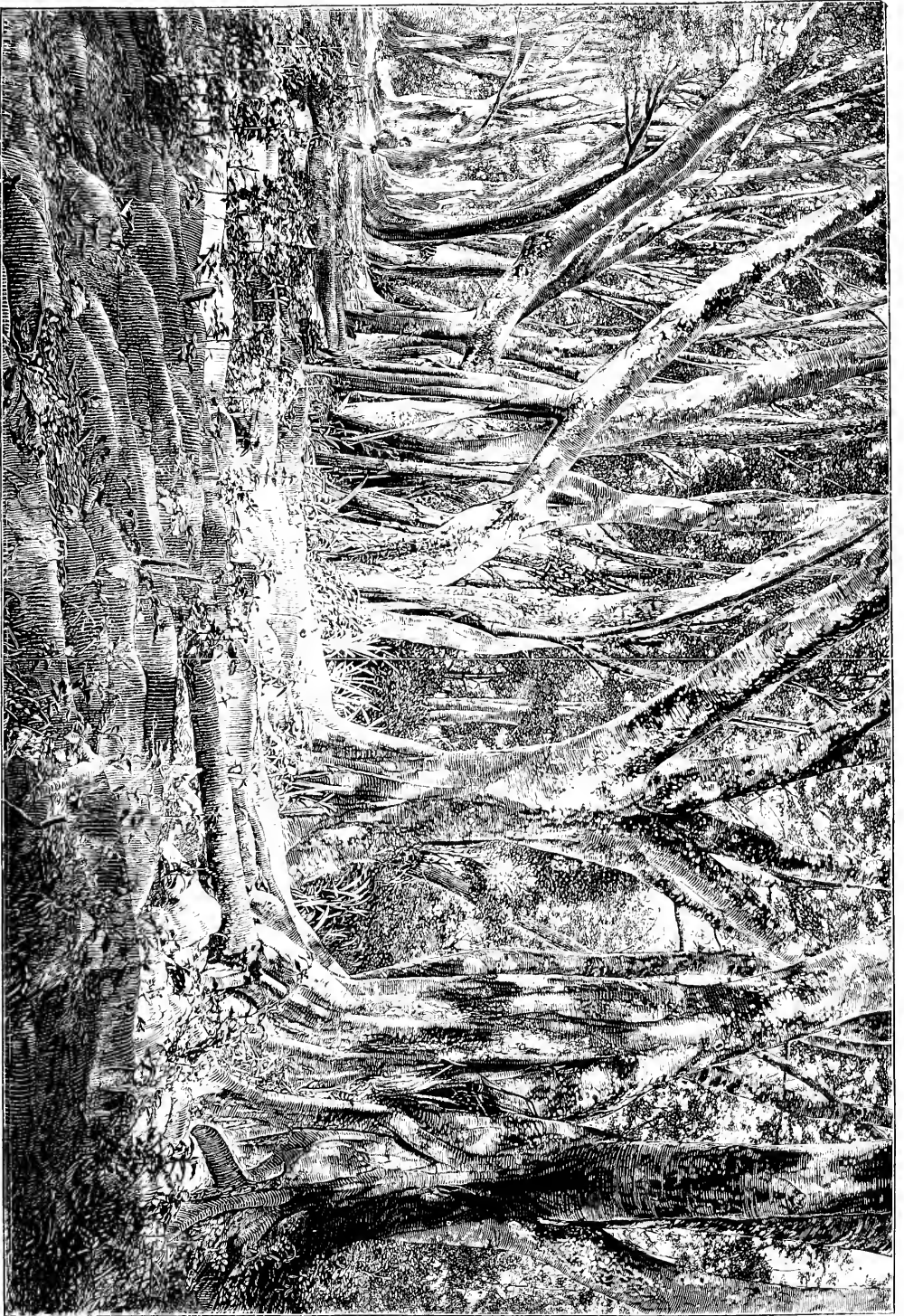
— THE INTERNATIONAL POTATO EXHIBITION will be held in the Crystal Palace on the same dates as last year, viz., September 20 and 21. The schedule and general arrangements will be much the same as on former occasions. The Lord Mayor and Sheriffs have generously promised to open the exhibition with some amount of ceremony. We hear with satisfaction that a new and severe rule will be adopted to prevent the introduction of old varieties under new names.

— PARIS HYACINTHS.—Inquiries are being made with reference to a very early and hardy double-flowered Hyacinth known under this name. We have before us spikes of the pink form from Messrs. CANNELL, and there are also double blue and double white varieties. They are simply varieties of *H. orientalis*, and have not, in our opinion (we are speaking from the gardener's point of view), anything to do with the ordinary Roman Hyacinth (*Hyacinthus precox*), the history of which was given in the *Gardeners' Chronicle*, Feb. 1, 1879, p. 145. The Roman Hyacinth has nothing to do with *Hyacinthus Romanus*—one more proof of the inconvenience of using vague popular names instead of those which are subject to rule, and can be verified by those who care enough about the matter to take the necessary trouble.

— PIERIS SERRULATA CRISTATA.—Wherever there is much ferning to be done the "Chiswick variety" of this Fern should be cultivated as special ornaments for sitting-rooms or in suitable sizes for the dinner-table. The plant is somewhat expensive, owing to the fact that the stock cannot be raised from spores but by division, which of course renders it more valuable. It is, however, well worth its price; the points of the fronds are beautifully crested, and a pair of plants well grown and a good match would bear favourable comparison with anything else that could be mentioned as decorative subjects for a library or sitting-room. From experience we can also add that it stands gas well.

— BOTANIC GARDENS, TOMSK.—It has not fallen to the lot of many of our readers hitherto to have to address their letters to the Director of a Siberian botanic garden; nevertheless we hope that it may not be long before communications are opened up between the remote Siberian town and the rest of the horticultural world. A University has lately been founded there, and now M. SCHESTAKOFF is about to found a botanic garden there for the purpose of supplying the students with means of study, and of collecting together all the plants likely to resist the severe winters. Seeds can be sent by post to Tomsk, so that it is to be hoped that some of our amateurs and nurserymen will supply seeds to the Director, in return for which he will forward other seeds of shrubs, hardy perennials, and the like, from this region of North Central Asia. Funds are not forthcoming yet for the garden, so that M. SCHESTAKOFF will have an uphill task, but may rely, we hope, on the sympathy of his European confrères.

— PROLIFEROUS CONES.—Adverting to the cones alluded to and figured in a recent number (p. 112), Professor EICHLEN, the Director of the Imperial Botanic Garden at Berlin, writes that in his opinion the seed-scale is only an excrescence from the outer scale or bract, so that the two really constitute one leaf, and the bud or branch in the axil of the bracts in proliiferous cones are not to be considered as transformed seed-scales, but as axillary buds to the



composite leaf just mentioned. The *Sciadopitys* offers no exception to this explanation. M. VAN VOLKEM's remark as to the frequency of the occurrence of proliferation in this plant in Japan is interesting in relation to the great frequency with which *Cryptomeria* is similarly affected here. If some of our Japanese friends would kindly send profliferous cones of *Sciadopitys* in various stages they would be rendering a service.

— PRESENTATION TO MR. SAGE. — The *employés* in the gardens of the Earl of BROWNLOW at Ashridge presented MR. SAGE, on the 13th inst., with an illuminated address and a writing desk of Spanish Walnut, as a slight acknowledgment of the kindly interest he has shown in their welfare during the twenty-four years he has been Head Gardener at Ashridge. As we have before mentioned, MR. SAGE is about to take charge of Lord BROWNLOW's other garden establishment at Belton, Grantham, and it must be very gratifying to him to know that among the forty men and boys employed at Ashridge there is but one feeling—that of regret at his leaving—their loss being that of a good master and a true friend.

— "FLORA EUROPEA." — Prof. KANTZ, of Kolosvar, has published, under the title of *Klitzky's Griechische Flora*, the small fragment of a *Flora Europæica* drawn up by the late Prof. GRIESEBACH. Unfortunately it comprises but five orders—Ranunculaceæ to Crucifera, and is only interesting as showing what had been the author's intention.

— ESSEX FIELD CLUB. — We understand that at a meeting of this society to be held at Buckhurst Hill this (Saturday) evening, the desirability of directing public attention to the pressing necessity which exists that some means should be adopted for the protection of our native animals and birds from wanton destruction by gamekeepers and others will be brought before the Club by Sir FOWELL BUNTON, Bart., Verderer of Epping Forest. Zoologists, and lovers of Nature generally, whether members of the society or not, are earnestly requested to attend and take part in the discussion.

— THE SEASON. — "In the open air," Mr. BURBIDGE writes from Dublin, "we have *Chionodoxa Lucillie*, *Scilla bifolia*, *S. sibirica*, *Leucoium vernum*, *Narcissus Tazetta* var. *floribundus* (from St. Michael's Mount, Penzance), and one or two others of same race; *N. minor*, *N. pseudo-Narcissus*, *N. major*, *N. maximum*, all opening their first flowers. *Chionodoxa* is very variable; some small narrow-rayed stars very pale, nearly white in fact; others stout and broad-rayed flowers, nearly 1½ inch across, and dense blue, with clear white centre. *Anemone fulgens* and seedling *A. coronaria* bear their company. In the houses: our *Ouvirandra* has a leaf-blade 1½ by 5½ inches, petiole 4½ inches. *Corylogyne Lemoniana* is blooming nicely; so also *Cypripedium Dominicanum*, *Cattleya Warscewiczii* var. *dehata*, *Phalenopsis Schilleriana*, *Odontoglossum pulchellum majus*, *O. Rossii majus*, *Oncidium cucullatum* var. *atropurpureum* has been in bloom ten weeks, equal seven days, and is yet fresh and sweet-scented. *Jasminum gracillimum* opened its first flowers with an Irish sun to-day, Feb. 21."

— KOLOSVAR. — We have received the exchange list of the Botanic Garden of Claudiopolis, better known as Kolosvar (Hungary). Dr. KANTZ's zeal and courtesy are well known.

— ST. PAUL'S CATHEDRAL. — A "Lover of Trees" writes to *Land* to propose that a handsome tree should take the place of the statue of Queen ANNE, in front of St. Paul's. We have heard doubts as to the desecration of this Royal lady, and we cannot help doubting the confident assertion of the writer aforesaid, that "A Cedar of Lebanon or a Deodar Cedar would look majestic in this position, and would probably last for centuries as a memorial of the Victorian era. I have before suggested," says the writer, "that the QUEEN should plant a City tree. What better opportunity than this could offer?" What a valuable suggestion—a majestic Cedar of Lebanon or a Deodar in such a situation! Can the gentleman have meant an "Arbor-vitæ," but even that would not last for centuries in such a place. A "Lover of Trees" may love well, but he certainly does not love wisely, or he would laugh at the absurdity of his own suggestion; but perhaps he is anticipating the results of the Smoke Abatement

Exhibition, and the purification of the soil from gas contamination consequent upon the general use of the electric light; but it is impossible to account for the imaginings of one who would plant a Cedar of Lebanon or a Deodar in front of St. Paul's.

— ROYAL FLORA SOCIETY, BRUSSELS. — We have received the programme of the important exhibition to be opened in Brussels on April 30. The schedule comprises 132 classes, and is so drawn up as to include several features of interest. English exhibitors should put themselves into communication with M. LUBBERS, 26, Rue de Berger, Ixelle.

— INDIARUBBER IMPORTS FOR 1881. — From Messrs. DECHT, LEVIS & KAHN's caoutchouc report for 1881 we learn that the consumptive demand for all kinds of indiarubber was good throughout the year. Fine Para rubber realised the highest price of any in the market, commencing in January at 35 per pound, and advancing almost without interruption to 37.7½d. in May, declining in August to 36.3½d., and rising gradually again till it reached 35.9d. per pound in December. The total exports from Para to all ports are estimated at 930 tons, against 8450 tons in 1880—an increase of 550 tons against 1880. The imports into London and Liverpool have been 3855 tons in 1881, against 3765 tons in 1880, showing an increase of 87 tons. Of the total exports from Para, estimated at 930 tons, the United States have taken 5175 tons direct from Para, being again an increase of about 500 tons as compared with 1880. This, combined with the very heavy quantity taken from this country, shows a largely increased consumption in the United States.

— CORBULARIA MONOPHYLLA. — This lovely little *Narcissus*—one of the most charming of all hardy bulbous plants—is now in bloom in the herbaricæ department at Kew. It is planted out under a handlight in the open bed, the protection afforded it being directed more against superfluous moisture than mere cold. Mr. BAKER regards it as a white-flowered variety of the well-known *Hump-petticoat*, *Narcissus bulbocodium*, the *Medusa's Troop* of the French. The late Mr. GILES MUNBY placed on record in these columns for 1869 (p. 335) some most interesting particulars about this little gem. He says:—"Having had occasion to-day to consult my herbarium concerning the genus *Narcissus*, I was surprised on finding two bulbs of *Corbularia monophylla* with living leaves about an inch long. One of these bulbs I gathered at Oran (Algeria) in January, 1848, and the other at Tlemcen, on the frontiers of Morocco, on March 23, 1857. I immediately planted the bulbs and put them in my greenhouse, where I have no doubt they will flourish, and in all probability flower next spring after (for one of them) a rest of twenty-two years." These bulbs did produce flowers, as Mr. MUNBY expected. Somewhat similar instances of prolonged vitality under similar conditions are on record; for example, *Lewisia rediviva*, the figure of which in the *Botanical Magazine* was prepared from a plant which had undergone treatment calculated to destroy every vestige of life even in the most tenacious subjects.

— NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY. — The first monthly meeting of this newly organised Society was held in the Society's rooms, Morley House, Nottingham, on Thursday, Feb. 16, under the presidency of Mr. S. THACKER. The Society has been inaugurated with the object of advancing the horticultural interest, and holding monthly meetings at which members are invited to read papers on any subject connected with gardening. At the first meeting Mr. FOWNALL, of Lenton Hall, read an interesting and instructive essay on "The Gardener and his Position," which was afterwards fully discussed by the members present. Mr. SWANWICK, of Sherwood Lodge, showed a fine specimen of *Dracæna Goldiana*, which was much admired; and from Mr. EDINGTON, of Woodthorpe Grove, came a very fine spike of *Lælia albida*, some flowers of which had been sent to Messrs. VEITCH, who expressed a very high opinion of the variety. The same exhibitor showed a fine collection of blooms of *Primula sinensis* remarkable for their size and colour. A vote of thanks was awarded the essayist and both exhibitors. We understand that the Society has every prospect of success, and is being taken up by the principal gardeners and amateurs in the neighbourhood. Although only a month in existence,

it already numbers upwards of fifty members and subscribers. The Honorary Secretary is Mr. JAMES DON, manager for Messrs. BARRON & SON, Nottingham.

— PLANTS OF ROMANIA. — Dr. KANTZ has now completed his enumeration of the plants of this region (Moldavia, Wallachia), originally published in the Hungarian *Journal of Botany*. The flowering plants amount to 1802 in number, 1573 of the number being *Tricetyledonous*.

— THE CITY OF LONDON DAY CENSUS. — The ordinary census is based on the enumeration of all those persons who slept or passed the night at a given date in a particular locality. It is evident, even in the case of the metropolis generally, that as so many persons now sleep in the suburbs, the result must be very fallacious, and this remark applies with special force to that comparatively small district the City proper. Small though it be no one will deny its vast importance from a commercial point of view. The City authorities then did wisely to organise a day census, and this they did by ascertaining the number of persons actually resident within the City boundaries, and the number of persons entering the City during the day on foot, by rail, or other conveyance. The report before us gives a very interesting summary of results, to some of which we may here allude. The number of persons residing in or employed in the City during the day was 261,061, of whom 105,577 were adult males; 44,179 were females, and 21,305 children under fifteen. The total number of persons who entered the City by one or other of the entrances amounted to 707,563. Of these, 589,468 entered between 5 A.M. and 5 P.M., 739,640 during the sixteen hours between 5 A.M. and 9 P.M. inclusive, and 57,923 between 9 P.M. and 5 A.M. The number of vehicles of all kinds (except railway trains), was 71,893, thus distributed:—53,312 between 5 A.M. and 5 P.M., 66,900 between 5 A.M. and 9 P.M., and 4984 between 9 P.M. and 5 A.M. Of the total vehicles 15,066 were cabs, 6176 omnibuses. It will be remembered in endeavouring to estimate the amount of the traffic that these figures represent the passage of persons and vehicles into the City only. The exits may be estimated at about an equal amount. The total number of persons who were in the City during the night of April 3–4, 1881, was 59,526, a reduction to the amount of 32.5 per cent, as compared with 1871. On the other hand, the results of the day census in 1881, as compared with that of 1866, shows an increase of 54.4 per cent. The increase of persons entering the City since 1860 has been at the rate of 90,912 daily. The daily traffic in one direction only over London Bridge is estimated at 78,914 passengers and 10,733 vehicles. The City stands first in rateable value and assessment for Income Tax of all the towns in England. More than 4000 houses occupied during the day are entirely unoccupied at night, being left entirely to police supervision. As an illustration of the fallacies that arise from considering the night population only as the general census does it may be mentioned that one building alone occupies 1 acre of ground, rated at £5000 per annum, and let out in 135 different tenancies, and occupied by 252 employers and 275 employes, making in all 527 persons: represented in the Imperial Night Census by only four people! The amount of Income Tax under Schedule D. (Commercial) is £39,263,424—a far larger sum than in any other district of the metropolis, and more than seventeen of the most populous towns in England put together. An analysis is given of the various trades and employments followed by the residents and frequenters within the City boundaries. Nurserymen do not make a very large show, as, indeed, might have been expected—the numbers under this head, including "Nurserymen and florists, horticultural sundriemmen, and gardeners," being only thirteen. Under the head of Fruit and Vegetables are included—"Fruit brokers, fruit salesmen, fruiterers, fruit merchants, fruit dealers (dried) [the fruit, we presume, not the dealers]; vegetable salesmen, Potato salesmen, greengrocers, Watercress salesmen, hay and straw salesmen"—the total amounting to 343.

— "AGRICULTURAL STUDENTS' GAZETTE." — The last number of this periodical, edited by students of the Royal Agricultural College, Cirencester, contains a report of Miss ELEANOR ORMEROD's lecture on insects injurious to farmers, and on the mysteries of parasitic life, by Professor BROWN, in which, in addition to the older and better known parasites, the

Bacteria and the wonderful history associated with them are treated of.

— **BAILLON'S "HISTOIRE DES PLANTES."**—The part containing the *Compositæ* has just been issued, which it will be instructive to compare with the recent recension of Mr. BENTHAM in the *Genera Plantarum*. At a glance we perceive that the number of genera, which Mr. BENTHAM estimates at 800, is put down by M. BAILLON at 403. Dahlia is referred to *Bidenes*. The woodcuts are of their usual excellence.

— **THE "FLORIST AND POMOLOGIST."**—The contents of the February number are varied and interesting. In addition to the articles descriptive of certain varieties of Dahlia and of Plums, to be alluded to under the head of Plant Portraits, there are articles on Vine and Vine culture, double Scabions, Auriculas. The register of novelties is likely to become a most useful feature.

— **BRITISH MOSS FLORA.**—We have the satisfaction of announcing that the fifth part of Dr. BRAITHWAITE'S illustrated *History of British Mosses* is now published. Both plates and text evince the care and fidelity of the author.

— **MESSES. HURST & SON.**—In reference to the future management of this business, to which allusion was made in the obituary notice of the late Mr. WILLIAM HURST, we are requested to state that at the time Mr. SHEEWOOD was taken into partnership Mr. JOHNSON was also assigned an interest in the business, which will be continued as before, the business having been conducted by them conjointly during the illness of Mr. HURST.

— **PROLIFEROUS HYACINTHS.**—Mr. FRANK SOUTHAM, gr. to J. C. HAITER, Esq., The Cedars, Leamington, informs us that he has a bulb of *Norma*, in a 48-pot, which is now bearing fifteen spikes of flowers, with an average of 10—14 good pips on each spike.

— **LINNEAN SOCIETY.**—At the meeting to be held on Thursday, March 2, the papers to be read are—1. "On the Habits of the Coral-reef Annelid (*Palafo viridis*)," by the Rev. THOS. POWELL. 2. "The Lichens of New South Wales;" by CHAS. KNIGHT. 3. "Butterflies collected by Lord WALSHINGHAM in California;" by A. G. BUTLER.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright-sunshine, for agricultural and sanitary purposes, during the week ending February 20, issued by the Meteorological Office, London:—"The weather, though clearer than of late, has been generally cloudy, with occasional showers of rain. Temperature has again been above the mean in all districts, the excess varying from 2° on our south-western coasts to 4° on our north-eastern coasts. The highest reading recorded (57°) was registered in London and at Strathfield Turgiss on the 14th; while the minima, which occurred generally on the 16th, ranged from 27° in "Scotland, E." to 33° in "England, N.W." The rainfall has been a little more than the mean over eastern and central England, and equal to, or slightly less than the mean value elsewhere. Bright sunshine shows a considerable increase everywhere, the percentages ranging from 22 in "England, N.W.," and 23 in "England, S.," to 39 in "England, N.E.," and 51 in "Scotland, E." Depressions observed:—Pressure during this period, though high and comparatively steady in the south, has been subject to great and rapid changes in the north. Several depressions, some of which were very deep, have passed in an easterly direction over our northern coasts and across the North Sea, causing the wind to increase to a fresh or very strong gale from west or north-west in all the more northerly parts of our islands. At the close of the period, however, the weather was less disturbed, a large anti-cyclone being shown in the south-west, with moderate or light westerly breezes in nearly all parts of the kingdom.

— **GARDENING APPOINTMENTS.**—Mr. W. J. GILKS, late Foreman to Mr. DOUGLAS of Longford Hall, has been engaged as Gardener to A. HOWLAND, Esq., Higham Hill, Walthamstow.—Mr. JOSEPH THOMAS MULLIS, late Gardener to H. WILLES, Esq., Pittinaston, Worcester, has been engaged as Head Gardener to his Grace the Duke of DEVONSHIRE, Lismore Castle, Ireland.

MILTON PARK,

ONE of the seats of Earl Fitzwilliam, 3 miles from Peterborough, in a park of over 1300 acres in extent and containing some remarkable specimen trees the history of which is almost as far-reaching as that of the noble family to which they belong.

At the east side of the park there is a huge Oak, 26 feet in circumference, in which the late Earl, who was a great lover of trees, took a deep interest. From the north front there is a grand view through an avenue of Oaks leading to the church, and a fine view of Thistlemore Wood. The north front of the house is in the Tudor style of architecture and the south front Italian, and good views of the surrounding country are obtained from all sides of the building. The River Nene, which parts Northamptonshire from Huntingdonshire, flows through the grounds, and is spanned by an ornamental bridge, from which a fine tract of country is in view, and many pleasant local sights, including the charming Allwath Linn, situated at a high elevation with the Nene running parallel with its base. The Linn, as it is locally called, is in the form of an avenue about 1½ mile long with a wood on the left and a steep bank on the right running down to the water's edge. On this bank there are some fine Cedars, Oaks, Beeches, Views, &c., with openings which give some fine views of the country looking across the Nene valley.

The principal carriage drive is over a mile long through the sheep park and deer park, both of which afford much variety of scene and magnificent rural sights. There are several giant Elms in another portion of the grounds which are nearly eaten through by decay, but which are still preserved with the utmost care, and singularly enough, notwithstanding their decrepit appearance, there are still some of the limbs apparently possessing full life and vigour. The great interest which attaches to these trees is not so much because of their great age as because of their history. It was under their branches Sir William Fitzwilliam entertained Cardinal Wolsey, who had offended Henry VIII., and who had taken flight from the offended presence of his Majesty. Sir William, fearing to give offence to the king, and being in some way indebted to the Cardinal, selected the shelter of the Elm trees to hold a banquet, in order that it might not be said he had entertained the Cardinal in his own house. The trees, which form an ancient-looking group, are called the "Cardinal Wolsey trees," and are certainly more curious to look at than they are pretty in appearance. Traversing the pleasure-grounds from the mansion in a westerly direction there is a broad Yew avenue leading to the lake, by the side of which there is a curious group of Horse Chestnuts growing in the most grotesque manner. Their branches upon touching the ground curve like a hoop, and shoot up again perpendicularly with increased vigour, which forms a very interesting spectacle by the side of the lake. Whether the branches have been "layered" or have rooted of their own accord there does not appear to be any record, but to the practical eye the "curve" is too neatly formed to be of spontaneous growth. The conservatory is an old-fashioned structure with glass domes, and contains Tree Ferns, Orange trees, Camellias, and Myrtles. By the way, what a pity the latter are not more grown for the embellishment of such structures. The pyramids in the conservatory of Lowther Castle would tempt any one into growing Myrtles either for adorning conservatories in winter, or for turning out-of-doors in summer. From the front of the conservatory a pleasant peep is obtained of the lake, and also of several fine Chestnuts, Cedars, and Weeping Willows by the side of the lake. The fancy ducks of American breed are also very attractive upon the lake.

The kitchen gardens at Milton are extensive, the principal one enclosed by walls being over 4 acres, besides two or more smaller ones equally productive. The walled-in garden is cut in two by a central broad walk. The garden was entered by the south-east side, and at first sight you can see that order and skill are not wanting in its management. There is nothing untidy, nothing out of place, whether it be fruit trees, vegetables, or plants, of which many are grown in the long borders fronting the houses. The south-east wall is stocked with healthy Peach trees in bearing. Apricots are upon the north-west and west walls, and Plums upon the east wall. The ranges of glass structures are, of course, upon the south

wall. Mr. Trigger grows herbaceous plants extensively, and arranges them effectively. Perhaps there are few places where the same extent of borders are so well arranged with hardy plants, of which the following are the most striking and useful:—*Monarda didyma*, *Salvia glutinosa*, *Statice latifolia*, *S. incana*, *Enothera macrocarpa*, *Echilobium angustifolium album* and *roseum*, *Echinops striatus*, *Veratrum nigrum*, *Funkia grandiflora*, *F. ovata*; *Geranium sanguineum*, *striatum*, and *pratense*; *Galega officinalis*, *Clematis integrifolia* and *C. integrifolia erecta*, the lovely *Bocconia cordata*, *Tritoma aurea*, *Veronica longifolia*, *Tradescantia virginica*, *Hemerocallis flava* and *H. fulva*, and many others of less note and not so useful for practical purposes. The rock garden at Milton is more than the majority of things called by that name in most private places, and which unfortunately are often mere rocks or roots than plants either of interest to the plant lover or of utility to the practical gardener. Mr. Trigger has the hardy Ferns neatly arranged, legibly named, and in good health, so that if you are at all up in plant nomenclature you can read, judge, and admire for yourself to your heart's content. There are many Saxifages and other alpine plants in other parts of the rock garden, all of which succeed well and are showy during the spring months, when outside flowers are of all other seasons the most welcome and beautiful. The garden in which the rockery is located is enclosed upon the east side by a Yew hedge 15 feet high, which is a striking sight even now before a leaf has fallen, but which is much more handsome when deciduous trees are naked and there are few other counter attractions.

In the glass structures I noticed the fruit department was particularly well done; the early crops were at the time of my visit gathered, but the trees and plants of all kinds were in the most vigorous health, the Peach trees especially being unusually healthy and well grown. Mr. Trigger grows a nice collection of Orchids in the plant stove, and neither stove plants nor Orchids seem to be any the worse for each other's company. The plain fact is that Orchids can be grown with ordinary intelligence and care anywhere. The following list, grown in conjunction with stove plants, will serve to illustrate the accommodating nature of Orchids, and the simple conditions under which a great many species may be cultivated:—*Vanda teres*, *V. gigantea*, *V. tricolor*, and *V. insignis*; *Cattleya Skinneri*, *C. crispata*, *C. Trianae*, and *C. Mossiae*; *Coclogyis cristata* and *C. barbata*, *Calanthe Veitchii*, *C. vestita*, *roseana* and *C. Turnerii*; *Laelia anceps* and *L. Dayana*, *Trichopilia suavis*, *Arculis odoratum*, *Sobralia macrantha*, *Dendrobium Dalhousianum*, *D. Wardianum*, *D. densiflorum*, *D. thyrsiflorum*, *D. macrophyllum*, *D. leviomanum*, *D. heterocarpum*, and *Anselia africana*. Of course these are but a few of the best plants, many of which are approaching to specimen size, and are in a strong flowering condition. The stove plants that seemed worthy of mention consist of *Pandanus utilis*, *Cycas revoluta*, *Pancretium fragrans*, *Alpinia nutans*, *Strelitzia regina*, several Palms, *Dracenas*, *Crotons*, and other tropical plants, favourite kinds grown for special private purposes. The Rose-house is one of the most interesting structures upon the place, and although the plants were at rest it was clear from their condition that the time was not far distant when they would supply those rich treasures which are ever the product of a well-managed Rose-house, viz., cut Roses from November to March, after which the stock is plentiful enough everywhere. The greenhouse and show-house were gay with flowering *Begonias*, *Celosias*, *Pelargoniums*, *Balsams*, *Petunias*, and *Fuchsias*; and smaller structures were stocked with winter-flowering plants in quantities. Cucumbers and Melons are grown in span-roofed houses; and Tomatoes, a very fine strain, are grown upon every available foot of wall from 1 to 3 feet high. The crops of hardy fruits were plentiful, and vegetables of all kinds successfully grown in every quarter of the garden. Of vegetables a selection of Dell's Beet was a splendid crop of roots, such a strain as would be worth perpetuating, and which should be brought prominently into public notice. The various garden offices are commodious and in good order, even the compost ground and kindred places indispensable in a garden are each and all kept neat and tidy—and as it is a pleasure to inspect the cultural condition of the garden so it is an equal pleasure to note the system upon which the general management of the garden is conducted under the guidance of an able and intelligent practitioner, who succeeds with everything he undertakes in a manner that leaves nothing more to be desired. *Reporter.*

DEW AND HOAR FROST.

ALL plants require moisture in order to live and grow, and Nature has provided in the abundant supply of this element one of the principal factors which determine the greater or less vigour of the growth of plants upon the earth.

It is to the copious dews that we have in a great measure to attribute the productiveness of the meadows bordered by rivers.

Water covers about three-fourths of the surface of the globe as ocean, partly in a solid condition, as at the extreme north; partly fluid, as in all warmer regions; it flows through the land in all directions in the form of rivers; it ascends into the air as vapour, and falls again to the earth as rain, snow, or dew. This continuous circulation of "water" produced by "heat," is the especial agent which penetrates the earth, filling it with life and prosperity.

Where water exists the sandy desert changes into a luxuriant oasis; where it is absent, even the greatest richness of soil remains a "waste," and unproductive.

Dew, which forms our particular subject, is the humidity which the air under certain circumstances deposits in the form of minute water globules on the surfaces of the bodies in contact with it. For instance, on the withdrawal of the sun's rays the atmospheric air becomes colder, consequently the blades of grass, and leaves of plants become chilled from exposure to the influence of the cold, and in their turn cool the damp air which touches them, and cause it to drop its moisture upon their exposed surface. When the condensation of vapours occurs by contact with cold solid bodies it is called "dew;" when, on the contrary, the whole body of air is cooled, "mists," "clouds," or "rain" is formed. It is probable that if it were not for the effect of dew the rapid escape of heat from the earth by radiation, the temperature of the soil would become so depressed during the sun's absence, that the extremes of heat and cold in the course of twenty-four hours might be so great as to destroy vegetable life in the summer season; and it is generally after nights of copious depositions of dew that the mornings are the brightest, and the sun's heat the most powerful.

Dew is only formed beneath a calm and cloudless sky, and never in windy weather, for under the influence of wind the moisture of the earth is carried off with extreme rapidity. A north wind also checks its production, but a gentle southerly breeze, charged with humidity, will occasion a copious deposit. When the atmosphere has a temperature below the point of congelation, the dew, which might adhere to the substances exposed, passes into the form of hoar frost. It is also found that if the temperature of the earth's surface sinks during the night down to freezing point, the particles of water deposited become solid and form hoar frost.

A deposit exactly similar to dew is formed whenever the air becomes suddenly chilled, by touching any surface colder than itself. Thus the walls of long passages, vaults, or massive buildings generally, drip with wet during the early part of the summer, before the external warmth has sufficiently penetrated.

Leslie says—"In fine, calm weather, after the rays of the declining sun have ceased to warm the surface of the ground, the descent of the higher mass of air gradually chills the undermost stratum, and disposes it to dampness, till their continued intermixture produces a fog or low cloud. Such fogs are, towards evening, often observed gathering in narrow valleys or along the course of rivers, and generally hovering within a few inches of the surface."

In clear and calm weather the air is always drier near the earth's surface during the day than at a certain height above the ground, but it becomes damper on the approach of evening; hence, dew is always more dense on grass and low-growing plants than on the leaves of shrubs which stand up some feet from the ground.

Many substances are endowed with the property of radiating their heat, and of thus becoming cool with different degrees of rapidity, and it is found that those substances which in the air become cool first, also attract the most quickly and abundantly the particles of falling dew.

Dr. Wells in his observations on the deposition of dew found that grass became 12° colder than ordinary garden mould, and 16½° colder than a hard gravel-walk; hence we find that dew deposits the most readily on living vegetation, and that well-pulverised soils draw more dew than those which have a

hard surface, and are close and compact. Wherever the atmospheric air can freely penetrate there the depositions of dew under favourable circumstances take place. Sandy soils are powerful attractors of moisture, and on the sandy plains of Chili, where rain is scarcely ever known to fall, vegetation depends almost entirely on the nightly depositions of dew for its support.

It has been estimated by Dalton that the amount of dew which is annually deposited upon the soil amounts to about 5 inches, equal to more than 500 tons of water per acre. But the meteorological records inform us that the yearly rainfall on the eastern side of our island amounts to about 25 inches, while 40 inches, or nearly double the quantity, is precipitated on the western side; and, as we find the rainfall varying considerably at different seasons and in different localities, so we know it is in the case of dew.

Steinmetz remarks that "the quantity of aqueous vapour in the atmosphere is greatest in equal latitudes on the sea-coast; it diminishes in proportion as we advance into the interior of a continent." In Algeria, at the stations on the coast, after the driest and hottest days, immediately the sun has set the soldiers' uniforms become wet with dew, and in a single night the blades of knives in the pocket become rusted, but at 30 miles from the sea night exposure is not attended with any inconvenience from the humidity of the air.

In countries near the equator the depositions of dew are much more abundant than in England, owing to the greater amount of heat absorbed from the sun during the burning heat of the day.

The quantity of vapour which the air is capable of holding in suspension is dependent upon the temperature, and we always find the atmosphere in the vicinity of currents of water more highly charged with moisture than it is in the uplands. In India the deposition of dew near the rivulets when all around is perfectly dry is said to be exceedingly marked. Colonel Sykes observes that "When in Poona in September and October, 1850, if there was no dew anywhere else it was found on the banks of rivulets and the Mota Mola river, but 15 to 20 feet from the water were the limits of the deposition."

Turning now to the composition of rain, dew, and hoar-frost, Boussingault has given the following analyses of samples collected at Paris and Liebfrauenberg in the year 1853:—

Table 1.—Showing the Composition of Rain, Dew, and Hoar-frost, in Grains per Imperial Gallon.

	Ammonia.	Nitric Acid.	Total Nitrogen.
Rain { Paris	0.210	0.0788	0.2888
{ Liebfrauenberg .. .	0.2159	0.1440	0.3600
Dew { Liebfrauenberg } Maximum .. .	0.4310	0.0755	0.5065
{ } Minimum .. .	0.0744	0.0030	0.0774
Hoar-frost { Paris	0.9600	0.7092	16.3092
{ Liebfrauenberg .. .	0.1711	0.0716	0.2427

It thus appears that in Paris the quantity of nitrogenous matter brought down in the rain-water is six times as great as it is in the country (Liebfrauenberg), a result no doubt due to the ammonia evolved during the combustion of fuel and to animal exhalations; and to the same cause may be attributed the excessive quantity of nitrogen found in the fogs of Paris. We also observe that dew is richer in plant-food than rain, which may serve to some extent to explain its remarkably invigorating effect on vegetation.

Again, Lawes, Gilbert, and Warington have lately published in the *Journal of the Royal Agricultural Society* the following analyses of rain, dew, and hoar-frost collected at Rothamsted, and determined by Dr. Frankland.

Table II.—Showing the Maximum, Minimum, and Mean Amounts of Certain Constituents in Sixty-nine Samples of Atmosphere collected at Rothamsted, in parts per million.

	Total Solid Matter.	Carbonic Acid.	Organic Matter.	Nitrogen as			
				Ammonia.	Nitrates and Nitrates.	Total Nitrogen.	Chlorine.
Highest proportion ..	85.1	17.9	0.04	0.03	0.14	1.04	10.5
Lowest proportion ..	6.0	2.1	0.03	0.04	0.01	0.1	0.0
Mean sixty-nine samples ..	31.7	0.02	0.10	0.17	0.07	0.24	2.1

Vol. XXVI, pt. 1. Mean of thirty-four analyses.

Table III.—Showing the Maximum, Minimum, and Mean Amounts of Certain Constituents in Sixteen Samples of Dew and Hoar Frost, Collected at Rothamsted, in parts per million.

	Total Solid Matter.	Carbonic Acid.	Organic Matter.	Nitrogen as			
				Ammonia.	Nitrates and Nitrates.	Total Nitrogen.	Chlorine.
Highest proportion ..	30.0	1.50	1.06	2.51	0.59	4.55	8.0
Lowest proportion ..	26.4	1.95	0.26	0.47	0.28	1.66	3.5
Mean, seven samples ..	18.7	0.64	0.76	1.53	0.46*	2.79	5.3

In the analyses by Boussingault of aqueous deposits collected at Liebfrauenberg we find that dews are twice as rich in nitrogenous compounds as rain-water, while at Rothamsted, from analyses made by Dr. Frankland by improved methods, nearly twenty years later, we find that these small deposits condensed from the lower stratum of the atmosphere contain on an average three or four times the amount of organic carbon, organic nitrogen, ammonia, and nitric acid found in the analyses of rain-water. The total quantity of solid matter and the amount of chlorides is also larger, but the difference is much smaller than in the case of the other ingredients.

It may be asked why snow and hoar-frost should be white? The question is a natural one, but the answer is easily given. If snow had been black it would have rapidly absorbed the sun's rays and been thawed by the first sunshine which fell upon it, the result of which would have been that vegetation, being prematurely deprived of that protection which Nature intended to guard it against the cold, would have died in the frosty air as soon as the sun had set. But the heat-reflecting and non-conducting "white snow" and "hoar-frost" are of the utmost importance as a protection against sudden alterations of heat or cold, for while it is melting its temperature never varies from 32° Fahr., and the plants which are enveloped in it rarely suffer a much lower, and cannot be exposed to a higher temperature. Hence we observe that frosts in spring or in early autumn generally do more damage to vegetation than the prolonged frost and excessive cold of winter, because the sun's rays act quickly upon the unprotected frozen plants, and by a sudden alteration in their warmth induce a change inconsistent with their vitality. Therefore gardeners during the winter season should take as much care to protect their plants from the sun's heat as from the frost's cold. J. J. W., Harpenden, February, 1882.

PLANT PORTRAITS.

BATAFAS PANCULATA, Garden, December 24.—A very handsome stove twiner, with deeply palmately lobed leaves with narrow segments and pink funnel-shaped flowers of large size and great beauty. Hort. Kew.

BEGONIA DAVIESII (double-flowered), Floral Mag., t. 477.—A fine double red, symmetrically formed flower. Messrs. Laing & Co.

CARNATION CHISWICK RED, Floral Mag., t. 480.—A Clove Pink, with small, very brilliant red flowers of medium size, good form, and very fragrant. Raised at Chiswick.

CHRYSANTHEMUM (NODORUM FL.) PLENO, Garden, t. 1055.—A reproduction, unacknowledged, of our figure at p. 753, vol. xii.

ODONTOGLOSSUM YENILLIKURUM, Belg. Hort. t. 14, 1880; Rehl. t. Gard. Chron. 1867, p. 901.—Figured in 1873, p. 644.

ONCHICUM WELTONI STERUM, Rev. Hort. December 1.—A fine variety, with a denser and more compact spike than usual.

OPUNTIA KAFINESQUI, Garden, Dec. 3.

PEACH BELLE IMPERIAL, Bull. d'Arboriculture, December, 1881.—A first-class late Peach of large size, fine colour, and vinous flavour. It originated at Montreuil in the garden of M. Chevalier, but nothing is said as to the character of the glands, size of flower, or nature of stone.

VERISIA SCALARIS, Ed. Moit., Belg. Hort. t. 15, 1881.—An epiphyll Bromeliad, with tufted leaves, broad at the base, narrowing into a stalk, and again expanded into an oblong lanceolate serrulate blade. The inflorescence is spiral, pendulous, the flowers remote one from the other, and spreading horizontally, so as to give the appearance of a ladder, whence the name. The individual flowers are long, cylindrical, yellow flowers, emerging from scarlet bracts.

* Mean of four analyses.

HOME CORRESPONDENCE.

New Sorts of Potatoes.—I am anxious to get a complete list of all the kinds of Potatoes offered in commerce for the first time this season in Great Britain. I have already called from your advertising columns and other sources some twenty kinds, but am not sure whether there are not others not yet publicly mentioned. I think it will be found that the present year is the most prolific one of new kinds that has yet been known, and as a "Potatologist" I am very glad of it, because evidence is thus afforded that, so far from public interest in the Potato being on the wane, it is greatly on the increase. I am very hopeful, too, that many of the new kinds are really first-class acquisitions, and will make their mark. Although I am not authorised to say as much, yet it is just possible that the class for kinds of recent introduction in the next schedule of the International Potato show will, because of the large number of new kinds, and also because these are excluded from specially named classes, be increased to six sorts, and be confined to those sent out for the first time this year. Whether this arrangement be adopted or not at least all exhibitors will be pleased to learn what are the new kinds eligible for the competition. In any case I anticipate in that class a much larger competition than usual, and so highly do I think of many of the new sorts as exhibition kinds that I believe it will be easy to get from them half-a-dozen sorts that should hold their own in any competition. Any information from raisers of the trade would be thankfully received. *Alx. Dean, Bedford, Hounslow, W.*

Peziza coccinea.—This beautiful little fungus will keep its colour and last for months in a London drawing-room, if placed under a glass shade and kept moist. I gave some to a friend a few years ago, together with some of the Hampshire children call "the feather-moss," and was astonished to see all looking bright and fresh in Miss B.—'s room full three months afterwards, when I went up to London to stay with her. She had placed moss and fungi in a shallow dish on a little mould, and covered them with a glass shade. *Helen E. Watney, Lis.*

Pulmonarias.—The charming *Pulmonaria saccharata grandiflora* alluded to at p. 226, has been in bloom here in the open ground for the past fortnight, and well ranks amongst the hardest of hardy plants. Very singular indeed is the change of hue which takes place in its blossoms, for they are both bright red and bright blue on the same bunch, indeed I can liken them to nothing so much as red and blue Pimpernels, so pretty are they and yet so strangely contrasting. This *Pulmonaria* is too robust for rockwork except where it has ample leaf space and root room, for the roots will strike deep and wide. It makes a fine clump in a mixed border, especially where during the summer and autumn months it displays a fine marbled foliage as well as its large and finely marked terminal I think this has the handsomest foliage. It is but one of many hardy plants sold met with in gardens, and is, as too many hardy plants are, but little known. The peculiar floral passions of the age, in spite of what has been done to set them in a right direction, do not yet favour the growth of hardy plants. Five guineas is perhaps more often paid for a fashionable Orchid than for a hundred beautiful hardy plants; still worse, gardeners give them too little attention. Probably most of them are demanded more of all other departments than they do of hardy plants. *A. D.*

Confers Attacked by Fungus.—Our *Thuyas*—especially *Thuya aurea* and *elanitisima*—have for some time been covered with a parasite which rapidly proves fatal to them. I enclose you a sample of it, and shall feel much obliged if you will tell us its name, the reason of its appearance, if you are able, and also by what means we can most effectually rid ourselves from it, and prevent its visits in future. Destroying our correspondent's *Thuyas* is *Capnodium australe*, a close ally of *C. Footii*, so frequently sent us on Ivy, Laurels, and other evergreens. In some instances, but not in the present, this destructive fungus is associated with scale insects. *W. G. Smith.*

The Cyclamen.—The treatment required by this useful plant has often been explained, but as there are comparatively few private places where convenience exists for giving it exactly the treatment usually recommended, a short account of the system by which I have been fairly successful may be useful to some. The seed is sown in spring, not earlier than

March; the pan is placed in the stove until the plants are up, then removed to a vinery where the fruit is swelling. As soon as the corns are about the size of a Pea, they are pricked out about 2 inches apart in other pans, and when established removed to the greenhouse for a short time, and about the beginning of June to a cold frame. The frame occupies a sunny position, but is shaded from bright sunshine with tiffany; plenty of air is given throughout the day, but the plants are damped overhead and the frame closed early in the afternoon of bright days. Before the plants become overcrowded they are potted singly in 3-inch pots, the soil used fibrous loam, a little leaf-mould, rotten manure, and sharp sand. Though an advocate of firm potting for most things, I find that the Cyclamen and many other plants with thick roots do best when potted only moderately firm. During the month of August the lights are drawn off at night, to give the plants the benefit of the heavy dews; and in September they are kept off day and night. The plants are removed to a span-roof greenhouse about the beginning of October; this house contains a mixed collection of plants, so cannot be kept very warm; but the Cyclamens are placed at the warmest end, and in dull damp weather the pipes are just warmed every day, and the ventilators opened a little. From seed sown last March have corns an inch or more in diameter, and bearing from twenty to thirty flowers; they will be potted in 5-inch pots in a week or two, and remain in the greenhouse until the beginning of June, when they will be put in a frame and treated the same as last season. The full exposure in September is important in preparing the plants for wintering in a rather low temperature, and is also conducive to a free blooming disposition. This year mine were taken to a cold conservatory in good condition the first week in January, a little earlier than usual, owing most likely to the unusually large amount of sunshine in the early part of the winter. After flowering the plants are put in a cold frame, and about the end of April stood outdoors in a shady place; they are never allowed to become very dry at the root. Early in June they are turned out, the balls reduced, potted in 7-inch pots, and put in a frame to grow on, all the stock of this year being withered little or not at all. The beginning of June is earlier than often advised for potting old plants; but under cool treatment it is necessary, in order to have growth completed and flower-buds showing before colder weather sets in. *W. Crane, Quarterton Park, Co. Cork.*

Tecophilæa cyanocrocus and Leichtlini.—Like my friend Mr. Harpur-Crewe, I also got three bulbs of the above-named most lovely of blue-flowered spring-flowering bulbs in the course of last autumn from Herr Max Leichtlin, of Baden (one of the deep blue type and two of the turquoise variety, with purple throats), these are all now in full and beautiful bloom in a pot in my greenhouse, and are the admiration of every one who sees them; alongside of their large and more exquisitely coloured flowers the pretty little *Chionodoxa Lucillie* must hide its diminished head. When these bulbs came to me from Baden I was warned by Herr Leichtlin that being perfectly hardy (and having withstood a frost of 5° below zero in his garden in the open air without any protection and without sheltering in any way therefrom) they would grow without any attempt to cosset or force them in order to flower them successfully; I therefore plunged the pot in which I had planted them in a narrow border close to a low garden wall on the south side, where they remained the whole winter and till the plants were an inch above-ground, when, finding the slugs beginning to pay them attention, I lifted the pot into the greenhouse, where the blooms expanded early in this month. Each bulb made two stems, and the deep blue form (or type) has the larger and the lighter blue variety seven. They seem, however, to vary considerably both in size and substance of flower and in depth of colouring, as Mr. Crewe describes his flower in your last issue as with a distinct white throat, whereas mine is of the deepest gentian blue with only the faintest white lining towards centre; and in the paler variety the flowers of one of my bulbs is much thinner and less perfect than the other, and would be almost more correctly described as a white flower with pale blue tints to the corals, whereas the other bulb is distinctly blue flower with pure white throat. Herr Leichtlin says the flowers of his variety should be nearly twice the size of those of the type when the plant is grown altogether in the open air, but with me they are both about the same size. *W. E. Gumbilton.*

Mice in Gardens.—At different times, for some years past, these destructive animals have done much mischief in the garden here. We have five kinds, each one doing his share of mischief at different seasons, and in various ways. They are the house or barn mouse, the long-tailed field mouse, the short-tailed, called here the badger-mouse; the small black

mouse with long nose, which is not so troublesome as the former kinds; and last, but not least, the sleeper, or dormouse, which only comes in the summer season—but the mischief he does in a few hours is almost incalculable, either amongst nuts or wall fruit, such as Apple-trees, Peas, Flums, Cherries, &c. As he works by daylight, a careful watch will trace out his path in the tree, when a small iron trap, called here clams, baited with a nut, will soon tempt him to his destruction. The two first are very fond of the seeds of Peas, Beans, Radishes, and all the Brassica tribe, after sowing. Both the long and short tail kinds are very destructive to young Cauliflowers, Lettuce, Endive, and Finks, in cold frames. This season they have barked the stems of Broccoli, some being eaten through the crown; others have the young leaves eaten out at the heart. In summer they visit the Peas when fit to gather and young Potatoes in the ground. One season, the ground being covered deeply with snow, they burrowed under the Seakale and Rhubarb pots, eating out the crowns and damaging the crop to a great extent. I always use the same trap and bait as mentioned before, and catch them by day and night, having lately killed a great number. I have no doubt those who are troubled with these pests can do the same. The traps can be had at any ironmonger's at a cheap rate. I also use the same trap and bait for small birds in the seed-beds, &c. The "Perpetual Mouse-trap," mentioned at p. 229, is very good for the common mouse, but those that feed on herbage are not so easily tempted to enter in. *Wm. Divers, Winton House, Maidstone, Feb. 20.*

Protecting the Blossoms of Fruit Trees.—Now that the time for taking action in the matter of protecting the blossoms of our choice fruit trees from the effects of frost, with a view to securing crops of fruit therefrom, is near at hand, a word or two respecting the next best material to glass for this purpose may be acceptable to those of your readers who may now, with this object in view, be contemplating the protecting of their fruit trees, but find it difficult to decide upon the best material with which to protect them. To those I wish to say, day and night, having lately killed a great number. I have no doubt those who are troubled with these pests can do the same. The traps can be had at any ironmonger's at a cheap rate. I also use the same trap and bait for small birds in the seed-beds, &c. The "Perpetual Mouse-trap," mentioned at p. 229, is very good for the common mouse, but those that feed on herbage are not so easily tempted to enter in. *Wm. Divers, Winton House, Maidstone, Feb. 20.*

Ants in the Peach-house.—One day last week I was surprised to see that several of the Peach bushes, in one of the houses here, were without pistils, and found on investigation that the ants had eaten off the pistils just above the ovary as described by Mr. Horace Woods. We have been diligently pursuing a war of extermination against the ants for some time, by placing treacle in the vicinity of their haunts to attract them—round which the antler in hundreds—then scalding them with hot water. By this means we have succeeded in diminishing their numbers considerably. *J. Riddell, Wotton, Kentham.*

—When visiting Manresa Gardens, Kooheampton, in February last year, Mr. Davis drew my attention to several Peach-blossoms, the pistils of which had been destroyed by ants. A narrow strip of canvas was tied around the stems of each tree, near the ground, and painted occasionally, which had the effect of keeping the ants off. *S. P., Chelmsford.*

Potato Beauty of Hebron.—I am pleased to see this Potato is to some extent gaining favour amongst growers. I think, when its merits become more generally known, it will receive a corresponding share of patronage both for the garden as well as field culture. In my opinion it is one of the best—if not the best—of all the American introductions. No one, I think, can deny its extraordinary productiveness, and very few, I venture to say, can dispute its excellent cooking properties. Another great feature in its favour is, being a moderate early variety, it is less liable to the attack of the disease. The fact of its frequent appearance on the exhibition table also bears sufficient testimony to its adaptability for this purpose. My advice, therefore, to all intending planters is, to plant the Beauty of Hebron largely, and not in limited quantities, as decided upon by "A. L. II." (see p. 228). The result will, I feel confident, give every satisfaction. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Storing Ice Above-ground in Sawdust or Sawdust Pits.—The antiquity of the plan of storing ice above-ground in sawdust is of little consequence, seeing that the system, when properly carried out, is so thoroughly successful; but as I have been the means of bringing the subject under the notice of

your readers in January, 1876, and again in your issue of the 4th inst., I would like to be allowed to remove the obstacle—the only and not very formidable one—that Mr. Melville, at p. 229, attempts to place in the way of the system being generally practised—a system which, as it becomes better known, will supersede every other mode of preserving ice; even the sawdust and wooded wall pits will have to give way to it, seeing that the same object for which it was deemed necessary to expend £25 in the making of the latter to secure is achieved by resorting to the “above-ground system” without the spending of a single penny in that direction. And this fact must not be lost sight of, inasmuch as it is, together with the extra labour incurred in getting the ice out of the pit, the only difference between the two systems, both of which answer their primary purpose equally well.

Respecting the obstacle in the way of the valley (referred to at p. 154 of your current volume), and of which Mr. Melville, writing from the lofty slopes of Dunrobin, is uneasy on the score of there not being always one at hand, a circumstance to the writer unknown to exist in the demesnes of establishments requiring a supply of ice the year through. It certainly does not exist at Dunrobin, for Mr. Melville tells us in your number for January 14, p. 45, that “The site selected for the pit was near the kitchen and larders, in the wood near the Castle, partially shaded, and with a northern exposure, while a rise of the ground to one side admitted of carrying the height above the level of the pit, so as to tip the ice down a shoot directly into it, while a hollow near by secured an outlet for a drain at any depth necessary.” Thus it will be seen that the situation selected for the formation of the “sawdust-pit” was admirably adapted for an “ice-stack,” or a rick, the latter being quite as suitable as the former—and, indeed, preferable, inasmuch as it obviates the question of insufficient slope arising to obstruct the system coming into general practice. Moreover, the rick, as a matter of course, should be made sufficiently long to compensate for loss sustained through deficiency of height. In conclusion, I beg to assure those of your readers who may feel disposed to give the “above-ground system”—a system which has everything to commend itself to general use—a trial, that by faithfully following the instructions given in the *Gardeners' Chronicle* for February 4 (p. 154) of the present volume respecting the process of preserving ice in sawdust above-ground as practised here success will be attained. I would further add that there is a right and a wrong way of doing everything, and it would appear that “storing ice above-ground” is no exception to the rule, for Mr. Melville tells us of his having heard of it succeeding in one place and utterly failing in another—a circumstance which fully demonstrates the fact of the procedure in the latter case being at fault, and that *mutatis mutandis* in the *modus operandi*, consequent upon the subject being described in the pages of this journal, better results may be looked for in the future. *H. W. Ward, Longford Castle, Wells.*



Florists' Flowers.

CYCLAMENS AT TWICKENHAM.—The superb lots of Cyclamens shown both at South Kensington and elsewhere by Mr. Clarke, of Twickenham, during the present winter have plainly shown that just now that grower occupies a leading position as a cultivator of this beautiful winter flower. It would seem, after all, that there must be either some special skill required for the successful cultivation of the Cyclamen, or else that there is particular virtue in particular places, for not only are the growers of this flower for market limited in number, but all, or nearly all, reside on the west side of London. Although just now Mr. Clarke doubtless has first place as a Cyclamen grower, it is as certain that but a year or two since his plants did not excel those grown by Mr. H. B. Smith, of Ealing, and who has yet a fine strain, especially of pure whites. Mr. Pestridge, of Brentford, and Mr. Walker, of Whitton, are both well known and large growers of “Sykes,” as they are best known in market phreology, and these, we believe, are the chief market men who devote themselves specially to their culture. All of these, it will thus be seen, are West Middlesex men, so that we may be pardoned for assuming that there is something in the air of that district which favours the Cyclamen.

The extraordinary voracity of the London plant market is well shown in connection with the Cyc-

men, for it annually swallows up tens of thousands; indeed, Mr. Clarke, who is certainly a large grower, annually disposes of some 20,000 in one way or another—an enormous quantity, certainly, to go out from one establishment. In spite of this large trade Mr. Clarke's nursery is of a very modest kind, for it is enclosed with high walls, and invites no public attention; indeed, market growing establishments seldom invite visitors, neither are they wanted—they are literally plant manufactories for the retail trade, and have no other show-rooms than are to be found in the London flower-market. The houses and pits in which the bulk of the plants are grown are far from being modern; indeed have in years past been devoted to the growth of Vines and Lines, but have now been converted to their present uses by the introduction of stages lifting the plants up near to the glass, where they get plenty of light and air. The only modern house—a lean-to of some 125 feet in length, having in front a broad stage, and behind a stage in rising tiers—is the showhouse, if such a term is applicable, for here are seen all the plants selected for seed stocks, and a grand lot they are. The front stage is occupied almost throughout with splendid plants in 2½ or 7-inch pots in grand bloom—indeed, there must be many hundreds of them. These are all robust seedlings blooming for the first time from a sowing in August, 1880, and would astonish novices in the art of Cyclamen culture. The enormous quantity of bloom produced on a single plant is quite remarkable. Many that have been in bloom since November, and have even now perhaps fifty to sixty blooms open, are yet almost a mass of flower-buds, and will in a cool-house continue to bloom till well into May; so that strong plants of the Cyclamen will do what few other plants will do—bloom continuously for six months, and those from November to May. The great bulk of the market plants are in 48's, the regulation size, but the larger plants are only sold to special orders.

Seed is usually sown early in August, in 6-inch pots, about fifty seeds in a pot. These pots are stood on stages in the pits that keep them within 6 inches of the glass, but no artificial heat is needed to promote germination. On warm sunny days a little shading is given. Seedlings, when strong enough, are pricked up into other 6-inch pots in dozens, and from these are later on transferred into small 60's, then again into 48's, and the most robust and promising into 32's, and finally into 24's. Very gradual shifts are found best, as the roots sooner reach the sides of the pot. Large shifts would perhaps result in sodden soil, and then root-rot.

The most suitable compost for the Cyclamen is found to be two-thirds of sweet fibry loam, and the rest of well-decayed leaf-soil made from clean park leaves. Plants sowed for seed, however, do not depend alone upon their seed-crop for profit, as the blooms are pulled and bunched in dozens for market, and their fine quality invariably brings a good price. Plants of the new Giganteum compactum strain have blooms of great size; a sample bloom had petals 2 inches in depth and 4 inch across, the plants full of bloom, and the habit all that can be desired. Although this habit runs through the whole strain, the Giganteum compactum strain has mostly white blooms with a deep purple or crimson base; the rubrum flowers, deep mauve, are of similar size. There are pure whites of fine form and substance, and one form, known as Delicata, pure white with a delicate tinted base, is a charming kind. The rose tints are singularly bright and cheerful. These vary more or less in shading, but all are very beautiful. A grand kind indeed is Crimson Gem, the colour deep red, a very fast colour, and flowers produced in marvellous abundance. This is one of the best deep-coloured forms we have seen. Brilliant, an older form, has smaller and deeper-coloured blooms, but they are small. The best purple, perhaps, seen, unlike the general run of this colour, has bloom of a very fast hue, the colour deepening with age to violet. This hue is not, however, favoured amongst market growers, and therefore it is not largely perpetuated; whites, roses, and rich reds are the favourite colours.

With a general clearance of the Cyclamens room is made for Strawberry plants in 24's, all just now housed for the winter in frames. None are forced early, but just soon enough to lead up to the incoming of the outdoor crop, the plants to produce which are all pot plants turned out and standing two years only. Mr. Clarke's Strawberries are of the finest that go to the London market.

NAMED CINERARIAS.—It is pleasant to see that some of these still find a place in catalogues, some of them, of the best quality, illustrating to a great extent the presence of the high qualities of form, colour, and arrangement that were so strongly insisted on twenty years ago. We are just now in great danger of being

encumbered with a race of large-flowered Cinerarias, in which size is the most striking feature, but in which symmetry, substance, and finish are to a large extent absent. There is any amount of floral ugliness, and we see large, staring white-ground flowers, with pale and grey discs, that would not have been tolerated years ago. The toil the last generation of florists underwent, and the patience with which they worked to secure—and did succeed in securing—certain desired ends, appear to be in danger of being forgotten in the desire to have something of what is termed decorative value. Mr. Shirley Hibberd has recently been laying down the principle that mere novelty in plants and flowers should be subordinated to merit, and in stating this much he is in harmony with the floral teaching of our forefathers. It is time some one made a new departure with Cinerarias, harking back to the old lines, and gradually working up to a high ideal. For a time his efforts may be frowned upon or misunderstood, but the day will surely come when his work will be appreciated, and his labours rewarded. We have had enough of large star-shaped Cinerarias with pointed petals and clouded colours; it is time they made way for something better, possessing the refinement that lends such a charm to other qualities. The opportunity offers now—where is the man to avail himself of it? *R. D.*

HARDY CLEMATISES.—These, which are always early in starting into growth, have been most active all through the winter; indeed, almost as soon as last year's leaves began to decay the buds out of which have to come the spring shoots were plumping up. In the case of strong established plants it will always be noticed that growth is put forth at the points of the ripened wood farthest from the roots. It is best, on the whole, not to cut this away in the autumn or winter, but to leave it till February before the cutting back process is attempted. In the case of Clematises grown in beds it is sometimes necessary, in the interests of tidiness, to cut back earlier, but we are stating a generally acceptable rule. Our plan is to cut back almost to the ground, then to draw the soil away from the roots, add a good dressing of manure, and return the soil to the surface. In a short time the plants break into a vigorous growth, and if it is desired to cover a given space the young shoots should be trained in position or they will become interlocked with each other, and the growth be concentrated instead of being distributed. As a matter of course the foregoing remarks apply to what is known as the strong summer flowering varieties of the Jackmanni type. Of these the following can be highly recommended:—Alexandra, pale reddish-violet; Jackmanni, deep violet-purple; Rubella, velvety claret-purple; rubro violacea, maroon shaded violet; Star of India, reddish-violet purple; The Shah, deep lavender, changing to lilac, and turgidness; deep bluish-purple. The best white flowered variety to add to these would be *lanuginosa nivea*; and the best pale blue, *Lady Bovill*.



The Apiary.

YOUR correspondent, “Busy Bee,” says, “With such a winter as is the present one there should be a good honey harvest.” May I ask the reason why? Having quite recently received a letter from a gentleman who has kept bees for a quarter of a century and is considered as an authority, in which he writes thus:—“Bees will be in a bad way shortly—mind that!” In the *Bee Journal* for February it is thus written:—“And within the beehive a forward state of things that cannot be considered wholesome or safe.”

“Or the chill blast from Eurus' mildew wing.

Light the fair promise of returning spring;

Full many a hive, but late and early,

Droops in the lap of all-inspiring May.”

North Norfolk.

BRITISH BEE-KEEPERS' ASSOCIATION.—The annual general meeting of the members was held in the board-room of the Royal Society for the Prevention of Cruelty to Animals, on Wednesday, 15th inst. There was a large attendance of members, including several ladies. The chair was taken by the Baroness Burdett-Coutts, the President of the Association, in the absence of the Rev. H. N. Peel, the Honorary Secretary. The report for the past year was read by Mr. T. W. Cowan, the chairman of the

committee. The report gave an excellent résumé of the Association's work during the past year, from which we learn that the subject of bee-keeping is being now much more extensively supported by many of the leading agricultural and horticultural societies than in former years.

— Died suddenly, on the 15th inst., at Spring Valley, Morningside, Edinburgh, Mr. DANIEL MACKENZIE, aged seventy-three years.

— We have also heard of the death, recently, of Mr. FANCOURT, formerly nursery foreman to Messrs. J. Cutbush & Sons, Barnet, and to Messrs. Osborn & Sons, Fulham.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 22, 1882.

Table with columns: MONTH AND DAY, BAROMETER, TEMPERATURE OF THE AIR, WIND, RAINFALL. Includes data for Feb. 16-22 and a summary row.

Feb. 16.—A fine bright morning, dull afternoon, but fine. A dull cloudy night.
17.—A dull cloudy morning, fine, bright after. Fine night but cloudy.

ERRATA.—In last week's report for 29.50 mean barometer reading, Feb. 15, read 29.74; and for -0.31 departure from average, Feb. 15, read -0.07.

LONDON: Atmospheric Pressure.—During the week ending February 18, the reading of the barometer at the level of the sea increased from 29.83 inches at the beginning of the week to 30.14 inches by midnight on the 12th, decreased to 30 inches by 3 P.M. on the 13th, increased to 30.29 inches by 3 P.M. on the 14th, decreased to 29.79 inches by 9 A.M. on the 15th, increased to 30.43 inches by 9 A.M. on the 16th, decreased to 30.25 inches by midnight of the same day, increased to 30.36 inches by midnight on the 17th, and was 30.30 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.12 inches, being 0.23 inch lower than last week, and 0.13 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 54.5, on the 14th. On the 16th the highest temperature in the day was 48. The mean of the seven high day temperatures was 51.4.

The lowest temperature in the week was 32, on the 16th; on the 14th the lowest temperature was 46. The mean of the seven lowest temperatures was 40.6.

The greatest range of temperature in one day was 16, on the 16th; the smallest was 6.4, on the 17th. The mean of the seven daily ranges was 10.8.

The mean temperatures were on February 12, 47.3; on the 13th, 47; on the 14th, 50.5; on the 15th, 41.8; on the 16th, 41.3; on the 17th, 47.4; on the 18th, 46.2. And these were all above their averages by 8.4, 8.1, 11.7, 3.1, 2.0, 8.7 and 7.4 respectively.

The mean temperature of the air for the week was 45.9, being 8.1 higher than last week, and 7.1 higher than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 110, on the 12th; the highest on the 13th was 53. The mean of the seven readings was 53.6.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 30, on the 16th. The mean of the seven readings was 36.2.

Rain.—Rain fell on two days to the amount of 0.54 inch, of which 0.38 inch fell on the 15th.

ENGLAND: Temperature.—During the week ending February 18 the highest temperatures were 62 at Sunderland and 59 at Truro. The highest temperature at Brighton was 51.6, at Bradford 53.6, and at Wolverhampton 53.8. The general mean was 55.4.

The lowest temperatures in the week were 29 at Hull and Wolverhampton, and 29.1 at Nottingham. The lowest temperature at Liverpool was 37.3, at Truro 30, and at Bradford 34.9. The general mean was 32.6.

The greatest ranges of temperature in the week were 29 at Sunderland, 25.7 at Nottingham, 25 at Hull. The least ranges were 18.7 at Liverpool and Bradford, and 19.6 at Brighton. The general mean was 22.8.

The mean of the seven high day temperatures was highest at Sunderland, 55.4, at Truro 53.7, at Plymouth and Cambridge 52.1, and was lowest at Wolverhampton 48.4, at Bradford 49, and at Brighton 49.6. The general mean was 51.1.

The mean of the seven low night temperatures was highest at Truro, 42.3, at Liverpool 41.9, and at Plymouth 41.1; and was lowest at Hull, 35.2, at Wolverhampton 36.6, and at Nottingham 38.3. The general mean was 39.7.

The mean daily range was greatest at Sunderland, 15.8, at Hull 15.4, and at Leicester 13; and was lowest at Bradford, 8.6; at Bristol and Liverpool, 8.5. The general mean was 11.4.

The mean temperature for the week was highest at Truro, 47.6, at Sunderland 47.1, and at Plymouth 46.2; and was lowest at Wolverhampton, 42.1, at Hull 42.6, and at Nottingham 44. The general mean was 45.1.

Rain.—The largest falls were 0.98 inch at Truro, 0.03 inch at Leicester, and 0.02 inch at Cambridge. The least falls were 0.03 inch at Sunderland, and 0.06 inch at Leeds, and 0.22 inch at Hull. The general mean was 0.51 inch.

SCOTLAND: Temperature.—During the week ending February 18 the highest temperature was 56, at Glasgow; at Greenock the highest temperature was 50.2. The general mean was 53.6.

The lowest temperature in the week was 28.4, at Aberdeen; at Leith the lowest temperature was 33. The general mean was 31.7.

The mean temperature for the week was highest at Leith, 44.9; and lowest at Aberdeen, 42.1. The general mean was 43.4.

Rain.—The largest falls were 3.35 inch at Greenock, and 2.53 inch at Paisley; the smallest fall was 0.12 inch at Aberdeen. The general average fall was 1.55 inch.

JAMES GLAISHER, F.R.S.

TRADE MEMORANDUM.

We learn from a note to hand from Mr. A. Knight that his present address is Finchfield, Wolverhampton.

The Poultry Yard.

WINTER LAYERS.—The old lady who said she could not understand how it was that always when eggs fetched a good price her hens would not lay, stumbled in a rough way upon a great fact. If hens would lay as well from autumn to spring as they do from spring to autumn, we should have eggs in plenty, but as they do not, of course it is the few who are blessed with winter layers who not only have eggs in a time of scarcity, but get a good return for them.

Obituary.

WE regret to record the death, at Oakley, near Bedford, on the 13th inst., of Mr. ALEXANDER MCKAY, aged seventy-one. Mr. McKay was born at Fochabers, Banff, in 1810, and served his apprenticeship at Gordon Castle.

Enquiries.

He that questioneth much shall learn much.—Bacon.
CHERRY TREES GUMMING.—I have two acres of Cherry trees, which have been planted six years, and I lose annually from twenty to thirty trees from gumming. Can any of your readers suggest the probable cause, or give me a remedy? Market Gardener, Darlington.
DUNCAN STRAWBERY.—Will 'Philomelos' please tell me where I can get the early variety recommended by him under this name? I cannot find it in any catalogue that I possess. W. Clark, Stamford, Darlington.
HOW TO DISSOLVE BONES.—Which is the best method of dissolving bones, about 4 or 5 cwt. at a time? Atherton.
LOGWOOD CHARCOAL.—I send you a sample of refuse from burnt logwood, which I am assured is free from chemicals. Has it any value for horticultural purposes? J. H. Cheshire. Supposing it be what it appears to be, pure charcoal, there is no reason why you should not use it the same as any other charcoal. L1

Answers to Correspondents.

BLOOD MANURE. Constant Reader.—The best way of using blood as a manure is by mixing it with earthy or vegetable matter in the form of a compost, with which you may top-dress your Vines-border. It is of no good in a liquid form.
BOOKS: J. A. Manselton. Thompson's Gardener's Assistant, published by Blackie & Co.
ERRATA.—At p. 223, col. 4, line 8, for "summer-like" read "summerless" and in line 29, for "mats" read "walls."
FUNGUS: J. L. Langford. The plants sent are examples of the true Mushroom—Agaricus campestris. W. G. S.
HILLBORN POWDER: G. Gardner. The powder is prepared from the Christmas Creeper (H. niger), and we cannot account for its failure in the cases you mention. We should not, however, mix the powder with water, but dust the trees with it when they are damp.

NAMES OF FRUITS: 7. *June*. We do not recognise any of them.

NAMES OF PLANTS: 7. *H.* 1. *Eriobotrya japonica*; 2. *Physalis peruviana*; 3. *Polecia oppositifolia*. Send better specimens another time.—*L. N.* 1. *Adiantum tenerum*; 2. *A. decursum*; 3. *A. gracillimum*; 4. *Cheilanthes lutea*; 5. *Polypodium nerolium*; 6. *Selaginella Martensii*—*L. N.* 1. *Zygopetalum crinum*; 2. no flower; 3. *Polypodium ciliare*; 4. *Asplenium viviparum*; 5. *Asplenium Belangeri*; 6. *Polypodium lycopodioides*.—*G. J. H.* Your specimens, very poor ones, arrived smashed. Send better ones, packed in a little damp moss.—*F. H. F.* *Cobbebrum*. 1. *Ficus carica*, 2, 3. *Pyrodium ciliare*; a common cherry 1 flower; sometimes, but very erroneously, called *Lantagha expansa*; 3. probably *Rhododendron lursatum variegatum*—delightfully fragrant.

SAND WASTES OF SOUTH AFRICA. *H. B.* The experiment was suggested in the book you refer to, and, indeed, has been carried out to some extent in various parts of the colony.

STOVE CLIMBERS: *J. O. H.* *Plumbago rosea*, and *Euphorbia laqueiflora*, both of semi-scandent growth, would do well on the back wall of a Cucumber house. The former is not so fast as the latter in a hot state. Neither of them would be found to grow too strongly. *Jasminum Sambac*, fl.-pl., is a good water-flowing climber, with sweet-scented flowers. *J. gracillimum*, of comparatively recent introduction, is also very floriferous and deliciously scented. Either of these should also do well in such a situation, but both of them would want to be watched closely for mealy-bug and white scale. No quarter, however, should be given these insects, especially in a well-managed Cucumber-house, the temperature of which is at all times favourable to their rapid increase. The *Bomarea*s would not be found to do well in such a position; they require more sunlight, less atmospheric moisture, and a somewhat lower temperature, also liberal root-room.

VALU OF ORCHIDS: *J. R. L.* Your best plan would be to show them to some nurseryman. It is quite impossible for us to value your plants.

WILDS. *Juniper*. Arsenic is one of the very best wood destroyers, but of course requires to be used with extreme care. Boil 1 lb. in a gallon of water for half an hour, then add to it 5 gals. of cold water, and pour it on the walks carefully. One dressing a year is sufficient.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

CATALOGUES RECEIVED.

- MAX DIEGEN, Jun., Kostritz, Thuringia, Germany—Babias, &c.
- R. H. VEEGANS, Chad Valley, Edgbaston, Birmingham—Flowers and Vegetables—Last, &c.
- B. POINSELET, Wallingford—Seeds, Plants, and Trees, &c.
- E. H. RICKER & CO., Elgin Nurseries, Kane Co., Illinois, U.S.A.—Fruit and Forest Trees, &c.
- S. SHEPPSON, Prospect House, Belper—Florists' Flowers, &c.
- JAMES CARTER & CO., High Holborn, W.C.—Farm Seeds.
- JOHN A. BRUCE & CO., Hamilton, Canada—Farm and Garden Seeds.

COMMUNALIONS REVEALED.—F. H. S. P.—T. K.—W. P. R.—K. H.—H. E. W.—G. H.—Hopkins, J.—W. H.—W. W. Kowitt.—W. S.—K.—W. C.—C. W. D.—W. G.—J. A.

Markets.

COVENT GARDEN, February 23.

Trade will now be quiet for a week or two, but Grapes will remain steady at late rates. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, per 2-sieve .. 2 0-6	Lemons, per 100 .. 4 0-5
Grapes, per bush .. 3 6-8	Pumpkins, Eng. lb. .. 2 0-2
Kent Cob., per 100 lb. .. 3 0-5	Strawberries, per doz. .. 1 3-1 6

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. .. 3 0-6	Horse Radish, bund. .. 4 0-0
Asparagus, En. bund. 12 0-0	Lettuces, Cabbage, per doz. .. 0 6-1 0
Jersey, per bush .. 2 6-8	French Beans, doz. .. 1 0-0
Sprue, per bun. 12 0-0	Mint, green, bunch .. 1 0-0
Barbe de Capucin, per bundle, .. 0 8-0	Mushrooms, p. basket .. 1 6-0
Beans, French, En. glob crown, p. doz. 3 6-0	Onions, per bushel .. 4 0-0
Best, per doz. .. 1 0-0	Springs, per bu. 0 6-0
Cabbages, per 100 .. 1 0-0	Parsley, per bunch .. 0 4-0
Carrots, per bunch .. 0 4-0	Pis., per lb. .. 1 10-0
Cauliflowers, En. doz. 1 0-0	Potatoes (new), per lb. 0 6-0
Best, dozen .. 1 0-0	Radishes, per doz. .. 1 6-0
Celery, per bundle .. 2 6-0	French, p. bunch .. 0 6-0
Celeriac, per head .. 0 4-0	Rhubarb, per bundle 0 6-0
Cucumbers, each .. 1 0-0	Salsify, per bundle .. 1 0-0
Endive, per doz. .. 2 6-0	Seskalie, per punnet 2 0-0
Herbs, per bunch .. 1 0-0	Small salading, pun. .. 1 0-0
	Spinach, per bushel 5 0-0
	Tomatoes, Fr., per lb. 1 6-0
Kent Regents, 100 to 110s.; Roses, 80 to 90s.; Myatts, 100s. to 120s.; Champions, 90s. to 70s.; Magnum Bonum, 90s. to 110s.	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldii, doz. 18 0-42 0	Ficus elastica, each 1 6-7 0
Arbor vite (golden), per doz. .. 6 0-18 0	Foliage Plants, various, each .. 2 0-10 0
—(common), dozen 6 0-12 0	Hyacinths, per doz. .. 3 0-12 0
Azalea, per dozen .. 24 0-42 0	Lily of the Valley, per pot 2 0-3 0
Begonias, per doz. .. 6 0-12 0	Mosses, per doz. .. 6 0-12 0
Bouvardia, per doz. .. 18 0-24 0	Palms, in variety, each 2 6-21 0
Cyclamen, per doz. .. 12 0-24 0	Pelargoniums, seed, per doz. .. 6 0-12 0
Cypripis, per dozen 6 0-12 0	—let, per dozen .. 6 0-12 0
Dracena terminalis, 30 0-60 0	Primula (single), per doz. .. 6 0-12 0
—viridis, per doz. .. 12 0-24 0	Solanums, per dozen 0 10-12 0
Euphyllium, per doz. 18 0-30 0	Spiraea, per dozen .. 8 0-18 0
Eucalyptus, various, per dozen .. 6 0-18 0	Tulips, per dozen .. 8 0-18 0
Evergreens, in var., per doz. .. 6 0-24 0	
Ferns, to variety, doz. 4 0-18 0	

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 blooms 0 3-0 6	Marguerites, 12 bun. 4 0-6 0
Azalea, 12 sprays .. 1 0-1 6	Mignonette, 12 bun. 6 0-8 0
Avonward, per bun. 1 0-1 6	Pelargoniums, 12 .. 1 0-1 6
Carnations, 12 blooms 3 0-6 0	—sprays .. 1 0-1 6
Carnations, 12 blms. 1 0-2 0	—zonal, 12 sprays 1 0-1 6
Cineraria, 12 bunch 0 6-12 0	Primroses, 12 bunch 1 0-1 0
Cyclamen, 12 blooms 0 3-0 6	—Primula double, per bunch .. 1 0-1 6
Deutzia, 12 bunches 0 6-12 0	—(single), 12 bun. 6 0-9 0
Euphyllium, 12 blms 0 3-0 6	Roses, London, doz. 3 0-9 0
Gardenias, per doz. .. 4 0-8 0	—Tea (French), per dozen .. 2 0-3 0
Gardenias, 12 blms. 12 0-24 0	—Snowdrops, 12 bunch 1 0-4 0
Heliotropes, 12 sp. .. 0 6-1 0	Tropaeolum, 12 bun. 1 0-1 0
Hyacinths (Roman), 12 sprays .. 1 6-2 0	Tulips, 12 blooms .. 1 0-1 6
—(large), 12 spikes 6 0-9 0	Violets, 12 bunches, 1 6-2 0
Lappagera, white, 12 blooms .. 4 0-6 0	—(French Farnel), per bunch .. 6 0-8 0
—red, 12 blooms .. 1 0-2 0	—Czar, Fr., bunch 2 0-3 0
Lilac (Fr.), p. bunch 7 0-8 0	Lily of Val., 12 spr. 2 0-6 0

SEEDS.

LONDON, Feb. 22.—Messrs. John Shaw & Sons, of 37, Mark Lane, E.C., report that there is a good steady consumptive business now passing in farm seeds. The spot supply of Canadian Clover seed being reduced to narrow compass, rather higher prices are now asked for same. Shipments from America continue at a moderate rate. Trefoil is noted £1 to £2 per ton dearer. For Alsike and white full prices are obtainable. More money is asked for perennial Rye-grasses. Imported Italian keeps steady. Santoin is exceedingly scarce. Spring Tares sell freely at full rates. The sale for bird seed is slow.

CORN.

At Mark Lane on Monday the supplies of English Wheat were light, but sales were only practicable at 1s. under Monday's night. Foreign ruled 1s. per quarter lower on good qualities, and 1s. to 2s. on inferior. Flour was dull with a drooping tendency. Fine Barley was firm, secondary and grinding qualities quiet and unchanged. Beans and Peas were unaltered, with a quiet sale. Oats were rather dearer than on the Monday previous.—On Wednesday the business in Wheat was quiet, with a limited extent, leaving quotations unaltered. Flour remained dull. Grinding Barley, whilst quiet, was steady in value. Oats were firm on the spot, but the market was very quiet. Maize remained unchanged in value with very little doing in any position.—Average prices of corn for the week ending February 18.—Wheat, 45s.; Barley, 31s. 10d.; Oats, 21s. 10d. For the corresponding period last year.—Wheat, 41s. 8d.; Barley, 32s. 1d.; Oats, 20s. 7d.

CATTLE.

At Copenhagen Fields on Monday prices for beasts ruled at fully late values to occasionally 2d. dearer. Among the sheep supplies were some good clipped wethers, which sold readily at 6s. 4d. to 6s. 6d., in some cases even rather over. The calf trade was dull, with prices lower. Pigs were a slow sale. (Quotations.—Beasts, 4s. 4d. to 4s. 10d., and 5s. to 6s.; calves, 5s. to 6s. 4d.; sheep, 5s. 6d. to 6s. 4d., and 6s. 10d. to 7s. 6d.; pigs, 4s. to 4s. 10d.—On Thursday trade was dull, and prices only saleable at a decline of 2d. per 8 lb. Prime sheep were steady in value, but other breeds fat. Calves were scarce and dear.

POTATOS.

The Borough and Spitalfields markets reports state that supplies are ample, and trade slow. Quotations.—Kent Regents, 80s. to 100s.; Champions, 60s. to 70s.; Essex Regents, 80s.; Champions, 50s.; Victorias, 100s. to 120s.; Blues, 120s. to 130s. per ton.—The imports into London last week consisted of 127 tons from Roscoff, 130 tons Barleir, 2900 bags Hamburg, and 100 tons from Boulogne.

COALS.

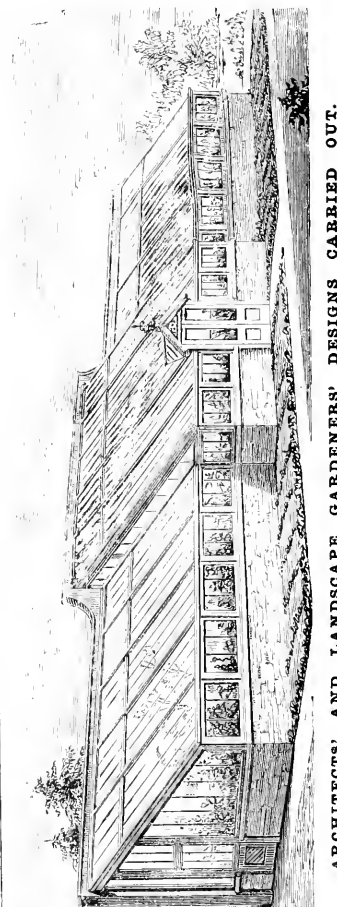
The following are the prices current at market during the week.—Ravensworth West Hartley, 13s. 6d.; Bedside West Hartley, 13s. 6d.; Walls End—Hawthorns, 14s. 3d.; Lamiton, 15s.; Original Hartlepool, 15s. 6d.; Wear, 14s.; South Hetton, 15s. 5d.; Thornley, 14s. 9d.; Tees, 15s. 3d.; Hetton, 15s. 9d.; Hetton Lyons, 14s.

Government Stock.—Consols closed on Monday at 100 to 100½ for delivery, and 100½ to 100½ for the account. Tuesday's figures were respectively 100 to 100½, and 100½ to 100½. The final quotations on Wednesday were, for delivery, 100 to 100, and 100 to 100 for the account. Thursday's closing figures were 100 to 100½ for delivery, and 100½ to 100½ for the account.

JOHN EDMONDS & CO., HORTICULTURAL BUILDERS, &c.

CONSERVATORIES, GREENHOUSES, AND EVERY DESCRIPTION OF HORTICULTURAL BUILDINGS Manufactured by Steam-Power Machinery, and of the Best Materials and Workmanship.

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JAMES CARTER & CO. HAVE JUST RECEIVED
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"MONARCH OF LILIES"

(LILIUM AURATUM),

THE GOLDEN-RAYED LILY OF JAPAN,

Direct from the Japanese Bulb Farms,

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 WITH ALL RISKS AND IMPERFECTIONS, CONTAINING:—

100 BULBS (MORE OR LESS), AT THE UNPRECEDENTEDLY LOW PRICE OF **50s.** PER CASE. SO FAR AS UNSOLD.

(Cases that have been opened have averaged well).

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GRASS SEEDS for LAWNS and CRICKET GROUNDS.
CARTERS' INVICTA LAWN SEED.

AWARDED
THE ONLY PRIZE MEDAL.
 Sydney, 1879.



AWARDED
THE ONLY GOLD MEDAL, PARIS 1878.
 Beating Thirteen Competitors.



AWARDED
THE GOLD MEDAL.
 Melbourne, 1880.

Carters' Invicta Lawn Seeds, in Sealed Packets—per Packet 1s., 1s. 6d., and 2s. 6d. 30s.
 Ordinary Lawn Grass, per bushel, 20s.; per pound, 1s. (A 1s. 6d. packet will sow 1 rod of ground.)
 Carters' Grass Seeds for Renovating Old Lawns 1s., 1s. 6d., and 2s. 6d. 25s.
 Carters' Grass Seeds for Sowing under Trees on Lawns ... 1s., 1s. 6d., and 2s. 6d. 25s.

AS USED AT
 LORDS, THE OVAL,
 HARKOW,
 OXFORD,
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 SANDRINGHAM,
 CYRUS, OPORTO,
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 &c., &c.

CARTERS' Cricket-ground Mixture
 PRICE: s. d.
 Per Pound 1 0
 Per Bushel 20 0
Shows 4 Bushels per Acre.



From W. H. WILLIAMS, Esq., Clapham.
 "I cannot refrain from expressing to you how perfectly satisfied I am with the manner in which you have laid down the Lawn at St. Peter's Vicarage, Clapham Junction."
 "The result far exceeds my most sanguine expectations."

From THOS. WOOLNER, Esq., R.A.
 "Messrs. Carter,
 "I am happy to tell you that your representative has succeeded with my Lawns, which are now fast passing from a state of unevenly patches to a uniform green, and the change has been as rapid as it has been pleasing."

JAMES CARTER AND CO. keep an experienced Staff, and will be pleased to wait personally upon any Customers desirous of instruction in the formation of Lawns, Cricket Grounds, Pastures, &c.

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 To H.R.H the Prince of Wales.



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 The Queen.

237 and 238, HIGH HOLBORN, LONDON, W.C.

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STRONG QUICK, for Hedging. Price on application to RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

POTATOS.—Myatts, 4s. 6d. per cwt.; Magnum Bonum, 3s. per cwt.; Champion, 3s. 6d. per cwt.; Patterson's, 4s. 10d. Special rates per ton. STANFIELD BROTHERS, Southampton.

LARCH, and true NATIVE SCOTCH FIR, 12, 18, to 24 inches, hardly well grown plants, will be sold very cheap. Prices and samples on application. McLENNAN AND FLEMING, Nurserymen, Forres, N.E.

FOR SALE, a large quantity of COMFREY. For sample apply to F. FRENCH, West Hill Nursery, Camberwell Green, S.E.; or to Horner Grange, West Hill, Sydenham, S.E.

PANCRATIUM CARIB. EUM., invaluable for cut flowers, 2s. per dozen; LILIUM AURATUM, 3s., 6s., and 12s. per dozen. LILIUM KRETZERI, 6s. per dozen. W. F. ROFFE, 292, Upper Street, Islington, N.

To the Trade. ROSES, Standard and Half-Standard, a few hundreds still left, leading varieties only. FREDK. PERKINS, Nurseryman, Regent Street, Leamington.

SEAKALE and RHUBARB ROOTS, for forcing and planting, to be had in large or small quantities. Also Jerusalem ARTICHOKES and HERB ROOTS of every description, at lowest prices. H. THORNTON AND CO., Dancer's Nurseries, Fulham, S.W.

To the Trade. PELARGONIUMS, in small 60s., nice stock for repotting, in first-class varieties, 30s. per 100; GERANIUMS, for cutting, in new and choice varieties, in 60s., 2000 plants for repotting, 25s. and 30s. per 100. PEACHES and NECTARINES, dwarf-trained, 25s. and 30s. per dozen. Remittance requested from all known correspondents. ELCOMBE AND SON, Nurserymen and Seed Merchants, Romney, Hants.

To the Trade. Dwarf H.P. Roses. EDWIN HILIER can offer the above in splendid plants, in few ground plants of Bennett's Pedigree Roses, 5s. per dozen. The Nurseries, Winchester.

STRAWBERRIES.—Strong roots for fruiting this year, 4s. per 100. Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen, Worcester.

HARDY EXOTIC FERNS.—Having received several very large consignments of NORTH AMERICAN FERNS, in splendid condition, strong, Crowns well rooted, fine for Outdoor Ferneries, we offer many varieties at 6d. each and upwards. LISTS on application. W. AND J. BIRKENHEAD, The Fern Nursery of Britain, Sale, Manchester.

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STOCK PLANTS of VERBENAS.—We have ready at the present time a large stock of the above, which for vigour and freedom from disease cannot be surpassed; they are very bushy, and bear already large quantities of clean healthy cuttings. Price 10s. per doz. of 100 per 1000. LIST of sorts may be had on application to KEYNES AND CO., Nurserymen, Salisbury.

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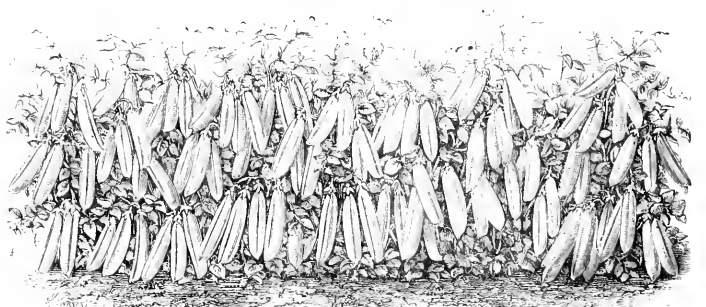
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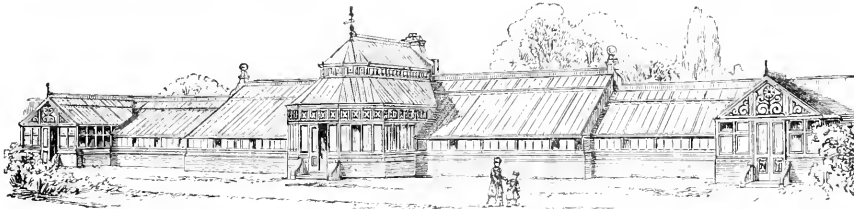
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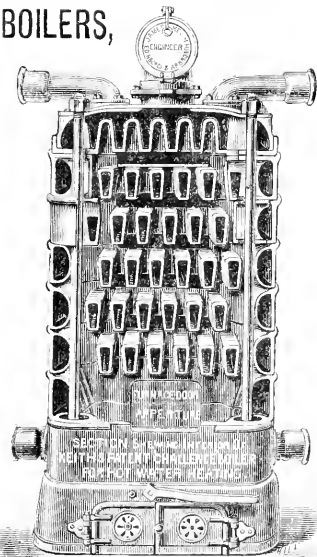
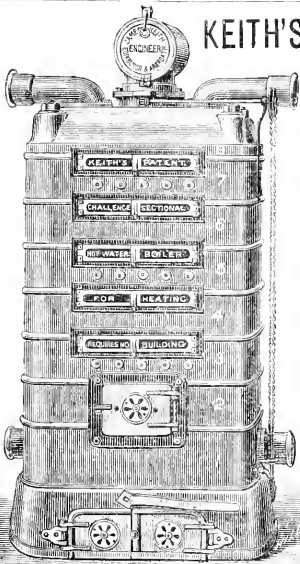
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These PATENT "CHALLENGE" BOILERS have about ten times the heating surface of the ordinary Saddle Boilers, and are certainly THE BEST, MOST POWERFUL, and MOST ECONOMICAL Hot-water Boilers in use.

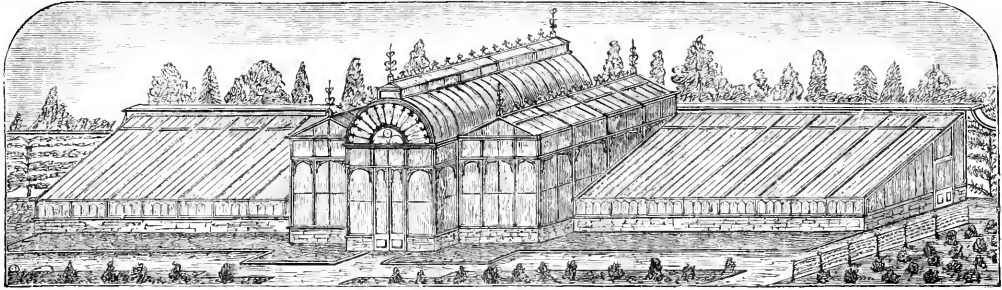
See Prospectuses, References, &c.

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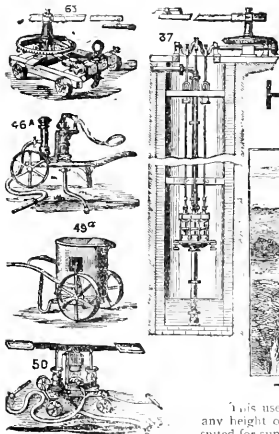
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ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

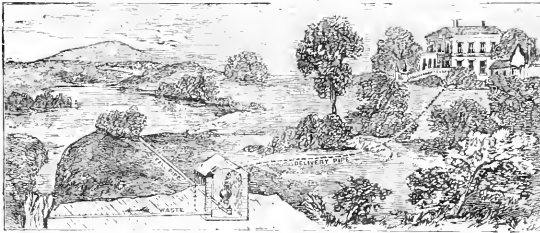
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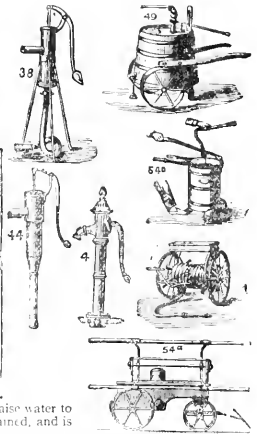


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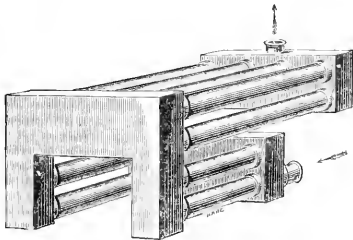
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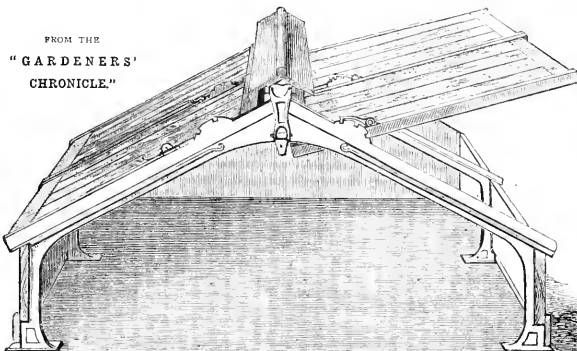
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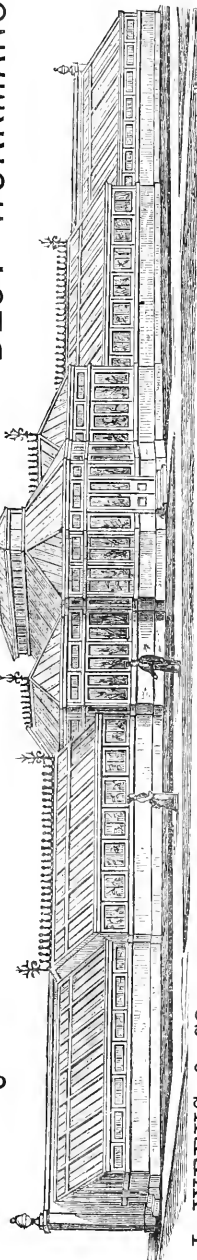
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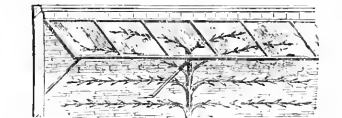
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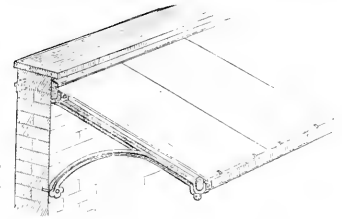
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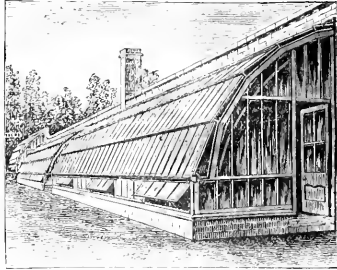
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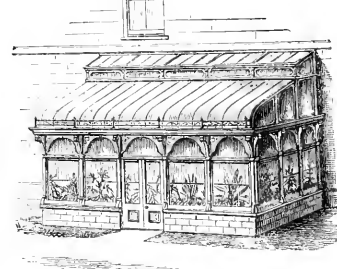


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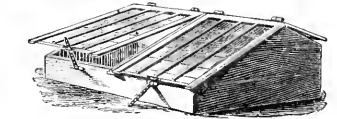
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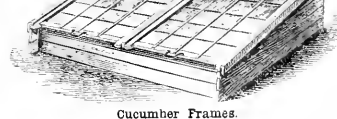
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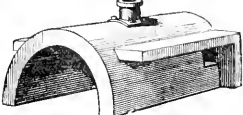
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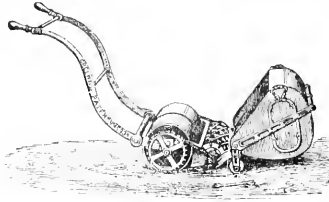
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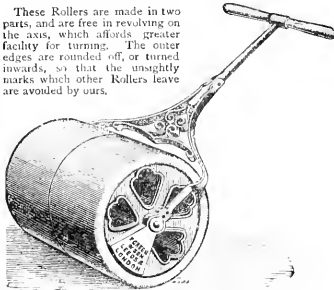
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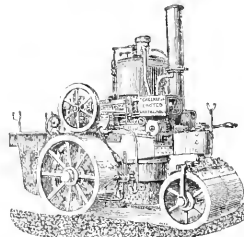
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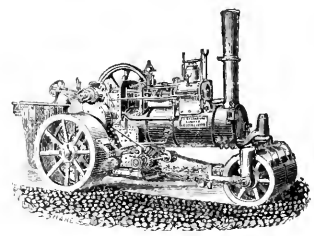


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Can supply splendid young plants, all perfectly clean and vigorous, of the following choice plants, all of which are worth six times the price, and will make fine specimens this spring if potted on now—

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| 12 MAIDENHAIR FERNS, 6 sorts | 1 s d |
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LARCH, 2 to 3 feet.
SCOTCH FIR, 14 to 24 feet.
SPRUCE, 1 1/2 to 2 1/2, and 2 1/2 to 3 1/2 feet.

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NEW GIANT-FLOWERING DWARF PYRAMIDAL. This grand Stock is of fine dwarf compact habit; bearing massive pyramidal spikes of perfectly formed double flowers, and is unsurpassed for its decorative effect.

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THE MOST WONDERFUL CROPPING POTATO IN THE WORLD.

The True Stock 6d. per pound; 7 lb., 3s.; 14 lb., 5s.; 56 lb. 18s.; 112 lb., 34s.

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"From the one pound of WHITE ELEPHANT POTATO I have lifted 206 lb. weight."

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(ROEB. F.),

THE BLACK CHIMERA MASDEVALLIA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on THURSDAY, March 9, at half-past 12 o'clock precisely, the above splendid new MASDEVALLIA. It belongs to the Chimera section, and received a First-class Certificate at South Kensington. Professor Reichenbach says this fine Masdevallia is a Chimeroid species, of a wonderful dark blackish-india-purple, with still darker or warts, and very few short light purple hairs on the edges of the sepals. Flowers measure between tail ends 16 inches. At the same time will be sold importations of many fine DENDROBES, including D. SUAVISSIMUM, D. DEVONIANUM, D. WARDIANUM, D. THYRSIFLORUM, D. FALCONERI, D. PARISHI, D. SANGUINOLENTUM, D. RHODOPTERYGIUM, and many others.

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New Catalogue of Seed and Plants FOR 1882.

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THE OLDFIELD NURSERIES, ALTRINCHAM,

Invite an inspection of their stock, or a perusal and comparison of their CATALOGUES by all requiring Seed or Plants. The most comprehensive Catalogue of low-priced plants published. All classes of goods required for In or Out-door Gardening. All the following are Package Free for cash with order:—

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PEACHES in POTS.—Eight fine Fruiting Trees, coming into bloom.
Price, &c. on application.
J. KINGSBURY,
Bevois Valley Nursery, Southampton.

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OF CHOICE
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We have much pleasure in offering the following, in good strong well-rooted cuttings, with names, from our superb collection—Post or Carriage Free at prices quoted:—

CHRYSANTHEMUMS. —Large-flowered, incurved, reflexed, &c., new varieties of 1881	Per doz.—s. d.
.. Very fine exhibition varieties	4 0
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.. Japanese, six new varieties of 1881, fine	4 6
DAHLIAS. —Show and Fancy. New varieties of 1881	5 0
.. Splendid exhibition varieties	3 6
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.. Superb exhibition varieties	4 0
.. Good popular sorts	2 6
GERANIUMS (ZONAL). —New varieties of 1880-81, very fine	12 0
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.. Ivy-leaved, double-flowered, fine trusses of charmingly beautiful flowers	4 0
.. Single and double, mixed	1 6
FLOXES (PERENNIAL). —Very choice varieties, fine	3 6
PENTSTEMONS. —A very choice assortment	3 0

From Mr. A. H. THOMAS, *Listowel*, May 5, 1881.
"The ROOTED CUTTINGS you sent me are the best value I have ever seen, some of the Fuchsias are now splendid."

Cheques or Post-office Orders to

DANIELS BROS.,
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May be had Gratis on application,
PRICES AND FULL PARTICULARS OF

SUTTONS'
DISEASE-RESISTING
POTATOS
FOR PLANTING.

SPECIAL RATES FOR LARGE QUANTITIES.

EVERY GARDEN
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SUTTONS'
READING HERO POTATO,
Practically Disease-proof, and a
Marvellous Cropper.

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CATALOGUE of NEW ROSES for 1882,
TEA ROSES, &c., now ready, and may be had post free on application to
CRANSTON'S NURSERY AND SEED COMPANY
(Limited), King's Acre, Hereford.

ROSES, Dwarf, on Manetti.—The strongest and best Plants (all good sorts) that money can buy, 3s. per 100, 2/4 per 1000, my own selection. Strong Forcing SEAKALE, 1/2 per 1000; good Planting do., 30s. per 1000. Cash with orders.
R. LOCKE, Rose Farms, Redhill, Surrey.



B. S. WILLIAMS

Begs to invite Orchid Growers and all who may be interested in this popular class of Plants to an Inspection of his Large Collection of

ORCHIDS.

There are now in bloom many hundreds of ODONTOGLOSSUMS and other Cool ORCHIDS, including ODONTOGLOSSUM ALEXANDRE, many fine varieties; also the lovely O. PESCATOREI, in large plants; the rare O. PARDINUM, with its golden-yellow flowers; also the rare O. HORSMANII, O. POLYXANTHUM, very distinct; O. TRIUMPHANS, O. CIRROSUM, O. VENILLARIUM, O. ROEZZII ALBUM, O. ROSSI MAJUS, and many other kinds, such as ADA AURANTIACA in specimens, with many spikes of its orange-scarlet flowers; SOPHRONITES GRANDIFLORA, CELOGYNE CRISTATA, and the rare variety, LEMONIANA, in large specimens; also a great variety of LYCASTE SKINNERI, in large well-grown Plants.

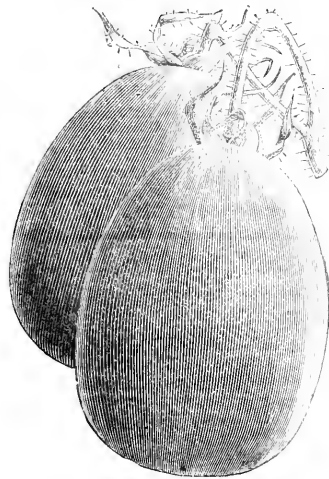
The SHOW HOUSES are also gay with PRIMULAS and CYCLAMEN, AMARYLLIS in great variety, coming into bloom; also fine specimens of IMATOPHYLLUM MINIATUM SPLENDENS, &c., in full beauty.

VICTORIA AND PARADISE NURSERIES,
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NISBET'S VICTORIA TOMATO

This is a seedling from Vick's "Criterion," and for cultivating under glass or in the open air there is no Tomato can approach it for fruitfulness. The plant requires no stopping, as it keeps growing and fruiting in the greatest abundance. The fruit is pyriform, and grows in bunches, each bunch containing from eight to twenty fruit, which are the size and colour of a Victoria Plum. It contains but few seeds, and for flavour is unsurpassed.

Per Packet, 1s.



By cultivating the Victoria Tomato there is no difficulty in obtaining a dish of Tomatoes ALL THE YEAR ROUND. The plant requires plenty of room and a rich loamy soil, with liberal applications of liquid manure. There is no fear of its producing a quantity of wood without fruit, as the bunches of fruit show at every joint; it needs no stopping, as it keeps growing and fruiting in the greatest abundance, and either for cultivating under glass, or in the open air, it surpasses all others for fruitfulness.

To grow it in the greatest perfection a few of the many bunches should be removed and the fruit thinned out a little. This will produce fine, large, handsome fruit.

"The Original Plant is growing, under glass, at Aswarby, covering a space 15 feet by 6 feet, and at the present time is carrying a crop of 600 bunches of fruit, as many more having been gathered from it during the summer.

"August 30, 1879.

"RICHARD NISBET, Gardener, Aswarby Park."

GOLDEN TANKARD MANGEL.

WE HAVE A SPECIALLY FINE STOCK OF THE ABOVE,
GROWN ON OUR OWN SEED FARMS, TO OFFER TO
THE TRADE.

PRICE ON APPLICATION.

CHARLES SHARPE & CO., SLEAFORD.



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Independent Slow Combustion Boiler for Small Greenhouses.

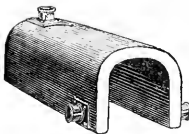
TO HEAT BY HOT WATER; REQUIRING NO BACKWORK.

Specially adapted for small greenhouses; for quick heating or slow combustion. Quite portable, and will heat properly for twelve hours. Made with strong wrought-iron cylinder set in a cast-iron base, with fire-bars and sliding door. Only one-tenth the cost of heating by gas, and much more effective. Fitted with two 2-in. cast sockets, door for feeding, and socket for smoke-flee.

Cash Prices—Carriage paid.

of Boiler complete, as shown in illustration, but exclusive of piping is—

Size.	Total Height.	Diameter.	To heat 4-in. Piping.	Price.
1	27 in.	16 in.	45 ft.	£3 10 0
2	30 in.	16 in.	60 ft.	4 0 0
3	33 in.	16 in.	80 ft.	4 10 0
4	36 in.	16 in.	100 ft.	5 0 0



Plain Saddle Boiler.

Plain Saddle Boilers are generally used for heating from 100 feet to 300 feet of 4-in. piping; and above that quantity it is more economical to use our Check-end Boiler, as one of these, 3 feet long, will heat double the quantity of piping a 3-foot Plain Saddle will.

Size of Sockets.	Size of Boiler inside arch.			Heating Power for 4-in. Piping.	Prices on application.
	Length.	Width.	Height.		
Fitted with 2 Sockets.	18 in.	12 in.	10 in.	100 ft.	
	21 in.	12 in.	10 in.	125 ft.	
	24 in.	12 in.	12 in.	150 ft.	
	27 in.	14 in.	14 in.	200 ft.	
	30 in.	14 in.	14 in.	250 ft.	
	36 in.	16 in.	16 in.	300 ft.	

The Perfect Throttle Valve.



2-in. 105. 6d.
3-in. 125. 6d.
4-in. 155. 6d.

The whole of the working parts of these valves can be removed without disturbing or cutting the pipes.

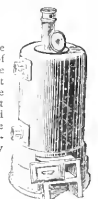
Screw Valves. Tight under any Pressure.



2-in. 135. 6d.
3-in. 205. 6d.
4-in. 275. 6d.

The Phoenix Slow Combustion Boiler.

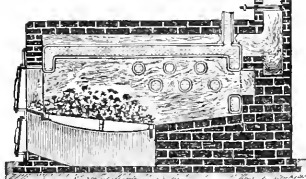
We claim for our Phoenix Upright Boiler the following good qualities, viz.—It is made of the best materials; has no parts that are liable to failure; is provided with a flue that cannot be choked with fuel; will heat effectively the quantity of pipes stated with the smallest amount of fuel; can be easily regulated; and will hold fuel sufficient for keeping up the proper heat twelve hours; requires no break-work, and takes up the smallest space of any boiler of its power.



Sockets can be placed in any position.
Cash Prices—Carriage paid.

Size.	Total Height without Feed Hole.	Diameter of Boiler.	Heating Power for 4-in. Piping.	Price.
1	27 in.	16 in.	150 ft.	£6 0 0
2	30 in.	16 in.	200 ft.	7 0 0
3	33 in.	16 in.	250 ft.	8 10 0
4	36 in.	16 in.	300 ft.	10 0 0
5	39 in.	18 in.	350 ft.	12 0 0

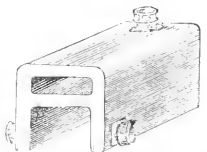
Patent Check-end Saddle Boiler.



Check-end Saddle Boiler, simple and durable.

No.	Outside Length.	Outside Width.	Outside Height.	Cross Tubes.	Heating Power for 4-in. Piping.	Price only.
1	30 in.	20 in.	15 in.	1	200 ft.	£3 10 0
2	36 in.	20 in.	15 in.	1	300 ft.	10 10 0
3	42 in.	22 in.	15 in.	1	350 ft.	13 0 0
4	48 in.	24 in.	23 in.	1	450 ft.	16 0 0
5	48 in.	27 in.	20 in.	1	1250 ft.	20 0 0
6	54 in.	27 in.	21 in.	2	1350 ft.	23 0 0
7	54 in.	29 in.	22 in.	4	1250 ft.	20 0 0
8	60 in.	33 in.	24 in.	6	2000 ft.	30 0 0

The Terminal End Saddle Boiler.



This Boiler is much used, and is one we can confidently recommend.

Total Length.	Size of Boiler.				Heating Power for 4-in. Piping.	Prices on application.
	Inside the Arch.	Outside Measure.	Width.	Height.		
30 in.	16 in.	16 in.	22 in.	27 in.	200 ft.	
36 in.	17 in.	16 in.	22 in.	27 in.	250 ft.	
42 in.	18 in.	16 in.	24 in.	27 in.	300 ft.	
48 in.	21 in.	15 in.	27 in.	29 in.	350 ft.	
54 in.	24 in.	16 in.	29 in.	31 in.	400 ft.	
60 in.	24 in.	18 in.	30 in.	31 in.	450 ft.	
66 in.	24 in.	20 in.	31 in.	31 in.	500 ft.	
72 in.	24 in.	22 in.	31 in.	31 in.	550 ft.	

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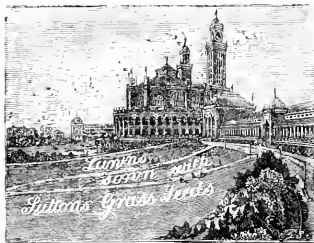
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Specially prepared for the above purposes

SPECIAL GOLD MEDAL, Melbourne, 1880-81.
PRIZE MEDAL, Paris, 1878.

“Melbourne, October 23, 1880.”
“Sir,—By direction of the Commissioners for the Melbourne International Exhibition I have to request that you will be so good as to convey their best thanks to Messrs. Sutton & Sons, of Reading, for their valuable Lawn Grass Seeds planted in the grounds of the Exhibition during the late winter. The seeds have germinated freely, and the lawns are now in splendid condition. Messrs. Sutton & Sons may accept my assurance that the introduction of their Lawn Grass Seeds into this country has been attended with very great success—I have the honour to be, Sir, your most obedient servant,
(Signed) GEORGE C. LEVEY, Secretary,
To the CHIEF CLERK, Melbourne International Exhibition Offices, London.”

The three splendid Lawns at the Paris Exhibition, 1878 produced from our seeds, were awarded a Prize Medal, and thus referred to by “L'Echo Agricole”:
“The Lawns shown by Messrs. Suttons' Agent are at least equal in beauty, vigour, and luxuriance to those shown by any other Exhibitor. They are of extraordinary beauty and evenness, and form throughout one charming velvety carpet.”

From T. F. GRAHAM, Esq., Abingdon.
“About two years ago you supplied me with some Lawn Grasses and Clovers which have made some of the best Lawns I have ever seen, and I now want to add to them.”
From Mr. C. W. ALCOCK, Secretary, Surrey County Cricket Club, Kingston Oval.
“The Committee desire me to say that they have every reason to be satisfied with the Grass Seeds you have supplied for this ground during the last few years.”

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THE **Gardeners' Chronicle.**

SATURDAY, MARCH 4, 1882.

PLANTS OF MYTHOLOGY.

THE welcome arrival of the early flowers recalls myths and fancies connected with them which have been passed on through ages of time, and which the world could ill afford to lose, idle though they be.

“Sweet was the fancy of these antique ages
That put a heart in every stirring leaf,
Writing deep moral upon Nature's pages,
Turning sweet flowers into deathless sages
To calm our joy and sanctify our grief.”

The great inventors of pleasing fancies and stories about plants and flowers were the many-minded Greeks and the religious Romans: the people who invented “Dodonian Jove” and forty other gods must have been religious. Science has deprived us of some of the materials of the classic ages; it has driven the wood nymphs from their trees, and the dryads from their brooks and fountains, and the illusions of the “antique world” could hardly be revived by a modern poet as by Milton, when he wrote—

“By dimpled brook and fountain brim,
The wood nymphs deckt with Daisies trim,
Their merry wakes and pastimes keep.”

The world has grown too “knowing” for actual belief in the fancies of old times, but we can still feel pleasure in repeating them. There is a pleasure, too, in tracing the meaning of the many legends relating to the vegetable kingdom.

The “everlasting hate” entertained between the Vine and Ivy is easily explained, for the first-named trailer grows in the sun, and the Ivy affects shade, and twines upon old walls and ruins. Mrs. Hemans says of it—

“Thy home, wild plant, is where each sound
Of revelly hail long been o'er;
Where sun's full notes once pealed around,
But now are heard no more.”

It is as easy to explain Juno's dislike of the Myrtle, since Venus was adorned with that plant when Paris awarded her the prize of beauty. And for the same reason, although the Myrtle was a favourite flower of the Romans, worn by their heroes as a mark of victory, and by bridegrooms on the bridal day, they very delicately excluded it from the festival of Minerva, to avoid reminding the goddess of her defeat. It must have been the same sentiment of jealousy which rendered the Lily and the Lotus, flowers of Juno, obnoxious to Venus. Her flowers were the Rose, Anemone, Cypress, Apple, Poppy, Myrtle, and Violet. Anemones sprung from the tears she shed over the body of Adonis, and the blood of that handsome youth mingling with them, caused the instant appearance of the Flos Adonis.

“By this the boy that by her side lay killed
Has melted like a vapour from her sight;
And in his blood, that on the ground lay spilled,
A purple flower sprung up, chequered with white.”

Most unfortunately for our world purple flowers now spring from seed, and sometimes slowly; weeds alone grow by magic.

It is not at first sight obvious how the Rose—a flower dedicated to beauty, love, and wine, or, in other words, to Venus—should have become the emblem of silence; but the legend runs that Venus gave a Rose one day to Cupid, who

presented it to Harpocrates, the god of Silence, begging him at the same time to conceal such little slips and fallings among the gods as Cupid might occasion. So Roses were worn at festivals in sign that the confidence of the festive hours, which warm the heart and open the bosom's hiding-places, should not be abused. The sculptured Rose over the portals of ancient banquetting halls conveyed the same hint, and occasioned the phrase "sub rosa."

Notwithstanding the numerous flowers awaiting notice it is not easy parting with the Rose. Sappho's verses are irresistible:—

"Sweetest child of weeping morning;
Gen, the west of earth adorning;
Eye of flow'rets, gulf of lawns,
Bud of beauty, nursed by dawns:
Soft's the soul of love it breathes,
Cyprus's brow with magic wreathes,
And to the Zephyr's warm caresses
Diffuses all its verdant tresses:
Till, glowing with the wanton's play,
It blushes a diviner ray."

Other poets have other theories on the colour of the Rose, as, for example, that the white Rose became red when Venus stepped on a thorn—

"And while the wound with crimson flows,
The snowy flow'ret feels her blood and blushes!"

Or, according to Herrick—

"As Cupid danced among
The gods, he down the nectar flung,
Which, on the white Rose being shed,
Made it for ever after red."

The Violet—favourite of the Athenians and of Napoleon—emblem of Athens, engraved on tablets erected throughout the city, is a flower of romantic origin, according to the poets, though they have given different versions of its creation. The trees were assigned, by poetic fancy, to various celebrities. The towering Ash was the tree of Mars, the Oak of Jove, the Pine of Pan, who turned a nymph beloved by him into a tree of that description, and whom we may hold responsible for the panic dread sometimes experienced in the depths of Pine woods when the wind moans and darkness closes around a dubious road. As a rule, the climbing plants avoid the various species of Pine, though the Mistletoe grows on some of them, finding better entertainment, as a parasite, on the branches than climbers could experience when rooted in a mass of Fir leaves covering an impenetrable layer of shallow surface roots.

The origin of the Fir belongs to mythology, for Atys was metamorphosed into a tree, which was the first Fir tree. Its evergreen habit was due to Zeus, who found Cybele beneath the tree, mourning for Atys, and immediately ordained that the Fir should remain evergreen. Thus it happened that Pines and Firs were dedicated to Cybele, as they also were to Neptune, because the first boats were constructed of their timber.

The Laurel is another tree due to metamorphosis and dedicated to Apollo, who pursued the virgin Daphne with felonious intent, and was just on the point of overtaking her when Divine interposition changed her to a Laurel. The exigencies of poetry have led to several botanical errors, and much confusion has arisen as to the Bay tree and the Laurel.

"The Laurel, meed of mighty conquerors and poets
sage,"

sings an inaccurate bard, meaning, no doubt, the Bay. Cæsar wore a "Laurel crown by special decree of the Senate, and he highly appreciated the opportunity of concealing his baldness, a defect which was reckoned a deformity among his countrymen and among the Jews, whose hair, as a rule, is singularly adherent. It is stated on good authority, however, that Cæsar's crown was not formed of

Laurel or Bay, but of *Ruscus hypoglossum*, a species of Butcher's Broom, called Alexandrian Laurel, though native to Italy.

The most useful tree of the Mediterranean countries owed its miraculous origin to the dispute between Neptune and Minerva at the naming of Athens. The gods decided that the presentation of the best gift to mankind should confer on the giver the honour of naming the city. Neptune at once produced the horse, which sprang from the shore on his striking it with his trident; and the horse is certainly a useful gift, but it typifies war, and Minerva triumphed when she called into being the symbol of peace. Spenser thus describes the process:—

"She smote upon the ground, the which straight forth
did yield
A fruitful Olive tree with berries spread."

It is reported as true history that the Olive has been grown in Syria throughout the historic period, and that it was unknown in Italy at the building of Rome. Probably some Roman traveller brought it from Asia, and others afterwards carried it to Spain, Gaul, and England, where it ripens on a wall in Devonshire. But this prosaic statement warns us to desist from carrying our subject further at present. *H. E.*

New Garden Plants.

OCHINA MULTIFLORA.

THIS remarkable stove shrub is now in bloom at the Holloway Nurseries. The flowers are yellow, with five roundish petals and numerous stamens, whose anthers open bypoceat at the top. So far there is nothing very remarkable about the plant, but as the petals fall off the thalamus of the flower—that part from which all the other parts spring, and which is really the top of the flower-stalk—begins to swell, and finally assumes the form of a large, 5-sided, 5-angled cushion the size of a large Cherry or small Plum, bearing on each of the five angles a carpel or seed-vessel, becoming black when ripe. The sepals, unlike the petals, do not fall off, but remain and increase in size. So far this might be deemed a botanical curiosity only, but the brilliant crimson colour assumed by the thalamus and the persistent sepals give it a distinguished place among ornamental stove plants. It seems probable that the object of this brilliant coloration may be to attract birds, by whose agency the seed may be dispersed. The botanist will recognise in the swollen, brilliantly coloured thalamus a precise correspondence with the Strawberry, the edible portion of which is the thalamus, the pips being the seed-vessels, in this case arranged spirally, and not in a ring, as in the *Ochna*.

TACSONIA PARRIFL. Mast. (See ante, p. 218.)

SINCE writing our previous notice of this plant we have had the opportunity of seeing further material in the hands of Mr. R. S. Williams, who has had the plant since 1879. What we have seen at Mr. Williams' serves to confirm all we have said as to the distinctness and remarkable character of this species. If the flowers in cultivation present the same colour as they do in a wild state—salmon-orange—we may say that up to this time nothing like it has been seen among cultivated Passion-flowers.

POLYSTACHYA DINANTHA, n. sp.*

THIS is a curious species, in the way of *Polystachya rigida* Rehb. f. It is much taller, and comes near in growth and nature of leaves to *Polystachya ensifolia*, Lindl. The raceme at hand is simple and the flowers are equal to those to *Polystachya bracteosa*, Lindl., ochre-coloured, with a quite distinct lip, whose side lobes are purple and the disk dark yellow. There is a half-sphere callus of orange colour in the disk. It was imported by Mr. T. Christy, of Malvern House, Sydenham, from the West Coast of Africa. *H. G. Rehb. f.*

* *Polystachya dinantha*, n. sp.—Caule teretissimo diphylo; foliis linearibus acutis, reticulato flavogrunato, venis tenuis arcuatis; rachis velutina laxillifera; bracteis triangulis ovario puberulis; brevissimis. Fl. roseo; "inverso;" sepalis lateribus in angulum obtusum maximum extensis; triacutis acumineatis puberulis; sepalis imbricatis linearibus triangulis; tepalis linearibus falcatis acutis; labellis a basi lata cuneato dilatato laciniis lateribus medianis quadratis, lacina media triangula apiculata, tertia superiore pilulosa (non puberula); callo transverso semiquadrato in disco superiore.—Ex Afr. occid. trop. insup. or col. T. Christy. *H. G. Rehb. f.*

DAVALLIA BULLATA.

I CONSIDER this Fern to be one of the most valuable kinds grown among the whole family of Ferns. For durability in a cut state it has scarcely an equal during the summer and autumn months. Small plants of it are valuable in many ways, especially for furnishing, whilst as a specimen for exhibition it is most distinct, and always admired. Our large specimen is just pushing up its first crop of fronds, which in a few weeks will be a complete thicket of a beautiful pale green colour. It has just been top-dressed with a little fresh peat, sphagnum moss, and silver-sand, any straggling rhizomes being pegged on to the fresh soil.

We shall now remove it into a Peach-house where the fruit is set. There it will stand till the house is thrown open after the fruit is gathered. In this house it grows far better than under stove treatment. It was not shaded during the hottest weather of last summer beyond what the Peach trees afforded it; previously we have shaded with tiffany, but find it does better without any such attention. A close confined atmosphere does not suit it; the dense growth it makes will damp off under such conditions.

When the Peach-house becomes too cold for it we remove it again to a temperate-house, where it stands till growth commences again in the spring. When the fronds begin to decay in the late autumn (being a deciduous kind) we withhold water somewhat gradually, removing all the fronds a few at a time. It is a variety that is very easily increased by division of its rhizomes. I have often wondered why this useful Fern is not more grown than it is. It ought to be in every collection. *James Hudson.*

RHODODENDRONS.

THE Editor writes to me:—"Is there any marked difference in the seedlings of Rhododendrons?" In venturing to give an answer to this question, so far as my observation and experience among Himalayan Rhododendrons permits, I will for the present confine the word "seedlings" to plants grown from seed imported from their native places, that is to say, plants of the first generation, and my answer must be in the negative. I believe that a packet of seed, gathered from the same species and in the same locality, will yield in Europe seedlings, not of course, absolutely uniform, but certainly showing no marked difference. This result, although often questioned, was surely to be expected, seeing that Himalayan Rhododendrons are mostly social plants, and must commend itself to the experience of our old-fashioned R. ponticum, which, when kept apart from other species and hybrids, continues very true for many generations. Certainly, for the first generation, the seedlings of Himalayan Rhododendrons are often produced in great numbers, almost absolutely alike. Sometimes this uniformity descends to later generations, and sometimes even to hybrids. Thus Mr. J. Sheppard has raised about 150 hybrids between R. Edgeworthii and R. formosum, most of which have bloomed, and he can see no difference whatever in any of them. I must not, however, at present go so far afield, but confine myself to the assertion that carefully collected native seed will, when grown in this country, faithfully reproduce the parent type.

I may see, perhaps, to have unduly laboured this highly probable statement. Nevertheless, the Editor's question is a very important one, even in my limited sense, and is not to be disposed of quite easily. For how comes it that in European collections there prevails such a variety of type with plants of the first generation as fairly to puzzle a connoisseur? Specialists are often justly accused of magnifying unimportant distinctions, but I hope to avoid this charge on the evidence about to be adduced. Take, for instance, R. fulgens, which has been derived exclusively from Sikkim or close by, figured very finely in Sir J. Hooker's magnificent work from his own drawing taken on the native spot. After awhile the seed transmitted by him to Kew produced plants and blossom, and a plate of that blossom appeared in the *Bot. Mag.*, prepared by the very best flower artist. Now, I defy any one to remark a most striking difference between the two portraits, and this not in colour, but in character. The *Botanical Magazine* indeed mentions one difference, and the section of the ovary suggests another; but I have seen in living plants of the first generation quite enough to make

me believe both portraits correct, and each type distinct. Again, the late Mr. Gorrie was one of the first to grow Sikkim Rhododendrons, and in 1854 he was reporting on them to Sir J. Hooker, who published his reports. In these reports he noticed that he had apparently several forms of *R. fulgens*. Mr. Gorrie continued to grow Rhododendrons, and shortly before his death in 1880 he read a paper to the Edinburgh Botanical Society, in which he gave so extraordinary an account of a so-called *R. fulgens* that I thought it desirable to ask leave to inspect his plants. Among them I found one form of *R. fulgens*, but it was not so named. I do not marvel, however, that Mr. Gorrie did not recognise it, but described it as "*R.*—?, an unnamed species," for it is unlike both the types alluded to above. The plant which Mr. Gorrie named *R. fulgens* may possibly be yet another form of the species; but if so, it is a fourth form. His description is as follows:—"*R. fulgens*—a plant which is now about twenty-five years old, and only 15 inches in height by 33 inches in diameter—has never suffered from either winter or spring frosts, nor has it yet flowered, but its compact growth and the bright verdigris-green of its young leaves render it a favourite dwarf evergreen."

Once again, Mr. Luscombe has been growing Sikkim Rhododendrons from the very first, and his plants are, or were, of the first generation. He has written to me on the subject of *R. fulgens*, and he tells me that his type of the species is, "not like that in Sir J. Hooker's work, but loose-flowering like *R. Thomsoni*." Now, considering that Sir J. Hooker's *R. fulgens* has a cluster of many flowers crammed closely together, and that *R. Thomsoni* hangs its few flowers as loosely as may be, this is saying a great deal. Mr. Anderson-Henry considers that he has two or three varieties of the species, and not many weeks ago I discovered in Mr. Rogers' most picturesque nursery, near Southampton, a form which in foliage seemed different from all that I have described. But as this last was a grafted plant, I must not rely too much on its appearance. At Kew, there are several types, which with the kind assistance of the authorities I propose to study during the ensuing season.

Similar remarks might be made with regard to other species, such as *R. argenteum*, Falconeri, Thomsoni, and others; but I must postpone these for the present, and devote a few words to my explanation of the facts as illustrated by the example of *R. fulgens*. I may be wrong, but, if so, I have the satisfaction of knowing that a most competent observer, who is much interested in the subject, will probably find this very spring be in a position to confute me on the spot. The explanation, then, is this:—That as the Himalayan range passes eastward through Nepal, Sikkim, and Bhotan, the genus Rhododendron becomes truly protean in form, and presents not only an extraordinary number of species in a small space, but also striking geographical varieties in very great abundance. Even *R. arboreum*, which, according to Dr. Thomson, is so uniform, except in colour westward, begins to yield to variation in Nepal. On some future occasion I may show how this notion of extreme variety is quite in accordance with high authority, and especially with the writings of Sir J. Hooker (who mentions the case of *R. Falconeri*, *R. Aucklandii*, and others), and I may then point out the curious resemblances, and yet the differences, between the Rhododendrons of Sikkim and Bhotan, which have now been brought together in the *Flora of British India*. For the present I will only add that the circumstances attending the collection of Rhododendron seed, and the fact that ripe seed and blossoms are seldom to be seen together, will explain how many smaller differences have escaped the observation of collectors who have gathered the same species from different localities, from different elevations, or perhaps from different sides of the same valleys. Such an explanation is surely more philosophical than the notion that so many variations have arisen—not gradually, but all of a sudden—from cultural influences. My readers will apprehend how interesting botanically it is to find such a variety of types packed together in so small a compass, for instance, as Sikkim; but they will, of course, remember the character of the country and its climate, where alpine and almost tropical conditions occur side by side. The Heaths at the Cape of Good Hope give an example of great variation in the same family, but Dr. Beccari's remark on the Rhododendrons of Borneo offers the best, and a very curious, analogy.

His words are very striking:—"According to my personal observations it appears that almost every mountain top in Borneo has its own special forms, which do not seem to spread themselves, at least on the adjoining mountains." *J. H. Mangles, Valewood, Haslemere.*

SPRING-FLOWERING RHODODENDRONS.—On March 16, 1878, we devoted an article to the description of various early-flowering Rhododendrons, including *R. dahuricum*, *R. precox*, and *R. Early Gem*. We need not repeat the history and descrip-



FIG. 39.—RHODODENDRON DAHURICUM.

tions then given, but as reminders of these very useful plants we may now give figures of *R. dahuricum* (fig. 39), which is a natural species, and *R. precox* (fig. 40), which is a hybrid between *R. da-*



FIG. 40.—RHODODENDRON PRECOX.

huricum and *R. ciliatum*, raised by Mr. Davies, of Ormskirk. *R. dahuricum* blooms about a fortnight earlier than *precox*, while *R. ciliatum* is later still. Both of these, as well as *R. Early Gem* (figured at p. 335, March 16, 1878), are most useful in the spring garden and for forcing purposes. *R. precox* often flowering under such circumstances in November.

THE WEST OF SCOTLAND PANSY SOCIETY'S SHOW will be held in the City Hall, Candleriggs, Glasgow, on Wednesday, July 26.]

LAYING BOX EDGINGS.

So many substitutes have from time to time been recommended to take the place of Box edgings in gardens, that had not universal taste been overwhelmingly in favour of the latter it would probably have in great measure long ago disappeared from our gardens. Stone or tile edgings may possibly be cheaper in the end than Box, but they will not bear comparison with the natural appearance of Box when neatly laid and kept in proper order. There are, however, exceptional cases where it would be not only true economy, but also something gained in appearance, to discard the Box—as, for example, in a stiff, clayey soil, where Box seldom remains long in good health, and a stone or tile edging is certainly preferable to a patchy Box one. But in these days of economy and retrenchment in gardens it is hardly worth while discussing seriously any present probability of stone or tile edgings taking the place of Box in gardens of any considerable extent. If I had only my own personal taste to consult, I would not hesitate to undertake a little extra labour in planting the Box, to the extent of replacing an ungenial soil with one of a more suitable nature, rather than look at the majority of clumsy-looking edgings that I have seen substituted for Box.

It is hardly necessary to point out the importance of having neat edgings in every cultivated garden, nor is it too much to say that the garden that is without them lacks one of its greatest and most conspicuous ornaments. We have now arrived at a season when Box planting may be undertaken with every prospect of success. Box laying in autumn is rather a risky business unless the soil is light and very dry, and the plants are well rooted. Severe frost claims a heavy mortality among newly laid plants; or, if it is not severe enough to kill them outright, they are often disfigured by the green leaves turning white, and do not regain their normal colour until the season is far advanced. For this reason Box planting upon an extensive scale is best performed during the spring months, when plants having the semblance of a root at all are sure to grow and flourish. I may here mention (although it is somewhat digressing from my text) that people who are in a hurry to "clip" their Box edgings sometimes get nipped by late frosts in May, which sadly disfigure the lines of Box for some time afterwards. But considerable judgment must be exercised in regard to the character of soil and climate. It will always pay those who are engaged in such work to take well their bearings as regards locality, and to look up the average degrees of frost annually registered in the neighbourhood, because what would be safe practice in one place might be the opposite in another.

Assuming, then, that a whole garden, or any portion of it, requires to be relaid, it would be well, if possible, to have the ordinary work well in hand, in order to be able to give concentrated attention to Box planting in fine weather. Two good men will get through more planting in a favourable week than they would otherwise accomplish in double the time, with more satisfaction generally, and better results in the end. To begin with, the gravel should be removed from the line of Box to the centre of the walk, and straight sticks from 1 foot to 18 inches in length should be inserted about the centre of the line at distances of from 10 to 15 yards apart. The sticks indicate to the workman his position while the ground is in process of being prepared for replanting. In cases where the Box has been neglected and has grown naked at the bottom there may be some difficulty in selecting suitable plants to relay the lines over again, in which case all plants that are obtainable with roots should be laid together, whilst those plants having little or no roots should be planted by themselves. If the spring should turn out a genial moist one the chances are that plants having very few roots will succeed equally well with those that are well rooted, but in any case the worst plants that can be imagined may be grown into useful stock in a season. All that is necessary is to lay or "heel them in" sufficiently deep to cover the naked portion of the stems, which, as may be observed by any one, are already covered with little white specks like warts, in reality young rootlets only requiring the natural conditions of soil and moisture to cause them to grow. In a season, then, these plants are grown into valuable stock.

It may be as well to state, for the benefit of those who have to purchase Box for laying, that it costs

about 6z. the running yard, and that one yard will lay three or thereabouts. With regard to the preparation for planting it is important to go about the work methodically and in the simplest manner possible. The operation, from beginning to end, should be directed by some one of experience, and above all things he should have a quick eye for levelling. This is especially necessary in dealing with walks having steep gradients, where a sharp eye is worth a whole set of levelling tools. A simple way of proceeding is to take levels at, say, 15 to 20 yards apart, which will be sufficiently near to guide the workman in preparing and levelling the ground. Beginners will avoid complications by simply calculating that the height of the newly laid Box should be about level with the centre of the walk. It is specially recommended that the ground should be properly dug about 6 inches upon either side the run of the line, and that every stone should be picked out that is likely to obstruct the downward passage of the spade when the trench or cut is being made to lay in the plants. Having done this the earth will have to be firmly trodden with the feet, and brought to within a shade of level with the sticks at the different points where levels were taken. Before proceeding further raise the earth round the pegs indicating the levels up to their proper height, viz., flush with the tops of the pegs, and then lay down a strong line and peg it close to the ground at each level. After this it is only necessary to fill in between the pegs, pressing the soil firmly until the line when freed dangles upon the surface from one end to the other.

The next step for consideration will be the making of the plants, which for "neat work" should be done by those who are about to lay them. This can be done during the mornings and evenings, or during wet days, when it is not practicable to work out-of-doors. No workman should be allowed to make or prepare plants who has not had some practice in laying. The plants should be made of equal length and thickness, and trimmed level upon the top, so that the line, when laid, will present an even surface. A sufficient number of plants being ready the line should be re-laid in its proper position, and tightened as much as the cord will bear, and then "pegged firmly down at every level point," in order that it may not be disturbed during the process of planting. The trench should then be cut flush with the line and slanting slightly inwards at the bottom, so that when the plants are pressed after being laid they take a perfectly perpendicular position. No more than one hand should be employed upon the same line unless in case of workmen who have had considerable practice together. After the plants are laid press them firmly at their roots, then fill in the spare soil which, when pressed firm as a board, should be sloped down with the spade from the line of Box in the direction of the walk, leaving a good margin of soil at the base of the cut for the roots of the Box to grow in. Then fill in with stones or rubble, and bring the gravel back to its former position.

It should be stated for the benefit of amateurs and others that Box should always be laid with its roots towards the walk whether in small designs or in ordinary cases of relaying the edges of garden walks. Happily for gardeners and gardeners those Dutch gardens and scrolls laid in treble lines of Box have grown obsolete. I can remember being on my knees for ten weeks at one spell, assisting to lay one of those namby-pamby doll gardens, and looking back now with the experience of twenty years I can only say the garden was dear at the price. We first prepared the ground roughly, marked out the lines where the Box was to be laid, dug and cleared it of stones in the run of the line of Box, then firmed and levelled the whole surface and laid down the design. But what is advocated here is that it is worth an effort at this the most favourable season of the year to renew the edgings of walks with neatly laid Box, which together with clean well rolled walks are the most pleasing features of a well kept garden. *H. Hutt.*

PEAR JALOUSIE DE FONTENAY.—Mr. Baron remarks in the *Florist and Poinsettist* that there are few better Pears than this, which is one of the oldest of our high-class varieties, and yet is comparatively unknown. It is not a sensational Pear, but, like the Winter Nells, it is always good. The fruits are somewhat below the size in fashion at the present time, and it has the misfortune to come into use in October, when good Pears are abundant.

EMBER COURT.

THIS charming country seat, the residence of C. J. Corbett, Esq., is situated in a beautiful and fertile district about half-way between Thames Ditton and Esher railway stations, and about 2 miles distant from Hampton Court Palace. The estate is of considerable historical interest, as may be seen from a perusal of the history of Surrey. The present proprietor has occupied the place over twenty-one years, during which time important additions have been made to the gardens and grounds. The carriage-drive leading to the mansion is approached from the Esher Road through substantial iron gates fixed into strong square stone pillars. The drive curves gently to the east front, from which there is a good view of the park, which is fertile in appearance, and well timbered. The house is a plain but substantial edifice of brick, partly stuccoed, with extended wings of a uniform character. The ceilings of the front hall are fitted up in the arabesque style, and the mansion contains a large collection of pictures.

The grounds upon the south side contain good specimens of *Abies cephalonica*, fine *Wellingtonias* and *Araucarias*, and at the south-west angle, outside the conservatory, a huge specimen of the *Oriental Plane*. The conservatory and fernery in three divisions run east and west, and communicate with the mansion, the fernery being very artistically arranged in the inside with cascades and rockwork. The conservatory is a large oblong structure, ornamented with creepers upon the roof of *Coccoloba scandens*, *Tecoma jasminoides*, *Hibiscus thurberi*, *Lapageria*, &c., and well furnished with fine Palms, Tree Ferns, *Musa Ensete*, *Spathoglaphis africana*, and other winter-flowering subjects. Orange trees and tall *Aralias* have also a good effect in this structure. In the three divisions of the fernery the principle of planting is the same throughout—projecting pieces of rock with pockets containing a handsome specimen Fern, and having a groundwork of *Selaginella Kraussiana*, and the jungles among the rocks treated in a similar way. The effect produced is largely owing to the fact that but few large Ferns are used, while the groundwork of medium-sized plants and the carpet of *Selaginella* is elaborate. The sides of the structure are also made to have a rustic appearance, by fastening pieces of cork to the woodwork, upon which dwarf-growing Ferns and mosses are kept green and fresh by supplying them with plenty of moisture. The passage from the fernery into the drawing-room is exceedingly pretty. As you ascend the steps the rockwork is composed of *Delry-side spar*, and is beautifully clothed with Ferns and mosses.

Flower gardening is carried out in a series of beds cut out of the margins of the lawns, and in geometrical groups in other portions of the grounds, which are also furnished with valuable ornamental trees and plants. In fact, flowers of one kind or another and trees and shrubs are closely associated with each other over the whole area of the dressed grounds, with more than ordinary taste and skill. The chief attraction of the grounds lies, however, in the meanderings of the Mole, or, rather, of the river Ember, a tributary of the Mole. Outside the conservatory, on the river's brink, stands a fine group of *Nymph Elms*; and following the course of the river through the grounds in a northerly direction are some fine specimen Conifers and a stump of a fine old Willow (*Salix alba*) which was blown down about a year ago. The stump is over 4 feet in diameter, or 12 feet 6 inches in circumference, according to the ordinary rule of calculation. This is thought to be an extraordinary size for a tree of its kind.

In the north side of the grounds the "nut-walk and roseray are said to be very pretty when in leaf, as also a large *Viburnum* planted against the north wall of the kitchen garden, which is 4 feet in diameter at 2 feet from the ground, and which covers a length of wall 27 yards in length, besides covering a framework, 10 yards in diameter, the same length. The branches are supported by stakes about 7 feet high from the ground, and a design underneath is planted with hardy ornamental shrubs.

Leaving the kitchen garden on the right, and pursuing the course of the river, which is spanned by several rustic bridges, the northern extremity of the grounds is reached, where there are some grand specimens of *Thuja Lobbi*, 50 feet high; *Cupressus Lawsoniana* and *macrocarpa*, a fine *Abies cephalonica*, and several good *Wellingtonias*. In these (commonly called the new) grounds spring

bedding and flowering shrubs are the chief feature. One must omit many things of interest in a brief notice of this kind, but before entering the kitchen garden I must mention a noble tree of *Taxodium distichum* by the brink of an outlet of the river, which is remarkable for its size, but it is feared it is in declining health.

The kitchen garden is a very compact walled-in oblong figure, divided into the usual quarters for the cultivation of fruits and vegetables. The walls are in excellent order, as also the trees, which are neatly trained, and the espalier-trained trees bear evidence of the same skilful treatment. The forcing houses are within the walls of this garden, and are in capital repair, and their occupants generally in first-rate order. The south wall is entirely covered in with glass for forcing Figs, Grapes, Peaches, and other fruits. One of the divisions is devoted to plant growing, and contains well cultivated samples of popular stove plants.

The second range is about equally divided between cultivating plants and fruits. Of the latter Pines, Grapes, Peaches, and Strawberries, may be mentioned; and of the former Orchids, Ferns, and miscellaneous plants generally. There are several detached forcing pits which are found useful, and a fine spanned structure for growing Pines and New Holland plants.

In the division with the Pines Cucumbers are well grown in boxes placed over the hot-water pipes and trained up both sides of the roof. In the cool division there is a good show of seasonable flowers upon the side stages, while the centre stage is arranged with New Holland plants in considerable variety, intermixed with other flowering plants, which add immensely to the appearance of the house, and bear testimony to the skill of the cultivator (Mr. Bigg), who has been head gardener at the place for over nine years. *Albion.*

PYRETHRUM INSECT-POWDER.

THERE are very few data at hand concerning the discovery of the insecticide properties of *Pyrethrum*. The powder has been in use for many years in Asiatic countries south of the Caucasus mountains. It was sold at a high price by the inhabitants, who successfully kept its nature a secret until the beginning of this century, when an Armenian merchant, M. Juntikoff, learned that the powder was obtained from the dried and pulverised flower-heads of certain species of *Pyrethrum* growing abundantly in the mountain region of what is now known as the Russian province of Transcaucasia. The son of M. Juntikoff began the manufacture of the article on a large scale in 1825, after which year the *Pyrethrum* industry steadily grew, until to-day the export of the dried flower-heads represents an important item in the revenue of those countries.

Still less seems to be known of the discovery and history of the Dalmatian species of *Pyrethrum* (*P. cinerarifolium*), but it is probable that its history is very similar to that of the Asiatic species. At the present time the *Pyrethrum* flowers are considered by far the most valuable product of the soil of Dalmatia.

There is also very little information published regarding either the mode of growth or the cultivation of *Pyrethrum* plants in their native home. As to the Caucasian species, we have reason to believe that they are not cultivated—at least not at the present time—statements to the contrary notwithstanding.* The well-known Dr. Gustav Radde, Director of the Imperial Museum of Natural History at Tiflis, Transcaucasia, who is the highest living authority on everything pertaining to the natural history of that region, wrote us recently as follows:—"The only species of its genus—*Pyrethrum roseum*—which gives a good effective insect powder, is nowhere cultivated, but grows wild in the basal-alpine zone of our mountains at an altitude of from 6000 to 8000 feet." From this it appears that this species, at least, is not cultivated in its native home, and Dr. Radde's statement is corroborated by a communication of Mr. S. M. Hutton, Vice-Consul-General of the United States at Moscow, Russia, to whom we applied for seed of this species. He writes that his agents were not able to get more than about half a pound of the seed from any one person. From this statement it may be inferred that the seeds have been

* *Re. et Comm. of Patents, 1857, Agriculture, p. 128.*

gathered from the wild and not from the cultivated plants.

As to the Dalmatian plant it is also said to be cultivated in its native home, but we can get no definite information on this score, owing to the fact that the inhabitants are very unwilling to give any information regarding a plant the product of which they wish to monopolise. For similar reasons we have found great difficulty in obtaining even small quantities of the seed of *P. cinerariifolium* that was not baked or in other ways tampered with to prevent germination. Indeed, the people are so jealous of their plant that to send the seed out of the country becomes a serious matter, in which life is risked.

The seed of *Pyrethrum roseum* is obtained with less difficulty, at least in small quantities, and it has even become an article of commerce, several nurserymen here, as well as in Europe, advertising it in their catalogues. The species has been successfully grown as a garden plant for its pale rose or bright pink flower-rays. Mr. Thomas Meacham, of Germantown, Pa., writes us:—"I have had a plant of *Pyrethrum roseum* in my herbaceous garden for many years past, and it holds its own without any care much better than many other things. I should say from this experience that it was a plant which will very easily accommodate itself to culture anywhere in the United States." Mr. Peter Henderson, of New York, another well-known and experienced nurseryman, writes:—"I have grown the plant and its varieties for ten years. It is of the easiest cultivation, either by seed or division. It now ramifies into a great variety of all shades, from white to deep crimson, double and single, perfectly hardy here, and I think likely to be nearly everywhere on this continent." Dr. James C. Neal, of Archer, Fla., has also successfully grown *P. roseum* and many varieties thereof, and other correspondents report similar favourable experience. None of them have found a special mode of cultivation necessary. In 1856 Mr. C. Willemot made a serious attempt to introduce and cultivate the plant* on a large scale in France. As his account of the cultivation of *Pyrethrum* is the best we know of, we quote here his experience in full, with but few slight omissions:—"The soil best adapted to its culture should be composed of a pure ground, somewhat siliceous and dry. Moisture and the presence of clay is injurious, the plant being extremely sensitive to an excess of water, and would in such case immediately perish. A southern exposure is the most favourable. The best time for putting the seeds in the ground is from March to April. It can be done even in the month of February if the weather will permit it. After the soil has been prepared and the seeds are sown they are covered by a stratum of earth mixed with some vegetable mould, when the roller is slightly applied to it. Every five or six days the watering is to be renewed, in order to facilitate the germination. At the end of about thirty or forty days the young plants make their appearance, and as soon as they have gained strength enough they are transplanted at a distance of about 6 inches from each other. Three months after this operation they are transplanted again at a distance of from 14 to 20 inches, according to their strength. Each transplantation requires, of course, a new watering, which, however, should only be moderately applied. The blossoming of the *Pyrethrum* commences the second year, towards the end of May, and continues to the end of September." Mr. Willemot also states that the plant is very little sensitive to cold, and needs no shelter, even during severe winters.

The above-quoted directions have reference to the climate of France, and as the cultivation of the plant in many parts of North America is yet an experiment, a great deal of independent judgment must be used. The plants should be treated in the same manner as the ordinary *Asters* of the garden or other perennial Compositae.

As to the Dalmatian plant, it is well known that Mr. G. N. Milco, a native of Dalmatia, has of late years successfully cultivated *Pyrethrum cinerariifolium* near Stockton, Cal., and the powder from the California-grown plants, to which Mr. Milco has given the name of "Bulnach," retains all the insecticidal qualities, and is far superior to most of the imported powder, as we know from experience. Mr.

* Mr. Willemot calls his plant *Pyrethrum du Caucase* (*P. Willemoti*, Duchroite), but it is more than probable that this is only a synonym of *P. roseum*. We have drawn liberally from Mr. Willemot's paper on the subject, a translation of which may be found in the report of the Commissioner of Patents for the year 1854, Agriculture, pp. 223-331.

Milco gives the following advice about planting—advice which applies more particularly to the Pacific coast—"Prepare a small bed of fine, loose, sandy, loamy soil, slightly mixed with fine manure. Mix the seed with dry sand, and sow carefully on top of the bed. Then with a common rake disturb the surface of the ground half-an-inch in depth. Sprinkle the bed every evening until sown; too much water will cause injury. After it is well sprouted, watering twice a week is sufficient. When about a month old, weed carefully. They should be transplanted to loamy soil during the rainy season of winter or spring."

Our own experience with *P. roseum* as well as *P. cinerariifolium* in Washington, D.C., has been so far quite satisfactory. Some that we planted last year in the fall came up quite well in the spring, and will perhaps bloom the present year. The plants from sound seed which we planted this spring are also doing finely, and as the soil is a rather stiff clay, and the rains have been many and heavy, we conclude that Mr. Willemot has overrated the delicacy of the plants.

In regard to manufacturing the powder, the flower-heads should be gathered during fine weather when they are about to open, or at the time when fertilization takes place, as the essential oil that gives the insecticidal qualities reaches, at this time, its greatest development. When the blossoming has ceased the stalks may be cut within about 4 inches from the ground and utilized, being ground and mixed with the flowers in the proportion of one third of their weight. Great care must be taken not to expose the flowers to moisture, or the rays of the sun, or still less to artificial heat. They should be dried under cover and hermetically closed up in sacks or other vessels to prevent untimely pulverization. The finer the flower-heads are pulverized the more effectually the powder acts and the more economical is its use. Proper pulverization in large quantities is best done by those who make a business of it and have special mill facilities. Lehn & Fink, of New York, have furnished us with the most satisfactory powder. For his own use the farmer can pulverize smaller quantities by the simple method of pounding the flowers in a mortar. It is necessary that the mortar be closed, and a piece of leather through which the pestle moves, such as is generally used in pulverizing pharmaceutical substances in a laboratory, will answer. The quantity to be pulverized should not exceed 1 lb. at a time, thus avoiding too high a degree of heat, which would be injurious to the quality of the powder. The pulverization being deemed sufficient, the substance is sifted through a silk sieve, and then the remainder, with a new addition of flowers, is put in the mortar and pulverized again.

The best vessels for keeping the powder are fruit jars with patent covers, or any other perfectly tight glass vessel or tin box. C. V. Riley, in "*American Naturalist*."

(To be continued.)

PLANT PORTRAITS

ALOCASIA PUTZEYSII, N. E. Brown, sp. n., *Illust. Hort.*, t. 439.—A Javanese Aroid, with stalked petiolate leaves, 1-1½ foot long by 6-7 inches wide, hastate ovate lanceolate acute, dark green, with a light green edge, and with the nerves remote from one another and white; the under-surface is of a dark violet colour. Introduced by M. Linden.

CAMBISEDESIA PARAGUAYENSIS, Hook. f., *Bot. Mag.*, t. 6604.—A Melastomaceae shrub, with small sessile ovate acute ciliate leaves, and terminal many-flowered cymes of rosy-lilac flowers about 1 inch across. Native of Paraguay. Messrs. E. G. Henderson & Son.

CAMELLIA GUISEPPINA MERCATELLI, Full So., *Toscana di Orticultura*, October.—Flowers white, sparingly striped with red, moderate in size, very double, and very symmetrically imbricated, inner petals somewhat pointed, outer ones rounded, faintly crenulate.

GYNURA AURANTIACA, *Illust. Hort.*, t. 436.—A remarkable Javanese Composite perennial, with a thick fleshy stem and shortly stalked ovate acute coarsely toothed leaves, pilose, and of a violet or purple tint except near the apices. It is suspected that it will be a good plant for summer bedding. Hort. Linden.

HIBISCUS ROSA SINENSIS, Lucien Linden, *Illust. Hort.*, t. 447.—Flowers large, very double, yellowish, striped and variegated with brilliant red markings.

IRIS SUSIANA, Berlin *Monschrift*, December. *LESPEDEZA BICOLOR*, Turczaninow, *Bot. Mag.*, t. 6602.—A hardy Papilionaceous shrub, native of North-eastern Asia, with glabrous 3-foliolate leaves with oblong leaflets. The flowers are numerous in branched panicles, each about the size of the flower of a *Vetch* and of a rosy-purple colour. Hort. Kew.

MASDEVALLIA SHUTTLEWORTHII, *Illust. Hort.*, t. 435.—Flowers yellowish, with broadly ovate segments, striped spotted and barred with red, and prolonged into very long slender tails. See *Gard. Chron.* 1875, v. 1, 1704 1876, vol. ii., 782.

NECTARINE PEACH, *Illust. Hort.*, t. 440.—Fruit of medium size, quite glabrous, like a Nectarine, golden-yellow, brilliant and shatter soft. Flesh very juicy, greenish-white, darker towards the centre.

PEAR JULES D'AIROLES (Leon Leclerc), *Lull. d'Arboretum*, January, 1882.—Fruit large, pyriform oblique, brilliant red on the sunny side, eye shallow, stalk stout, short; flesh white, juicy, of first quality. Season, December.

TOMATO TRENTHAM EARLY FILLBASKET, *Florist and Pomologist*, December.—A cross between *Criterion* as the seed-parent, and *Triophy* as the pollen-parent. It has the fine flavour and colour of the latter with the productiveness of *Criterion*. Raised by Mr. Stevens, of Tientham.

SHOREHAM PLACE.

SHOREHAM PLACE, near Sevenoaks, Kent, is situate about half a mile from the Shoreham station on the London, Chatham, and Dover Railway, and is the residence of H. E. Midday, Esq. The neat and practical manner in which gardening is carried out there is at once evident when the garden is entered, and in the various plant-houses may be seen many novelties of sterling merit, and which are also well grown. The flowering-house is a span-roofed structure 50 feet by 20, and is very gay with *Amaryllis*, *Cyclamen*, *Primulas* (Williams' *alba magnifica* and *rubro-violacea*, very fine), *Carnations* of sorts, *Cinerarias*, *Callas*, *Deutzias*, *Epacris*, *Salvias*, *Lilacs*, *Rhododendrons*, *Azalea indica* and *mollis*, *Abutilons*, *Gaultheria Rose*, *Lilium trigynum*, and that grand old *Pelargonium Rolisson's Unique*, intermixed with *Camellias* and *Lilacs*, form a very nice display. The *Orchid*-houses are also very gay, amongst others in flower being *Cypripedium boxalli*, *C. insigne* (a fine variety with three dozen flowers), *C. villosum* (with two dozen blooms), *Coleogyne cristata*, *Vanda gigantea*, *Dendrobium Wardianum*, *D. noble*, *Lycaste Skinneri*, *Calanthe Veitchii* and *vestita*, *Vanda superba* and *tricolor* (fine varieties), *Phalenopsis Schilleriana*, *Dendrobium glumaceum*, *Lalia Filcheri* (rare), *Cypripedium barbatum*, *Odontoglossum crispum* (many varieties), *Oncidium*, &c. These mixed with flowering plants of *Begonia odorata*, *nitida* and *manicata*, and several good Ferns, form a very imposing sight. The various growths in other varieties of *Orchids* show that they receive the attention they require; the cool *Orchids* are done remarkably well, and are grown in quantities for cutting purposes.

The stove contains a very fine collection of well-coloured *Dracenas* and *Crotons*, *Palms*, and other fine-foliage-plants. Flowering plants are also well represented. Fine specimens of *Anthium Scherzerianum*, *Eucharis*, *Dipladenias*, *All. mandas*, &c., are most noticeable; and winter flowering *Begonias* are grown extensively, as also are *Thyrsacanthus rutifolius*, *Centropogon Lucyanus*, and such-like—these at this dull season of the year are very useful; a lean-to house planted with *Roses*—*Niphetos*, *Marichal Niel*, *Gloire de Dijon*, being particularly fine just now, and have been so all the winter. The fruit-houses are promising to produce good crops; *Peaches*, *Nectarines*, and *Figs*, are well set, and the *Vines* look remarkably well, carrying a good crop, clean, strong, and healthy.

Noticeable also in a late *Peach*-house are fine specimens *Ericas*, *ampullacea*, *cerinthoides*, *coronata*, &c., making fine growth. The various pits and frames are full of good useful flowering plants, suitable for cutting purposes. The forcing department is also now busily engaged. *Beans*, *Melons*, *Cucumbers*, and *Strawberries* are grown in great quantities, and are producing fine crops. The whole of this establishment is well done; it has been under the management of Mr. James Burt for sixteen years, and the condition of both indoors and out reflects great credit on his abilities as a gardener. U.

THE HERBACEOUS BORDER.

OMPHALODES VERNA.—This pretty spring flowerer, which is now in full bloom here, like many other things, fully a month before its usual time, will be thought by many too common and too easily grown to require any notice. Yet how many gardens are without it, and in mine, for one, it used to be planted nearly every year only to perish before the next. Two years ago, I was at Grange-over-Sands, where the gardens are full both above and below ground of limestone rocks, about the edges of which this plant ran and flourished so luxuriantly as to become in some spots a troublesome weed. It did nowhere better than at the edges of drives covered with gravel and bounded by rocks. I had supposed from its resemblance to a *Myosotis* that it liked a damp and shady spot, and I am prepared to hear that it does well in such places in some gardens; but here the clouds give enough shade, and there is too much damp. However, I brought a large supply from Grange, and planted it everywhere. The finest hatch is where it has strayed into a gravel walk on the upper ledge of a steep bank, a very well drained spot. But I have 200 or 300 yards of edging made of common square blue Staffordshire tiles. The soil on the border side of these is level with the top of the tile; on the other side, the walk is 4 inches below the top of the soil. When planted at the edge of the border quite against the tile, many rock plants which I cannot grow generally on a flat border seem quite at home, and grow over the edge down to the gravel. This is the place that just suits *Omphalodes verna*. It runs along the edge of the tiles, sending up its suckers as it goes, which again send their flowering shoots to hang over the side, and make what would otherwise be an ugly edging very ornamental. It requires, however, trimming and thinning, and replanting occasionally; for when it takes to a spot, the multiplication of its shoots is tremendous. *C. Wulley Dol, Edge Hall, Malpas.*

PULMONARIAS.—The variety sold as *P. saccharata grandiflora*, and also having several other names (the oldest and most correct, if I mistake not, being *P. officinalis* var. *caucasica*), is perhaps the most showy of the many varieties of Lungwort. It is remarkable for being this year ahead of the other varieties in its time of flowering, having been fully out since the beginning of February. Two years ago a native form common in woods near Poole in Dorsetshire, whence I had it, was equally ahead of the others. In Bentham's *British Flora* it is stated that the two forms recognised as native, generally called *P. officinalis* and *P. angustifolia*, are only varieties of one species, and that intermediate forms are found in different parts of Europe connecting them. Having done my best to collect all the *Pulmonarias* in cultivation in England, I am disposed, as a gardener, to agree with Mr. Bentham. I except, of course, the plants now generally called *Mertensias*, and the delicate and rare *P. dahurica*, but I think that of the others—more than a dozen in number, and still more in name—a series may be formed, between the links of which it is difficult to draw a line. *Pulmonarias* vary a good deal according to soil and situation, and probably most of the so-called species are local varieties found wild in some parts of Europe or Asia. *Pulmonarias* are very unwilling to make seed in the garden, and I believe in England generally. Being asked for some seed for scientific purposes I searched all my plants last year, and a single seed, which was lost in transit, was all I was able to send. The very early flowering of *Pulmonarias* is to be regretted, as the colour of the flowers is spoilt by frost, though the plants do not suffer. *C. Wulley Dol, Edge Hall, Malpas.*

BORAGO ORIENTALIS.—Amongst the most conspicuous of outdoor herbaceous plants now in flower is the subject of the present note. It is quite hardy, but the pretty blue blossoms are sometimes discoloured and spoilt if severe weather sets in after they have opened. It grows about a foot high, and will take care of itself in the front of the ordinary shrubby border. It is a native of Eastern Europe and Western Asia, and was cultivated in the Chelsea Botanic Garden in 1752.

THE BURTON-UPON-TRENT HORTICULTURAL SOCIETY'S FLOWER SHOWS will be held this year on June 21 and August 23.

SALIX BASFORDIANA.

UNDER the name *Salix Basfordiana*, the well-known Willow nurseryman, Mr. Scaling, has for many years distributed a very beautiful Willow which deserves general cultivation. Under the name *Salix sanguinea*, Mr. Scaling also sells another Willow having the closest resemblance to the first. The one is male and the other female; and I am satisfied they are the two sexes of the same species. I have not succeeded in finding any scientific description of this Willow, and I propose to describe it now under the appellation given to the male plant, *S. Basfordiana*.

When I first received this Willow from Mr. Scaling in 1871, he informed me that he had found it some years before growing in the Forest of Ardennes,



FIG. 41.—SALIX BASFORDIANA, HORT. 1. MALE.

in the North of France, from whence he subsequently obtained cuttings.

Salix Basfordiana belongs to the section of the Willows called "Fragiles," which, by the way, very little deserves the appellation: it is especially inapplicable to the species now under consideration. It grows of considerable height in a broad pyramidal shape: the foliage is bright, abundant, and handsome. But the most striking beauty of the tree is the bark, which is brilliant orange passing to red in the terminal twigs, with a shining, polished surface. The colour is very remarkable, and altogether surpasses that of our Golden Osier—*Salix vitellina*. The bark of the female plant is rather darker than in the male, especially on the small terminal branches. The female tree is slightly less vigorous in growth than the male, and perhaps rather less hardy.

Salix Basfordiana has considerable resemblances to three of our native *fragilis*. The foliage and glossy smoothness of the bark—though not its colour—

resemble *S. decipiens*: the female catkins and ovaries are very like those of *S. Russelliana*, while the male catkins resemble *S. fragilis*.

The early foliage and the catkins appear together, usually about the third or fourth week of April. The leaves are lanceolate, pointed, slightly serrated, and very glabrous. When the growth is very vigorous large stipules are produced; but they are often entirely wanting. The young twigs and the developing leaves are frequently stained with crimson, as in *S. decipiens*.

Female catkins cylindrical, about 1½ inch long. Ovaries adpressed to the axis, as in *S. Russelliana*. Scales smooth, very slightly ciliated at the edge, or not at all, about two-thirds the length of the ovary. Germen nearly sessile, lanceolate, smooth, closely resembling *S. Russelliana*. Style longer than the bifid stigma.

Male catkins cylindrical, often reaching 2½ inches in length. Scales slightly ciliated, about half the length of the stamens. The male catkins are handsome, abundant, pale yellow, with an agreeable perfume, and are much frequented by bees.

The provisional name, "*Basfordiana*," has been given to the Willow, after the parish, Basford, Notts, in which Mr. Scaling resides, and where he cultivates an enormous collection of species and varieties of *Salices* with great success.

This is the best season of the year for planting Willow cuttings, and it should be known that cuttings succeed far better than rooted trees transplanted. *James Salter, F.R.S., Basingfield, Basingstoke.*

[We have submitted the drawings to M. Crépin, the Director of the Brussels Botanic Garden, the authority for plants of the Ardennes, but that gentleman is not able to give an opinion as to the identity of this form. ED.]

Notices of Books.

The Names of Herbes.

MR. BRITTON has edited for the English Dialect Society a reprint of William Turner's treatise on this subject, which dates as far back as 1548. Indexes giving the modern names of the plants are added, the necessity for which is apparent from the title-page, which runs thus:—"The Names of herbes in Greke, Latin English, | Duch & Frenche, wyth | the commune names | that Herbaries | and Apothecaries use. Gathered by William Turner." The book is dedicated, in the long-winded and fulsome style then prevalent, "To the mooste | noble & mighty Prince Edward | by the grace of God Duke of Summerset, | Erl of Hertford, Vicount Beuchamp, | Lord | Semour uncle unto the Kynges highnesse | of Englands, governor of his most roy | all person, and Protector of al his realmes | dominions and subiectes," &c. The book was written "from your grace's house at Syon, anno Dom. M^{CC}XLVIII," and it is interesting to find a park, still renowned for its fine trees, even at that time enjoyed a similar renown. Thus we are told that "Cypresses growe in great plenty in my Lordes graces gardine at Syon." Of "Pomgranat trees" also, which "growe plentifully in Italy and in Spayne," we are told that "there are certayne in my Lordes gardine at Syon, but their fruit cometh neuer unto perfection." The Fig tree was in cultivation at that time also, as we learn from the following extract:—"Ficus is called in Greke Syce, in English a Fig tree, in Duch ein figge baume, in frinch vng figuier. There are diuers Fyg trees in Englands in gardines, but nowhere els." Strawberries also were common enough, for we read that "Every man knoweth we inough where Strawberies growe."

Of Narcissus it is stated that there is one "wyth a white floure, which groweth plentifully in my Lordes gardine in Syon, and it is called of diuers, wythe Laas tibi; it maye also be called wythe daffadyll."

The list will prove useful to those seeking the history of the introduction of various plants. Thus, while the Larch, the Fir, and the Pine—of which latter we are told, by the way, that "there groweth one fayre one in Richmund"—are all mentioned—in some cases as "plated and set by mannes hande, both in England and in Germanie"—no mention is made of the Cedar. As to the *Platanus*, Turner tells us he "never saw any plaine tree in Englands sauing one in North-umberlande besyde Morpeth, and another at Barnwel Abbey besyde Cambrige." In reference to "radix," Radishes, it appears that while the long kinds were

common in England at that time, "the other kynde [with], a rounde root lyke a rape . . . called radix Beotia and radix Syriaca" had only been seen by the author "no where els sayunge only in high Almany [Germany]." Turner, like many of his successors, and with as little success, sought to impose English names where there were none. Asparagus, the Asperge of the French, was for Turner "sporage," a good enough word, at any rate better than the Sparrer-grass which has prevailed. Our Turnip Radish, he calls an "Alman or rape radices"—rape corresponding to Brassica Rapa, and not to the B. Napus or Turnip. The latter vegetable was not grown in England at that time; for though Turner says he has "hearde sume cal it in Englishe a

an arber for the tyme of summer." The name Smilax was also applied to the Vew.

The extracts we have made will suffice to show what interest attaches to the "names of herbes," and what service Mr. Britten has done by reprinting it.

Natural History.

ABOUT BIRDS.—It is a matter of regret to all who take an interest in the pursuits of country life and the study of natural history that the opportunities of observing the habits of British birds are restricted, in the case of the majority who have no leisure for extended explorations, to the more common and well-known

preserved neighbourhoods, their numbers were terribly thinned. I wish a Rare Bird Fund could be established for rewarding keepers and others who could point out living specimens in the woodlands in their range, and not let the barn-door be the record of their skill in destroying life. I fear we have but few Watertons left among us—at least, none so bold and outspoken in condemning the cruel warfare waged against many birds of value and interest to the community at large, such as the owl, kestrel, &c. There is some comfort to be found in recent legislative acts which have thrown the eggs of their protection over those birds that are esteemed of benefit, or that do not interfere prejudicially with our crops of corn or fruit. The Wild Birds Protection Acts have been undoubtedly beneficial, but while common birds increase and multiply, the more beautiful and interesting rather show decrease. And one reason, besides the avidity with which they are pursued by collectors and others is, that our rare birds have so few abiding places where they can roost in securely, and find a safe and undisturbed refuge in the nesting season.

It has occurred to me that those naturalists who are strongly in favour of the more complete preservation and protection of rare birds might by joint co-operation give greater effect to the wise and merciful laws recently enacted by imitating the sporting community and establishing coverts for the purpose of securing safe breeding places both for residents and migrants, and providing in such coverts, by the introduction of proper trees and shrubs, a certain amount of natural food, the produce of the plantation. It may seem a little utopian to uninterested people to propose devoting a certain acreage of land merely for the preservation of birds which may not be giving direct benefit to the community; but, properly explained, it is not more so than forming fox-coverts, and maintaining them for the harbour and increase of those animals. If on some of our great estates only one such wood were planted and kept sacred to birds, so fenced that no hare or rabbit or wily fox, or even predatory boy, could invade its guarded precincts, what a source of interest it would become; and it would have the merit of embellishing the landscape, if planted with the following trees and shrubs, all of which afford either food or shelter to nearly every kind of wild bird, always excepting the fen and heath birds. I would plant central groups of the Douglas Fir; this, with masses of Norway Spruce, the Scotch and Austrian Pine, would give shelter to our larger birds, and in time tempt even the banished cross-bill. The Larch should also be included, and the Hemlock Spruce sparingly distributed; the two Cherries, Cerasus Mahaleb and C. Padus, with the Plum, myrobolana and spinosa, Pyrus Malus, Sorbus, and the Mountain Ash—all abundantly; the Elder and Viburnum opulus, Holly; and all these latter, which would be a third rank, should be followed as an outer fringe by Berberis communis and Mahonia, Cotoneaster Simonsi, Leycesteria formosa, the Dog Rose, and the Bramble, with Raspberries and some Gorse bushes, the whole hedged in with the common Thorn, bushes of which should find a place. An enclosure of, say, 4 acres would be insufficient for trees so valuable for birds as the Oak and Beech; the slow growth and unbragous character of these trees would be also against them. The trees named already as suitable would, fairly planted, grow rapidly, and in half a score years present a very fair covert, and would from the second year be valuable for some of the smaller song birds. *William Ingram, Belvoir, February.*



FIG. 42.—SALIX FASTORDIANA: MALE. (SEE P. 298.)

turnepe, and other some a naved or navel [navet, French], yet he mentions it as growing plentifully at Andernake (Andernach) in Germany. Moreover, he tells us that it may also be called "long Rape or navel gentle, as a Rape hath a round roote, so hath a navel a long root and something yealowishe." From this, it is clear that Globe Turnips were not known in those days. Raspberries were clearly not common, for all that is said is that "they growe in certayne gardines of Engleland," less than is said in the case of Savin. What we now call Scarlet Runners were then classed under Smilax hortensis—very wide of the mark, the more remarkable as under the head of Asparagus, as also under Smilax aspera, the writer shows that he knew the true Smilax. Be this as it may, there is no mistaking the author's meaning, for his Smilax hortensis, is a "some wryte, Phascole. It may be called in English kydney beane, because the seede is lyke a kidney or arber beanes, because they serve to couer

forms of bird life. The less frequently met with examples, reported scarce, are becoming really rare. Our local newspapers record with painful iteration the destruction of rare birds, and but too frequently of the seldom seen and interesting Falconidae; only this week I have read of a golden eagle having been shot in Glenalmond, on the Auchnafui Hills. In this neighbourhood several honey buzzards have been cruelly killed. The newspapers recorded the appearance of the little bustard in Cambridgeshire, and their speedy destruction. The bittern is practically extinct in the British Isles. The ruff and reeve, once so common in Lincolnshire, may in many seasons be sought for fruitlessly. Amongst still smaller birds I miss the crossbill, thought it may be found in the great Scottish forests. That handsome bird, the hawfinch, was, prior to the winters of 1880 and 1881 sufficiently numerous in the Belvoir Woods; but, driven by hunger to less

THE WRYNECK.—I heard this bird in Hampshire on February 13 in a small plantation near the roadside, so I trust that the old folklore belief in the wryneck being the advent of a mild, early spring may be confirmed this year, though our spring flowers, such as Primroses, Potentilla, and wood Anemone are very late in showing bloom. *Helan E. Watney, Liss.*

THE SEED HARVEST OF 1881.—Messrs. James Carter & Co., of High Holborn, in a report just issued, state that, with few exceptions, the seed crop of 1881 was superior to that of 1880, both in quantity and quality. The extreme drought of July last, and the succeeding heavy rainfall in August, resulted, however, in a shorter crop of grass and some other seeds than the earlier anticipations warranted.

Orchid Notes and Cleanings.

DENDROBIUMS ON BARE BLOCKS.—In the current number of *The Gardener* Mr. Spyers states that he has cultivated the following species successfully for several years with their roots attached to bare blocks of wood:—*D. aggregatum*, *D. teretifolium*, *D. Jenkinsii*, *D. linguiforme*, *D. chrysotoxum*, *D. suavisimum*, *D. capillipes*, *D. sealei*, and *D. ciliare*. The blocks were in every case used green, with the bark attached, and were cut from such trees as Pear, Maple, Dogwood, Acacia, Box, Thorn, Elm, and Elder. The enormous specimen of *D. chrysotoxum* at Burford Lodge, which yearly produces over fifty spikes, was wired some six years ago to a cylindrical block of Pear-wood. The wood has long since perished, and the roots have penetrated it in all directions, much to the satisfaction of the plant. *D. Falconeri* is another plant that will grow well for years hanging from a block of wood to which the main of its roots are attached.

ODONTOGLOSSUM KOEHLII.—This species is in splendid cultivated condition in the well-assorted collection of David Tod, Esq., Eastwood Park, near Giffnock; in fact, the dozen or so of plants in the collection are quite unique, without a speck to mar the appearance of the leaves. Every leaf is perfect not only as regards the thrip's marks that uniformly prevail, but the extremity of the leaves without a black patch; and the plants, too, are of some size; one beautiful piece I counted had eight young breaks, and the old pseudobulb had leaves 15 to 18 inches long. Many of the bulbs showed four flower-spikes each, and such flowers for size as would delight and astonish even the best-informed orchidophile. All this is brought about in, in the first place, keeping the plants in a warmish temperature; in the second, by a regular process of feeding with well-diluted sheep-droppings, of course cautiously applied; and in the third place, by regular baths of soapstuds from the laundry. I confess I never saw such cultivation of what is acknowledged to be one of the most difficult plants, at least to grow it to any size. It was not a solitary plant, I observe, but the lady, showing the advantages of a good system. Both Mr. Tod and his excellent gardener say that they are the easiest to manage of any group they have. There is no doubt at all that cleanliness is the key to the secret of successful culture; for, no matter how clean and beautiful these plants are, they get their usual soapstuds bath and their usual feed, as a practiced eye can easily detect from the mossy surfacing being in a measure furnished by the ablations. The whole plants in this collection are well handled, and particularly a superb plant of *Odontoglossum Andersonianum*, which has made a growth of Broddingham size, and reflect much credit on the skill of Mr. Ewart, the gardener. *James Anderson, Meadowbank.*

TRICHOPIPLA SUAVIS.—A nice specimen of this lovely Orchid is just now in flower in the collection of D. E. Crawshaw, Esq., Rosedale, Sevenoaks. It bears nearly three dozen of its beautiful spotted flowers, and is a fine Orchid for flowering at this season of the year, especially when done as well as this plant is. *A. O.*

CYPRIPEDIUM BARBATUM.—Mr. Hopkins, The Gardens, High Cross, Framfield, sends us a flower-stem of this Orchid with two good blooms on it, and states that he has a small plant with two flower-stems branched in the same manner.

ORCHIDS AT MESSRS. VEITCH'S.—Amid a profusion of flowers, varieties of *Odontoglossum Cervantesii*, *chibosum*, and *crispum* are remarkable. A fine plant of that good old favourite, *Dendrobium nobile*, grown *au naturel*, is interesting, as showing how the plant grows in a natural state, and how much more impressive it is under such circumstances than when seen as it usually. *Oncidium cucullatum*, with olive sepals and petals and lilac-spotted lip, offers a curious contrast of colours. *Dendrobium Cambodjanum*, with its yellow flowers and dark

brown lip, is remarkable as flowering from the young shoot. Numerous forms of *Cattleya Trianae* are in bloom, one in particular, with flowers of medium size, the sepals and petals transparent white fringed and curled at the edges, and with the lip pale lilac with a yellow disk. *Dendrobium Ainsworthii* is particularly bright with its whitish flowers and lilac lip. *Miltonia cuneata* also, with narrow lilacy-brown sepals and hastate white lip, is noteworthy.

ODONTOGLOSSUM ROSSII MAJUS.—Among the numerous varieties of this useful Orchid now in bloom at Messrs. Veitch's there is one that is remarkable, not only for the large size of its flowers, but for the lilac flush of the sepals and petals, the veins of which are picked out with deeper lilac.

AEKIDES CYLINDRICUM.—A small plant of this is now in bloom at Mr. Williams' Holloway nurseries. The plant has long cylindrical leaves, like those of *Vanda terebinthifolia*, and pure white flowers, the segments being waved and crisped at the margin, the lip projecting into a large funnel-shaped spur, and the column of a slightly rose-coloured hue. It was illustrated in our columns in 1875, vol. iii., p. 537, from a plant in Lord Lonsborough's collection.

ODONTOGLOSSUM PARDUNUM.—Flowering specimens of this may now be seen in the Victoria Nurseries, Holloway. The flowers are in racemes, and have narrow pointed segments of a mustard-yellow colour, the lip being hastate-lanceolate, mustard-yellow, with brown spots.

ODONTOGLOSSUM CRISPUM.—It has been asserted that the varieties lately imported are not so fine as those which were introduced some years ago. We hardly think that those who are in the habit of looking round the London nurseries will agree to this statement. Good and bad varieties are imported now as then. Moreover, our taste has grown more critical. What would have been thought a good variety then, now-a-days would be but moderately esteemed. Of more interest is the alleged fact that each district has, as it were, its own varieties, some parts of the country furnishing much finer varieties than others, so that if the collector get into the wrong part of the country his despatch is likely to be of inferior quality. This phenomenon of local variation is very interesting from a scientific point of view, though not always equally so from that of commerce.

ONCIDIUM LINGUIFORME.—This is a very singular species, not often seen in cultivation, although it was introduced from Meila so long ago as 1840. It succeeds in a cool-house temperature, and makes very strong vigorous growth potted as one would a strong plant of *Odontoglossum crispum*. The singular butterfly-like flowers, of a yellowish-brown colour, the lateral sepals tipped with yellow, are very thinly placed on spikes from 9 to 12 feet long. It should be in every large collection of Orchids, and it may now be seen in capital condition in Messrs. Veitch's nursery at Chelsea.

CATLEYA AMETHYSTOGLOSSA.—A distinct and very beautiful species, of which there are two fine forms in flower in Messrs. Veitch's nursery. Like *C. Leopoldii* it is a Brazilian species, producing its flowers on long stems furnished with two leaves at the top, from between which the spikes of flowers issue. It is very desirable for winter flowering. The sepals and petals are pale purplish rose, irregularly spotted with purple, the lip deep purplish-crimson. It succeeds very well potted in turfy peat and sphagnum, like other *Cattleyas*; and, like *Cattleya Mossiae*, there are many distinct forms of it found amongst imported plants.

DENDROBIUM JAMESIANUM and *D. INFUNDIBULUM* are grown in the Mexican-house at Burford Lodge. Many good growers had arrived at the conclusion that these two fine species would succeed best in the cool-house with *Odontoglossum*. At many first-class establishments we have seen them do well with the coolest treatment. We noticed that Mr. Spyers had placed his plants at the coolest end of the Mexican-house, where they had made splendid growths, which were fast becoming studded with flower-buds. Most of them are grown in pots, but there was one very fine large plant on a block doing equally well.

The Kitchen Garden.

WHERE new plantations of *Asparagus* are contemplated the ground should, if not already done, be got ready for planting the roots next month; it should be deeply trenched, and a liberal supply of well-rotted manure be incorporated with the soil as the trenching proceeds—should there be a uniform depth of soil, 3 feet at least, and if it be of a sandy alluvial nature, and impregnated with saline matters, it will in every respect, providing the drainage is good, be suitable for the growth of *Asparagus*. Existing beds should without further delay have the short dung that was laid on them last autumn carefully forked in, so as not to injure the crowns in the operation, and the soil broken fine with the fork as the work proceeds. The beds should then be lined off afresh, and a few inches of soil from the alleys laid on, which, after a few days' exposure to the weather, and when sufficiently dry should be raked over; and where leaf-mould is plentiful a few inches thick might then be put on the beds. This, in my opinion, causes the "grass" to come more crisp and of a better colour. Seed-beds and seedlings just coming through the surface of the bed will require being protected, with a piece of netting supported by short sticks, from the ravages of chafinches and sparrows.

Small sowings may now be made in a warm border of the following seeds:—Early London Cauliflower, Snow's Winter White Broccoli, Cottagers' and Scotch Kale, and a good breadth of Curled Parsley. Make another sowing of Broad Beans and Peas, and draw a little soil up to those sown at the end of December, and stick the latter forthwith. Old Cabbage stumps should be removed at once, and the ground be made ready for Potatoes, of which a small planting of the early kidneys may be made forthwith in rows, 25 feet apart, and 10 or 12 inches in the row, between which Cauliflowers will be planted next month. It will be advisable to defer planting the main garden crop of Potatoes a couple of weeks longer with a view to their escaping late frosts, in the event of there being any. If the ground, having been heavily manured for the preceding crop, is moderately rank, it will be unnecessary to manure it for the Potato crop; indeed, the latter, under the circumstances, will be better in a quality and quantity without it. Early plantings of Cauliflowers and Cabbages should, if not already done, have the Spruce boughs with which the plants have been protected removed and the latter earthed up, the blanks, if any, having been previously filled up. Make fresh plantations of Jerusalem Artichokes in a good open piece of ground in rows 2 feet apart and 1 foot asunder in the row. See that the Dutch hoe is used freely between the rows of Lettuce, autumn-sown Onions, Spinach, &c., not only as a means of keeping down weeds, but also to accelerate growth in the plants through the stirring of the soil.

FORCING DEPARTMENT.—See that the supplies of *Asparagus*, *Seakale*, and *Rhubarb* are equal to the demand, and that pits and frames in which Potatoes and Carrots are growing have sufficient air admitted to them to prevent the plants making a spindly growth; the former, however, must be regulated in accordance with the nature of the latter and the condition of the weather, which latter being favourable the sashes should be taken off advanced crops of Potatoes early in the morning and replaced late in the afternoon. French Beans, where grown in early vineries and Peach-houses, will require extra attention in the application of water both to the roots and overhead, otherwise red-spider will be sure to attack the plants. Sufficient batches of seed should be planted at frequent intervals to maintain a good supply. Top-dress succession crops when about three inches above the rim of the pots with soil similar to that in which the plants are growing, and from which the chill has been taken off; and pinch the points of the shoots out to make them branch. Young plants of Brussels Sprouts, Cauliflower, Lettuce, and Leeks should be picked out in a frame with a gentle bottom-heat as soon as large enough to handle, preparatory to being planted in the open later on. Sow Moore's

Cream Vegetable Marrow and Stockbridge Ridge Cucumber seed, and when large enough pot singly, the latter in 48's and the former in large 60's; a sowing should also be made of red and white Celery of the varieties most approved of in individual establishments—Turner's Incomparable White and Cole's Red Defiance, or Leicester Red, are excellent varieties of the respective kinds. *H. W. Ward, Longford Castle Gardens, Wilts.*

ONION SOWING.—Whether it be the right time or not to sow Onions during February, I have endeavoured for many years to have the seed in the ground as soon after the middle of February as circumstances would allow. This year the main sowing (not a small one for a private place) was covered in, the ground all rolled and finished, on February 14. I have practised this in five counties in England, and in one cold northern district; I do not remember sowing later than February, and the crop never was second-rate. At the present time our soil is of the heaviest kind; the bulbs grown thereon are of great size, and keep well. *K.*

NOTES ON VEGETABLES.

PURPLE SPROUTING BROCCOLI.—The mildness of the weather has been much in favour of vegetables all through the past winter season, during the whole of which time there has been an abundant supply, and the old Purple Sprouting Broccoli has quite maintained its high character as being one of the best and most productive things in the garden. Not only do plants of it yield an enormous quantity of sprouts, but these latter are, when cooked, simply delicious—far superior in tenderness and delicacy to any other Broccoli grown; that is, when the Sprouts have escaped frost, which detracts from their flavour. To have fine large plants—and it is only these that are profitable—the seed must be sown not later than the middle of March, and as soon as the plants are large enough to handle they should at once be pricked out in light rich soil, at about 6 inches apart. This will prevent the stems elongating, as they always do in beds, and the removal will greatly increase the number of fibrous roots, and render the plants more fit for transplanting when ground becomes vacant. Like all the Brassica tribe Sprouting Broccoli are gross feeders, and require deep rich land, where they should be planted 2 feet 6 inches apart; or, better still, double that distance, with a row of Potatoes between. With such an increase of room they form huge bushes, and the amount of food they afford is something surprising, as they continue to branch and sprout for a very long period. *J. S.*

ALGURTH BRUSSELS SPROUTS.—As the season for sowing these is at hand I should like to say a few words in favour of the strain known as the Algurth, which are a great improvement on the old imported kind, as they bear large compact solid sprouts that are of fine flavour when cooked. To have Brussels Sprouts at their best they require a long season's growth, and it is advisable to sow under glass early in March, and prick the plants out, that they may be sturdy and strong for the final removal. If thinly planted, at wide distances apart, so as to allow plenty of room, they form huge stems a yard high full of sprouts, large in proportion. Plants from late-sown beds are comparatively useless, and the more so if they receive a check or become drawn, after which they rarely make much progress, but remain stunted and poor. At one time gardeners would not think of sowing other than imported seed, but were selections to be made of the best among plantations of Brussels Sprouts there is no doubt but that we should soon have them greatly improved, as among a number of plants they vary much, and seed should only be saved from those showing distinctness of character. This is the plan pursued by market gardeners, who generally have good types of Brussels Sprouts and Cabbage, which may be seen at a glance by the regularity of their growth and general appearance. *J. S.*

EARLY FLOWERING SHRUBS.—In the early part of February we had no less than twelve shrubs in flower in and near our garden in West Sussex; the wild Gorse and a few flowers of Arbutus would add to the number—*Andromeda floribunda*, *Berberis japonica*, *Chimonanthus fragrans*, *Erica carnea*, *E. codonodes*, *Garrya elliptica*, *Jasminum nudiflorum*, *Kerria japonica*, *Lonicera Standishii*, *Prunus californica*, *Vyrus japonica*, and *Viburnum tinus*. *H. K.*



Plants and their Culture.

STOVE FLOWERING PLANTS.—Under the ordinary treatment of the stove, *Gardenia intermedia* is now rapidly swelling its first flower-buds. If the plants are well rooted liberal supplies of liquid-manure will greatly aid them in the development of the blossoms. These, when cut from the plant, will look far better if a few inches of growth can be spared also; nothing looks so harmonious so well with these flowers as their own foliage. Plants of *Allamandas*, *Clerodendrons*, and *Bougainvilleas* that have been started early will now be breaking freely. Keep them elevated as near the glass as possible, in order to obtain a sturdy, short-jointed growth. Plants of the shrubby *Clerodendrons*, as *Kæmpferi* and *fallax*, should be pruned into the hard wood, then shaken out and repotted into smaller sized pots; they want, in fact, about the treatment generally given to show *Pelargoniums*. They are grand subjects for the stove during the autumn. The stove *Vincas* will do well treated in a similar manner, keeping them constantly pinched at about the third joint until a bushy plant is formed. *Rondeletia speciosa* and the major form will always make more shapely plants if they are annually pruned in to the hard wood. It is a great mistake to grow these handsome flowering plants as climbers, in which manner they never flower so well. Where they are grown the pruning should not be deferred any longer. Pinch them once during the month of May, a regular break will then be secured; nearly every shoot will during the autumn produce a truss of flowers under this mode of culture. *Isoras* may also be treated in a similar manner; but I should prefer in the case of these to grow on young plants and discard the oldest ones. *I. coccinea* is still one of the very best all-round varieties, no kind surpasses it for cut purposes. The young growths of *Dipladenias* should be trained on string or wires near the glass. On no account should the young shoots of these handsome flowering plants be constantly tied in to the trellis until a good crop of flower-spikes are well forward. Of plants suitable for growing in suspended baskets in the stove, the *Jischyranthus* in varieties and *Hoya bella* are among the best; young plants of these should be made up in the baskets, if it is convenient to grow them in this manner, as soon as possible, and a good season's growth will then be obtained. The *Epiphyllums* also do well under this mode of treatment. Of plants not generally grown in our stoves, *Mussaenda frondosa* is very singular and pleasing, so is *Dalechampia Roedliana rosea*, both with singular bracts. *Medinilla magnifica* is one of the grandest stove flowers; treat young plants of this liberally and give them plenty of room. The flowering panicles of this plant will soon appear, when this is the case water more freely. Where several plants of *Anthurium Scherzerianum* are grown, part of the stock may with advantage be retarded in a temperate house. Cuttings of *Eranthemum Andersoni* struck now will make nice flowering stuff during the autumn. Seeds should also sown of *Aphelandra aurantiaca Roedlii*, *Torenia Baillonii*, and *Fournieri*—the former to flower next winter, the two latter during the summer and early autumn. Attend to the general treatment of the stove as previously advised; slightly increase the day and night temperatures if any necessity for so doing should occur, otherwise it will be best not to rise too rapidly for a few weeks to come.

GREENHOUSE.—Beyond the ordinary routine of this department there is not much pressing work at present. All kinds of hard-wooded Cape and New Holland plants will require close attention for watering; any that are developing flower-buds must not be allowed to go too far on the dry side now, or crippled and ill-formed flowers will be the consequence—with Heaths in particular. Plants of winter-flowering Heaths and *Epacis* should be cut back and induced to break into fresh growth at once. *Pelargoniums* for the latest flowering may be pinched once more; all the stock should have the growth tied out somewhat if good plants are desired. The latest *Cinerarias* should soon be removed to a cold pit, watching, however, for any frost. With this mild weather *Chrysan-*

themums will be starting off rather freely; keep them well aired on all favourable occasions in order to keep them as sturdy as possible.

CONSERVATORY.—The *Camellias* will now be making a good display; plants now in full flower must be watered freely. What with the bulbs and forced plants there is no lack of flower to make a good show; do not, therefore, let anything remain when much past its best. Nothing detracts more from a good floral display than the oversight of not removing stale and decaying flowers. Young hands should also exercise their ingenuity in producing an effective grouping, varying the same as much as possible. *James Hudson, Gunnersbury House, W.*

Peaches and Nectarines.

THE fruit in the early house will now have commenced stoning, during which time the night temperature already given (from 55° to 60°) will be quite high enough. It is much the best to err on the safe side rather than to keep a high night temperature and lose a quantity of fruit during the stoning period, keep a chink of air on "the front" as well as the back ventilators all night, and carry out the directions given in last Calendar as to tying down, &c. The third house will now have set its fruit, and may be gently syringed with tepid water twice daily, and will also require disbanding. I make a practice of doing a little of this daily. I never encourage spurs, as I have always found the best fruit produced on young well-ripened wood. If the trees in this house have not been watered since they came into bloom, they may now have a thorough soaking of tepid water. The fourth house will be in bloom and fertilising must be continually attended to. Late houses are coming on fast, and will soon be in bloom (if the mild weather continues), in spite of ventilators being kept open to the fullest extent night and day. *J. Wallis, Keele Gardens.*

The Hardy Fruit Garden.

PROTECTING FRUIT BLOSSOMS.—The buds of Apricots, Peaches and Nectarines are now getting very forward, and the chances are that without good protection the blossoms will get cut off, as, judging from present appearances, they must be open at latest by the second week in March, when we may have cold winds and frosts too cutting for them to withstand. For protection by day I place great reliance on old fish-nets, such as are used for preserving fruits from the attacks of birds, which, put on double, so as to bring the meshes across each other, sift the wind and take from it its sting. What injures the flowers of Apricots and Peaches, perhaps, more than anything else is wet, which is more fatal than cold, as it is surprising what an amount of this blossoms will stand on which rain cannot fall. With a coping, and a double net in front strained straight down, rain will pelt in vain, as the drops dash against the coping and are broken up and fall quickly down to the earth; and the same with snow and hail, which are intercepted in their course, and lodge where they cannot do harm. Wood copings are better than nothing, but glass copings are the thing, as they do not obstruct the light, and the trees can therefore set the whole of their flowers right up to the top. As to the injury they do by keeping out the night dews, &c., that is more imaginary than real, and I found ours of the greatest use last summer in protecting the fruit of the Apricots from wet, which saved them from rotting. This was strikingly proved with us, as we had one wall without coping, and the fruit on this, as is common with Apricots, spotted and decayed so after showers or damp nights that we had a difficulty in finding any fit for dessert. In contrast to these those on the walls with the coping, and growing on the same aspect, were fine and sound, and ripened splendidly; and it was the same with our Wallburton and other late Peaches. The material we are using for blinds is a striped thick Forar, which we get at the draper's at 5s. per yard. The width of it is a little over 4 feet; so that for £2 15s. or so we have enough for a wall 150 feet long. The material is so thick and strong in the thread that it will last for years if stored up and kept dry. *J. Sheppard.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Mar. 6	Rooms	Sale of <i>Lilium auratum</i> Bulbs, at Stevens'
WEDNESDAY, Mar. 8	Rooms	Sale of Hardy Plants and Bulbs, at Stevens'
THURSDAY, Mar. 9	Rooms	Sale of Imported Orchids, at Stevens'
SATURDAY, Mar. 11	Rooms	Sale of Hardy Plants and Bulbs, at Stevens'

It may seem early to write of FRUIT PROSPECTS, still it is already possible to read the state of the buds, and to tell whether or not there are any, and how many, fruit ones among them. It is pleasing to be able thus to note that fruit buds are a full average crop, Plums promising more than an average. Neither are fruit buds generally much earlier than usual. The wet autumn, dull winter, and few occasional frosts have held fruit buds back almost as effectually as the usual severities of our normal winters. The abnormal mildness of the winter seems so far to have expended its chief forcing powers on Roses rather than fruit trees. The former apparently intend, present weather continuing, to bloom in April or May rather than June—the latter to open their flowers about the usual time.

Of course the entire character of our fruit crop will turn on the time of blooming, the character of the weather at that particular crisis, and the means of assistance in the shape of protection we can give to the trees. Be the weather what it may, the blooming season cannot be much longer deferred. Apricots mostly bloom in March; Peaches, Plums, Pears early in April; Apples in April and May. As a rule, the later the blooming the more sure the setting. February has done comparatively little to its proverbial ditch filling this year, consequently the ground is drier than usual; hence March sunshine is likely to exert its full power in drawing out the bloom, unless its influence is counteracted by biting winds and stinging frosts. With fairly seasonable weather our prospects are promising. But should the winter weather that we have as yet steered clear of come upon us during the next three months, a full fruit basket can hardly be one of the welcome and pleasing gifts of 1882.

This suggests questions of what can be done to protect our fruit crops from inclement weather should it come, as is all too probable. Some affirm nothing is gained by our help. There may be this grain of truth in such sweeping assertions, viz., that over-protection is often far worse than none. Still it remains true, that judicious protection saves many a crop that would otherwise be wrecked by the weather. This being so, it is surprising that more protective expedients are not employed—the more so as they are generally successful in the exact ratio of their simplicity. A handful of bracken, a wisp of straw, an old newspaper, a roll of Frigi-domo, old fish-net, bunting or canvas, a screen of boughs or of furze—these prove among the most potent of all fruit blossom protectors. The more ponderous the more injurious; the more flimsy, light and mobile, the more efficient. This being so, the chief problem is to ensure sufficient stability against winds and enough resistance to frost without ponderous expensive expedients, or doing more mischief by our shade than we do good by our protection.

It should, however, be borne in mind that all shade in the spring is not only and wholly evil; on the contrary, we may retard as much by our shade as we shelter by our artificial husbanders of warmth. Hence the cheapest as well as the most efficient protectors are probably those that are permanent. They act with double force, and it is doubtful whether their holding back of the blossoms does not save as many of them as their keeping of them warm.

Loose straw bands, but for their litter-making,

are excellent protectors, and so is paper of all sorts, as long as it can be kept dry. The efficiency of woollen and most other nets is well known. Open as these are, they are safer, and probably, as a rule, even more efficient than bunting, canvas, and other close textile fabrics. A thin thatch of dead bracken fronds is a perfect screen, virtually weather-proof—a true regulator and mediator between extremes, shutting out the fierce warm beams of the sun as effectually, when these would prove mischievous, as it shuts in the heat, when all is too little to moderate the extreme energy of radiation from the tree or wall surfaces during clear frosty nights. The flimsiness and mobility of the gossamer-like dry Fern fronds all aid its protective power and help to make it more efficient. A screen of Spruce or other boughs is ponderous, clumsy, and inefficient compared to one of bracken. Asparagus tops cut before they are dead ripe, carefully dried and stored in bundles without being severely crushed, form an equally good though hardly so durable a screen. They are so brittle as to be practically useless unless harvested before they are quite ripe. It is the little juice left in them that imparts sufficient toughness for protective purposes.

Such substances as Raffia-grass, could it be had sufficiently cheap and in plenty, would also form a capital screen, as would some of the lighter Rushes, Reeds, and grasses, if carefully harvested. Most of the canvases, buntings, &c., specially manufactured for these purposes are too smooth. Flimsiness, fluffiness, combined with sufficient strength to make them durable, and enough thickness to afford sufficient resistance to 10° or 15° of frost, are the qualities desiderated as protectors for fruit tree blossoms; and only those that have tried such screens as are here commended will believe that they have proved generally able to save the crops without injuring or weakening the trees, or fostering the increase, or enlarging the destructive powers, of those insect pests which seem ever ready, lying in wait to wreck or ruin any fruit blossoms that the biting frosts and blasting winds may have left.

— STREPTOCARPUS GREENII. — This plant is the result of a cross between *S. Saundersii* and *S. Rexii*, *S. Saundersii* being the seed-bearing plant. The plant is much more compact and dwarfer than *S. Saundersii*. Mr. GREEN tells us that he grew a quantity for several years among other cool greenhouse plants, and found it very useful. The plant is very easily grown: first sow the seed in a pan of light sandy loam, then prick off or pot singly in very small pots, place them afterwards on a shelf as near the glass as possible, shade for a few days, after which they will bear the same treatment as *S. Rexii* with ordinary greenhouse plants.

— ROYAL HORTICULTURAL SOCIETY. — The Council announce an Implement Exhibition, and a general display of garden structures, tools and appliances, which will be held in the gardens at South Kensington from May 23 to July 5, 1882, comprehending the four great events of the season, viz.:—The Great Summer Show; the Evening *Fete*; the Pelargonium Society's Show, and the Grand National Rose Show. Increased facilities and accommodation are offered to exhibitors, and silver and bronze medals will be awarded for the best articles exhibited in the following classes:—Modes of heating a small conservatory attached to a dwelling; Eoliers heating 50 feet of 4-inch piping with or without brickwork; Hot-water piping: modes of fixing and fitting the same, valves, &c.; Plant-house, vinery or orchard-house, span-roofed or otherwise, not exceeding 50 feet in length; Movable plant pits or frames; Improvements in glazing, ventilation, &c.; Decorations for conservatories, ornamental flooring, flower stands, vases, &c.; Hand mowers; Horse mowing machines, to cut not less than 30 inches; Wirework; Garden pottery, edging tiles, &c.; Garden seats, chairs, &c.; Garden engines, syringes, &c.; Garden tenting, shading materials, &c.; Complete set of lawn tennis apparatus; Miscellaneous subjects not included in

any of the classes; Garden cutlery; Garden tools, spades, rakes, hoes, barrows, &c.; Meteorological instruments; Plant guards and supports, flower stakes, labels, &c.

— THE GREAT WHITSUNTIME EXHIBITION AT MANCHESTER. — We have received a copy of the schedule of prizes offered for competition at the Annual Grand National Horticultural Exhibition to be held at Manchester from May 26 to June 2. There are seventy-seven classes in all, one being open, forty-five confined to amateurs, and the remainder to nurserymen. As usual the prizes offered are very liberal, and, as usual also, there can be no doubt, the show will be worthy of Mr. FINDLAY'S efforts.

— EPACRIS ONOSMEFLORA. — A good many of the true species both of *Heaths* and *Epacris*, so deservedly popular a generation or so ago, seem to have become lost to cultivation. This is all the more to be regretted, as many of them vie in beauty with the productions of the hybridiser's art. The attention bestowed on the hybrids now so widely grown seems to have caused Nature's wildlings to be neglected and forgotten. A very pretty species of *Epacris*, *E. onosmeflora*, is now in flower at Kew. It is an interesting and very floriferous plant, with compact bushy habit, and short, broadly tubular white blossoms. It was sent to Kew at the close of the first quarter of the present century by A. CUNNINGHAM, who discovered it in peaty bogs on the Blue Mountains of Australia, at an elevation of 3,100 feet above sea-level.

— THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY. — At the annual meeting of this Society, recently held, a very satisfactory report and statement of accounts was presented, showing the Society to be in a very solvent state, with a good surplus to the fore. The Treasurer's balance-sheet shows that the Society has now invested in the Bank of England in 3 per cent. Consols the sum of £2161 12s. 6d.; the number of members has materially increased during the past few years, and constant additions are being made. As the principles on which this Society are founded are not generally known, it may be remarked that a man must be a gardener when he joins it, but should he leave the gardening profession and follow some other occupation he does not lose his connection with the Society. It is a provident society in every sense of the word, differing from that in operation in relation to the Foresters and Oddfellows in that there is no burial fund. There are two scales of payment to the benevolent fund—one of 6d. per week, and the members who subscribe that sum receive 10s. 6d. per week in illness; and a larger sum of 9d. per week entitles the member to 16s. per week in illness. Members who do not subscribe to the benefit fund, but who may meet with an accident and are disabled from work for a time, receive a sum of money from the committee out of the benevolent fund. The good health of the members is shown from the fact that during 1881 the sum of £111s. 6d. only was paid as sick pay. The Secretary of the Society is Mr. JOHN McELROY, The Gardens, Moray Lodge, Campden Hill, Kensington, W., who will gladly supply particulars and copies of the rules of the Society to gardeners.

— MESSRS. VEITCH'S AMARYLLIS. — We have already alluded to the fine collection of these very showy plants raised by Messrs. VEITCH (p. 257). We allude to them again to advise those of our readers interested in these noble plants to pay an early visit to Messrs. VEITCH'S, as fresh flowers of extraordinary richness of colour are expanding daily. Not only in colour, but in form and substance, great advance is being made, but, as usually happens, there is a tendency to run too much in one groove and produce a uniformity of form which, though pleasing to the specialist, would be more interesting to the ordinary lover of plants if more varied. In any case, we can but congratulate Messrs. VEITCH on the acquisition of so fine a strain.

— ROOT FORMATION. — Mr. BAINES sends us a mass of thick, fleshy roots of a *Pavia*, each about the thickness of the little finger, contorted and intertwined in all directions so as to form a globular mass. Four years ago, in order to prepare the trees for removal, the roots were cut through at a depth of 2 feet 6 inches beneath the surface, the result being the formation of a leath of fibrous roots, which either

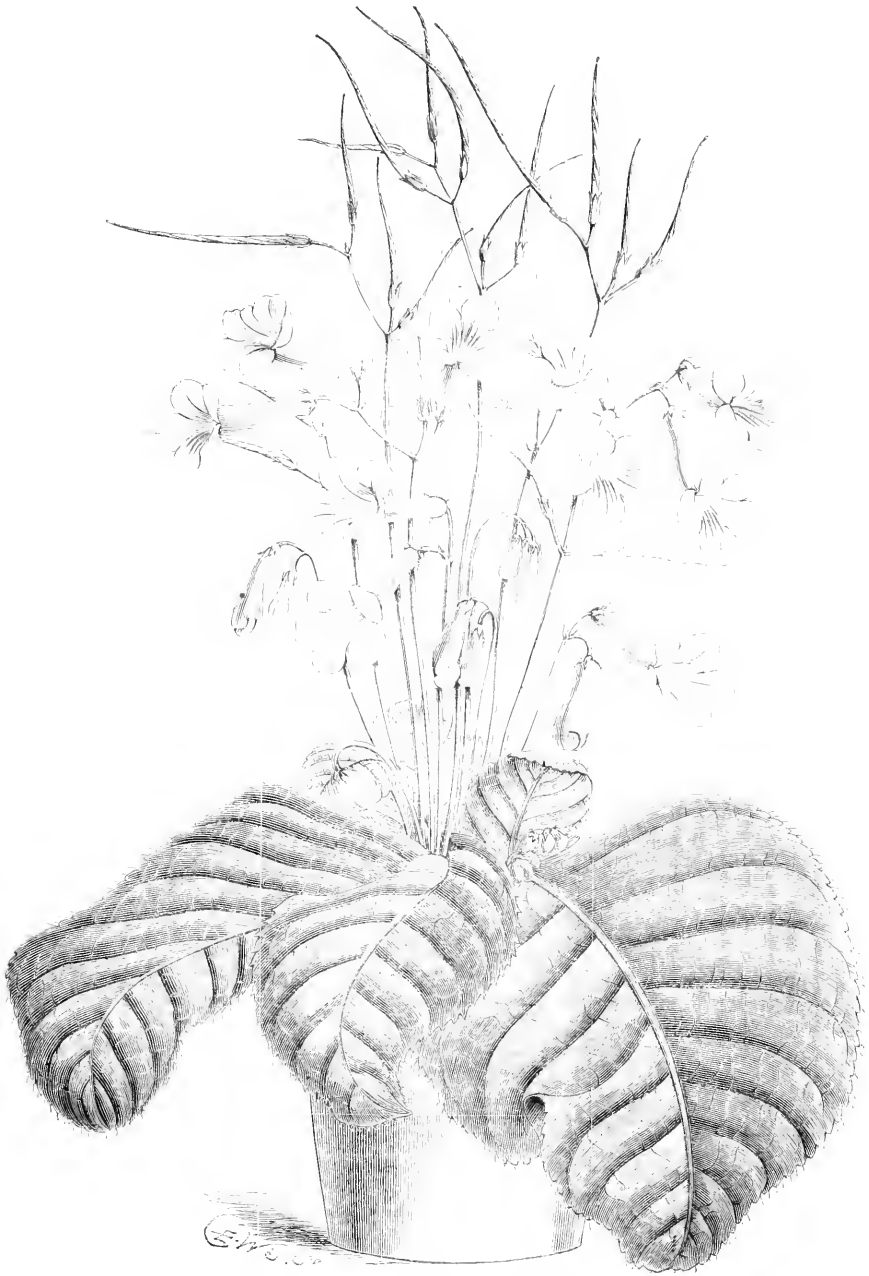


FIG. 43.—STREPTOCARPUS GREENII: HALF NATURAL SIZE: FLOWERS PALE LILAC-BLUE. (SEE P. 302.)

met with some obstacle, or became so intertwined that they obstructed each other; in any case, they now form a ball of thick and twisted roots, as before said. Microscopic examination shows a thick corky rind of several layers of brown cells, the innermost forming a growing layer, or phellogen. Within this is a thick, spongy mass of ordinary cellular tissue, which, in its turn, surrounds a narrow continuous ring of woody and vascular tissue, while in the centre is more cellular tissue, forming the pith. In the normal fully developed root the wood zone occupies nearly the whole of the diameter of the root, so that in the abnormal specimen there is a great development of spongy cellular tissue, while the woody portion is relatively small. On cutting through the mass it may be seen that one of the smaller original roots, which is rather more than the thickness of the thumb where cut across, split into a Λ -shaped fork after the injury.

— RAILWAYS AND MARKET GROWERS.—The London and North-Western Railway managers have just made public an arrangement by which it is proposed to receive at Kew Bridge station loads of garden produce which will be delivered at Manchester, Liverpool, and other great centres of population in the North, early next morning. That there are at times far more of market vegetables grown around the metropolis than can be profitably disposed of there can be no doubt; but whether it will pay growers to send loads of vegetables and fruit 200 miles, and then find a salesman to dispose of it, is not so certain. A few ventures will soon dispel whatever doubt may be attached to them. No doubt it seems odd thus to find encouragement given to the sending of garden products away from London, but it is not exactly a case of sending coals to Newcastle. Lancashire has an enormous population, and it may be that it will gladly take at a remunerative price all those garden products which London does not need or cannot afford to purchase.

— ROCK GARDEN AT KEW.—An official response has been received to the memorial recently presented to the First Commissioner of Her Majesty's Works, &c., in which it is stated that "a rock garden is now in course of formation in the Royal Gardens, Kew." We congratulate the memorialists on the success of their endeavours so far, and trust, as indeed we have reason to do, that, in due time we may witness a rock garden worthy of the Royal Gardens—a source of gratification to the visitors, and a great addition to the means of scientific observation and research.

— SEEDLING RHODODENDRON.—Messrs. VEITCH have now in bloom for the first time a very beautiful new Rhododendron, which appears to us to be distinct in colour from anything yet seen. It is a cross between Duchess of Edinburgh as the pollen parent and *R. javanicum* as the seed parent. The truss contains ten or a dozen somewhat funnel-shaped flowers with a flat limb divided into fine rounded lobes of good form and substance and of a refined though brilliant colour which may be described as orange-scarlet suffused with crimson, and with a faint narrow edge of carmine. The anthers are of a deep carmine colour. If the habit should prove good this unnamed seedling will prove a great acquisition. Maiden's Blush is also in flower, the blossoms being of a pale flesh tint, of great solidity and substance and excellent form.

— ERICA HERBACEA.—This species, which is perhaps better known under the name of *E. carnea*, and is represented in cultivation by white, purplish, and flesh-coloured varieties, is one of the most desirable of early spring-flowering plants. A figure of the flesh-coloured form is given in the first volume of the *Botanical Magazine* (tab. II) nearly a century ago. It is a native of South Europe but quite hardy in this country. CURTIS, in the book just mentioned, speaks of the species as a modern introduction, and states that it may be had in flower "as early as March, especially if kept in a greenhouse or common hotbed frame, which is the more usual practice." At the present time this pretty Heath is in full flower in many gardens, indeed in mild winters like the present one it commences to bloom in the open borders in January.

— FRITILLARIA SEWERZOWI.—In the letter-press accompanying the figure in a recent volume of the *Botanical Magazine*, Mr. BAKER speaks of this as

"one of the most curious—I would not say beautiful—of the many new bulbous plants that have rewarded the recent enterprising and assiduous researches of the Russian naturalists in Central Asia." It differs a good deal from the ordinary Fritillaries by its very distinct habit—the long raceme of funtesselated flowers, lurid purple outside, and the largely developed leafy bracts. This species is quite hardy, and is now flowering in the herbaceous department at Kew. It is a native of the mountains of Turkestan, reaching an elevation of about 6000 feet above sea-level.

— CATALOGUE OF POTATOS.—Mr. SHIRLEY HIBBERD has published in the last number of the *Gardener's Magazine* a list of 540 so-called varieties of Potatos, 140 of which are considered as synonyms. Indications are given as to the Form—kidneys or rounds; Colour—mottled, purple, red, or white; Size—large, medium, or small; Quality—excellent, second-rate, inferior; Productiveness—first-class, second-class, third-class; Height—tall, medium, or dwarf; Season—early, medium, or late. Accompanying the list are sundry articles on the dietetic value of the Potato, and its culture for exhibition purposes and otherwise. The list will be of such permanent value for reference that the thanks of all concerned are due to Mr. HIBBERD for this fresh example of his labour and patience.

— THE SINGLE BLUE ROMAN HYACINTH.—Under this name Mr. ROBERTS is growing at Gunnersbury Park a single blue variety that is much larger and later than the white Roman Hyacinth, and which is no doubt one of the Paris or Italian Hyacinths, and which some twenty years ago were known to the London trade as Belgian Hyacinths. When placed several bulbs in a pot it blooms freely; the spikes of bloom, which in point of size may be regarded as intermediate between the Roman and the ordinary Hyacinths, are very useful in a cut state. Mr. ROBERTS speaks very highly of it, and regards it as of great service to gardeners. But it is misleading to term it a Roman Hyacinth, as those who obtain it in the belief that it will bloom as early as the ordinary white Roman Hyacinth will be disappointed. Still it is a useful type, because coming into bloom between the latter and the ordinary forced Hyacinths.

— CHIONODONA LUCILLE.—This pretty spring-flowering plant promises to realise all the expectations formed of it, excepting perhaps in that it will scarcely be freer of bloom than *Scilla sibirica*. If a few bulbs be put in a pot, and brought on in a cold frame, they bloom freely, and are found by gardeners very useful to cut from. Mr. ROBERTS is growing a quantity at Gunnersbury Park in this way, and one good quality possessed by the plant is the comparatively short time after planting in which the plants come into flower. No doubt when it becomes well established in the open ground it will bloom much more freely than when grown in pots as fresh-planted bulbs, but it will be advisable to place a hand-light over a clump, to keep the flowers from harm, if it is intended to cut them for indoor use. It appears to be a plant that makes rapid increase, and it will no doubt soon become quite plentiful in gardens.

— A MINIATURE FIRE ANNIHILATOR.—A trial of a new and decidedly novel fire extermiator was carried out the other day in the nursery grounds of Messrs. JAS. CARTER & Co., at Forest Hill. That the test might be a severe one, a large pile of wood of the most combustible kind, flour barrels, bulb cases and similar material, had been broken up and piled into a heap some 8 feet in length, 3 feet in thickness, and about 6 feet in height. Still further, a quantity of tar had been thrown over the heap, so that it was likely to burn as furiously as could be desired. The extermiator is known as STRONG'S Patent, and has a pneumatic adaptation applied to it in the shape of an air-pump. It consists of an iron cylinder some 2½ feet high and about 10 inches in diameter, and holds 6 gallons of water; but it is the rule to put in about 5 gallons, so that ample room is left on the top for the compressed air which is forced into the cylinder by means of a small air-pump fitted to the side of the cylinder, and a small pipe inside conducts the air to the surface of the water. On the top of the cylinder is an indicator which tells exactly the internal pressure up to 100 lb. the square inch. It requires four minutes pumping to reach this point. When thus charged—as was the case several

times at the trial in question—the body of wood was set on fire, and then was allowed five minutes' start. Owing to the combustible nature of the material the whole pile was soon in a perfect mass of flame. Mr. STRONG, who was present, then had the cylinder lifted on his back, where, secured by shoulder-straps, it was carried with ease, and holding the small brass nozzle attached to flexible tubing, and which is fixed to the bottom of the can—turning the tap the stream of water, which was about the size of the stem of a clay tobacco-pipe, was driven against the flame with a astonishing force, and one side of the heap was cleared of all flame in a trice, that quite surprised the onlookers. The same result followed as quickly when the other sides and the ends were played upon, and for all practical purposes the fire was fully mastered in about four minutes. It was then agreed that the mass should burn so far as to fall into a solid heap; and in the meantime the cylinder was re-charged with clear water and compressed air; then, at a given time, the water was again turned on to the heap, then all ablaze, and in a few moments all flame was extinguished. Another and smaller wood fire, about 4 feet square and height, was then lit, and this having become a mass of flame was entirely extinguished in three minutes, and being allowed to re-burn, was again extinguished in the same time. A large quantity of tar spread on the ground and surfaced with paraffin was then set on fire, and instantly was a mass of flame, about 8 feet long and 12 inches wide. This was quite put out in four seconds—so to speak, instantaneously, and the most entire satisfaction was shown with the result. The real value of this patent would be found if one of the cans were on hand and fully charged, as they always can be, when a fire breaks out. It is not the volume of the water which is so potent, but the force with which it is projected, and which literally beats down the flame in a few moments. The pressure is strong enough to throw the water 30 feet into the air, and 40 feet laterally. As the can is thus carried on the back and the water is propelled with such regular force, the operator has but to give his entire attention to extinguishing the flames. Apart from the singular power thus evinced, the patent might be found exceedingly serviceable in cleansing wall trees, Roses, &c., of aphids, for no insects could withstand the force of the jet, which can be concentrated in one small stream, or be spread over a wider area. Amateur rosarians would probably find the patent of great use to them; and, indeed, for the washing of windows and glasshouses it would be of considerable service. Still, their primary object should render these pneumatic cylinders of great interest to all.

— COLOUR AT THE TIPS OF THE LEAVES OF HYACINTHS.—Mr. BURRIDGE sends leaves of Hyacinths marked at the tips with broad coloured spaces, pink or blue, in accordance with the colour of the flowers. The circumstance is not unusual—it is the extent of it alone which is remarkable. The arrangement of colour (other than green or that yellow tint which arises from the absence of leaf-green, chlorophyll) seems often, but not always, to be associated with relative arrest of growth: thus the tips of Hyacinth leaves once formed cease to grow, any further growth that ensues takes place at the base. Compare again the petals of a flower with a leaf: in the first case growth is arrested much sooner than in a leaf; so also the seed-coat, which soon stops growing, is often brightly coloured. The fact that the tips of the flower-segments in Hyacinths are often green does not materially invalidate our statement, for the apical growth is soon arrested. The tunic of a bulb when coloured, the skin of a purple-tubercled Potato are other instances in point; note also the brilliant bud scales of some of the Rhododendrons which have but a limited growth, and compare them with the green leaves of the same plant. If you would get colour into the leaves of the Ice-coloured Pelargoniums you put them close to the glass where, owing to the action of light, actual growth becomes checked, though the material for future growth is obtained. All these instances seem to point to a co-relation between arrested or intermittent growth and the development of colour. On the other hand, where growth is rapid and continuous, colour, other than green, is likely to be deficient.

— BOTANICAL NOMENCLATURE.—Mr. BATTEN raises a question in the *Journal of Botany* as to the advisability or otherwise of rigorously confining to

an established botanical rule in virtue of which an author affixes his name or his initials as the authority for the species of which he is the first to publish an account, although it may be that some one else has preceded him with an unpublished name in the form of some manuscript note inscribed on a herbarium sheet or otherwise. Strictly speaking, no doubt if WHITE describes a new species for the first time, he is entitled to put his name to it, as vouching for the species, even although GREEN had previously recognised the species as new but had not published it. If GREEN should feel aggrieved, he has himself to thank for omitting to publish the name with the description. The good-nature of botanists, however, often leads them to violate the strict rule, and, on the do as you would be done by principle, WHITE, if he find a manuscript name of GREEN'S, is very likely not only to adopt GREEN'S name if suitable, but to write after it "GREEN MS." It is possible to carry this good-nature too far. Our imaginary GREEN might, without study or examination, choose to give names to half the species in the herbarium, and a certain proportion of them might be found valid by WHITE in the course of his study of them, but as GREEN gives no evidence beyond affixing a mere name, that he has made any study of the genus or of the species such as would justify him in the eyes of other botanists in publishing a new species, it would be hard upon WHITE, who has made a careful study, and publishes his results, to compel him to adopt GREEN'S names. In all such rules some latitude and discretion must be allowed; thus, when we find, as we constantly do, in the herbarium a note of BENTHAM'S, the HOOKERS, or REICHENBACH, or FLANCHON, or GRAY, or other recognised botanist, it becomes almost imperative—if nothing prevent—to adopt the name, and to give the writer the credit for it, even though it be a mere manuscript name. One great objection to this practice is, of course, the absence of all guarantee that the manuscript name really represents the matured opinion of the writer, even of one as distinguished as those named. It may be a mere memorandum, subject to reconsideration. If, so then, it is a pity that it should be allowed to remain permanently on record. We should hardly have alluded to so technical a point here, were it not that the rule concerns horticulturists. After saying—we are alluding to DE CANDOLLE'S *Laws of Nomenclature*, adopted by the Paris Botanical Congress—that the botanist who first publishes an account of the species is the one who should attach his name to it as responsible for it, even though some one else had previously affixed a manuscript, that is, an unpublished, name to it, the rule goes on—the names made use of in gardens are distinguished—*provisis*—by the mention of the name of the author who first publishes them (not necessarily of him who really gave the name). By this we take it that a garden tally cannot be taken as authoritative—and very few would so regard it! Nevertheless, when men with such extensive knowledge of plants as Messrs. VEITCH, BULL, WILLIAMS, HENDERSON, LINDEN, or other of our nurserymen who introduce new plants choose to give a name to the plants made known by their enterprise, it is surely something more than a matter of courtesy to cite their names, always provided there is no valid reason to the contrary, yet according to strict rule such names have little more right to consideration than the manuscript memoranda on a herbarium sheet. The solution to the question depends a good deal on the view taken as to "publication." A manuscript note in the herbarium clearly is no publication, even though as a matter of deference it is sometimes treated as if it were so, but a name given by a nurseryman to an exhibited plant is a publication, inasmuch as it is open to any one to inspect the plant so offered to the public. The nurseryman's name, so published, if not vitiated from any cause, has decidedly higher claims than a manuscript name in the herbarium. The one remains in the herbarium and does not find its way into books, the other may be dispersed broadcast with the specimens to which it refers, in exactly the same way as the names with the "exsiccate," or collections of type specimens of the botanist, and to which the right of adoption is unhesitatingly accorded. Moreover, the names in question are inserted in catalogues often illustrated and accompanied by a description, which, if not comparative and strictly scientific, is still useful for botanical purposes, and these cata-

logues enjoy a much wider circulation than any strictly botanical publication. The outcome of all which is that art. 50 of the *Lois*, notwithstanding it appears to us that, as a matter of justice, garden names of the kind indicated and to which no objection can be raised on botanical grounds, should be adopted without hesitation by publishing botanists, and that they should not, unless there is good reason to the contrary, affix their own names to such a species without at least adding "hort. Linden," or "hort. Makoy," or whatever it may be. It must not be overlooked—though we fear the matter, if not overlooked, is greatly misunderstood even by botanists themselves—that the mere attaching an author's name at the end of the specific appellation of a plant, confers no honour on him who does so. The object of affixing the name is merely to fix the responsibility on him who gives the name. It does not in itself confer any distinction whatever on the author of the name, but simply indicates to those concerned who it is that has proposed it. Other botanists, and those who have the means of testing and judging, will form their own opinions as to the value of the name and the weight to be given to the utterances of its propounder, but as far as the mere name goes the familiar initials, "D. C.," have no more and no less weight than those of the veriest tyro. The question may seem one of purely technical interest, but no one who sees the preposterous names given to plants exhibited before the Floral Committee will deny its importance, or acquit the Royal Horticultural Society of neglect of duty, if it do not do something to check the piling on, helter-skelter, of Latin epithets for garden productions.

THE HULL BOTANIC GARDEN.—Mr. PHILIP MACMAHON, a young gardener employed at Kew, has, on the recommendation of the Curator, Mr. SMITH, been appointed to succeed the late Mr. NIVEN, as curator of the Hull Botanic Garden.

THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending February 27, issued by the Meteorological Office, London.—The weather during the earlier part of the period was moderately fine and dry, but towards the latter part it became very unsettled, with frequent, and in some places heavy, rain. The temperature has continued above the mean in all districts, the excess ranging from 4° in the west and east of England to 7° in the east of Scotland. The maxima were high for the season, a reading of 61° being recorded at Arlington, North Devon, on the 22d, while at many other stations the thermometer reached 55° or 59°. The minima ranged from 31° at Cambridge, Marlborough, and Cullompton, to 37° or 38° in Ireland. The rainfall has been a little less than the mean in "England E.," but rather more in nearly all other parts of the kingdom. Bright sunshine shows a decided decrease, and over the greater part of the country was very deficient. The percentages ranged from 4 in "England E." to 43 in "Scotland E." Depressions observed:—During the first few days pressure was highest in the south-west, and lowest over Scandinavia, where some deep depressions were shown. The wind was consequently generally moderate or light from north-west or west. On the 24th, however, the barometer fell quickly in the west, and by the 26th a large "trough" of very low pressure, within which were three distinct minima, stretched from the north of Ireland to the north of Scandinavia. This "trough" moved slowly in a south-easterly direction, at the same time filling up somewhat. These distributions of pressure caused the wind to shift to south or south-west (and subsequently to east in Scotland), and to increase to a fresh or strong gale on nearly all our coasts.

GARDENING APPOINTMENTS.—Mr. WILLIAM DAVIS, of Trentham Gardens, has succeeded Mr. FRISBY as Gardener and Forester to HENRY CHARLTON, Esq., M.P., Blankney, Lincolnshire. Mr. FRISBY has been Gardener at Blankney for the long term of thirty-one years, and has, we are pleased to know, retired on a handsome pension.—Mr. DAVID MCINTOSH, late Foreman at Bloxholm Hall, has been engaged as Gardener to Captain N. REEVE, Ashley-de-la-Laund, Sleaford.—Mr. JOSEPH HALL, Foreman to Mr. WILLARD, Holly Lodge, Highgate, has been engaged as Gardener to Lord BATEMAN, Shalton Court, Leominster.—Mr. GEORGE POTTS, late Foreman at Hookfield Grove, Epsom, has been engaged as Gardener to D. W. BRYANT, Esq., Surliton Hill, Surrey.

BOTANICAL COLLECTORS.

GEORGE BARCLAY.—In 1833 George Barclay, a well educated young gardener, native of Huntley, in Aberdeenshire, entered the service of the Royal Gardens, Kew. In 1835, through the instrumentality of Mr. Robert Brown, the Admiralty appointed a botanical collector to the ship *Sulphur*, under the command of Captain Beechey (afterwards Belcher), which was about to survey several parts of the west coast of America, and Barclay was selected for that duty. As in all cases of this kind, he was furnished with collecting boxes, paper for drying specimens, &c. The ship left Portsmouth on December 22, 1835; on the voyage they touched at Madeira, Teneriffe, and Rio de Janeiro, where they remained two days, which allowed Barclay to visit the botanic garden. The next place they touched at was St. Catherine's, where they remained several days, and he made large collections of herbarium specimens and seeds. They had a very rough passage round Cape Horn, which occupied five weeks, arriving at Valparaiso June 9, 1836, where the ship remained some time, allowing him to make several excursions into the valleys of the Andes. On leaving Valparaiso they proceeded northward touching at several ports, and arriving at Callao, Barclay had sufficient time to visit Lima and make an excursion to the Andes. On leaving Callao they proceeded northward, and arrived at Guayaquil in September, in the bay of which are the islands of Puna and Sumaca, which Barclay visited, describing them as densely covered with vegetation, abounding in climbing plants; he made a large collection of specimens and seeds.

In March, 1837, the ship arrived at Panama, and he had the opportunity of botanising in the Isthmus of Darien. They left Panama March 15, and surveyed the coast about San Blas, from thence proceeding to the Sandwich Islands, remaining at Oahoo a few days, during which time Barclay was busy collecting. On leaving the Sandwich Islands they again proceeded to the American coast, which they surveyed northward, arriving at Sitka, where they stopped a fortnight. They next visited Nootka Sound, where they remained two days, sailing from there to San Francisco in Upper California, where they remained until November 26. Here Barclay was allowed time to visit Sierra Nevada, and obtained cones of *Pinus Coulteri*, from seed of which was raised the fine specimen of that Pine now growing at Kew. The next place of stoppage was Monterey, where they remained two days, and at San Blas they stayed two weeks, which allowed time to botanise in the interior, and to ascend the volcano of Central America, 6000 feet high. The ship again arrived at Callao, and he says:—"During our stay I made excursions into the interior, and have done pretty well in the way of collecting, but unfortunately I was attacked by a band of robbers, who robbed me of all the money I had on me and other articles; in the affray I received a musket ball in the thigh, the bone was not injured and the wound does not offer to be troublesome." They left Callao the latter end of August, 1838, to survey the coast of Sierra Argul, and again arrived at Guayaquil, remaining there about a month. From thence they proceeded to Panama, and in October proceeded to survey the coast of Central America and New Granada. On leaving Panama the ship proceeded a second time to the Sandwich Islands from thence northward to Columbia River, where they arrived in October, 1839. In a letter he says:—"I have just returned from a most splendid trip on the plains of the Columbia. I have seen many of the plants which Douglas sent home, but there are more yet to be sent. . . . I am sorry to say that the botanical collectors, Wallace and Banks, were drowned in this river a few months ago. I have seen the guide who was in the boat with them, and made particular inquiries, as it is said that the upsetting of the boat was caused by its being surrounded by Indians. This was not the case; the upset was accidental." On leaving Columbia they proceeded south, surveying parts of the coast, which they ultimately left for home, touching at the Sandwich Islands, Otaheite, Fiji, and the north coast of New Guinea, arriving at Singapore in October, 1840, where, consequent on the war with China, instructions were found for the ship to join the China fleet. Accordingly, Mr. Barclay with his collection took passage in an English bark bound direct for London, where he arrived in February, 1841, having been on board ship a little over five years. This surveying expedition, like

- 17. *D. herboceum*, Lindl., *Bot. Res.* 1845, Misc., p. 155.—India. Imported and flowered by Messrs. Loddiges. A small branching plant with small, greenish flowers.
- D. *HETEROCARPUM* = *D. aureum*.
- 18. *D.* (*PELLOLOGUM*) *HETEROSYLVA*, Rehb., *Fl. Ind. Néerl.* xv, p. 51.—Java. Imported and cultivated by Gombosi, Schimper, of Hamburg, in 1859. A very pretty species, with anæthyrse-like flowers, exceeding the best varieties of *D. scandioides*.
- 19. *D.* (*DENDROBRYONIA*) *HELIANDRUM*, Rehb., *l. Gard. Chron.* 1859, p. 710.—Native country not recorded. A modest species, having little or terminal yellowish-green flowers with a long lip, yellow at its apex. Hort. Kew.
- 20. *D.* (*STACHYBOBIA*) *HEVNE ANUM*, Lindl., *Gen. and Sp. Orch.*, p. 69; *Bot. Res.* 1839, Misc., p. 41; *Wright, Ic. Pl. Ind. Or.*, iii., t. 699.—Western peninsula of India. Cultivated by Loddiges. Small white flowers, streaked with violet.
- D. *HILLII* = *D. speciosum*, var.
- D. *HOOKERIANUM*, *Bot. Mag.*, = *D. chrysois*.
- 21. *D. HUTTONI*, Rehb., *l. Gard. Chron.* 1869, p. 686.—Malayan Archipelago. Discovered by Mr. Hutton and imported by Messrs. Veitch. "Flowers much like those of *D. sanguinolentum*, light crimson; labellum of a deeper crimson."
- 22. *D.* (*HYMENOPHYLLUM*) *LINDL.*, *Gen. and Sp. Orch.*, p. 26; *Miquel, Pl. Néerl.* Ind. Néerl., p. 41. *Pteridium undulatum*, Blume, *Dijsr.*, *bot. Fl. Néerl.* Ind., p. 322, t. 39.—Java. Buitenzorg Botanic Garden, 1869. Inconspicuous.
- 23. *D.* (*INCRASSATUM*) *Miquel*, *Fl. Néerl.* Ind., iii., p. 63; *Asplenium incrassatum*, Blume, *Dijsr.*, *bot. Fl. Néerl.* Ind., p. 334.—Java. Buitenzorg Botanic Garden, 1869. Inconspicuous. W. B. H. (To be continued.)

summer the Tamarisk, that grows so freely anywhere in sandy soil near the sea coast, is always available. A large bush or two of this is a great ornament in any garden, and is quite worth cultivating in pots. Coloured leaves, such as those of some of the Crotons, like *C. majestica* and others, that are long and narrow, are not made half the use of they might be, as what can be more beautiful than they for mixing in with cut bloom, especially with such as is white? For lasting, I know of nothing equal to them, and they are grand when seen under artificial light. 7. 5.

Myosotis dissitiflora.—The illustrations we now give of the nuts (commonly called seeds) of *Myosotis dissitiflora* (fig. 44) will be interesting both to seed-men



FIG. 44.—SEVERAL "SEEDS" OF MYOSOTIS DISSITIFLORA AND SEVERAL SEEDS OF M. SILVATICA.

and to botanists. To seedmen, because they furnish a means of identification which will be useful in enabling them to distinguish them from the so-called seeds of *M. silvatica* and alpestris; to botanists, because they add another testimony to the distinctness of the species. It will be remembered that the species was introduced from Switzerland by Mr. Atkins, of Paiswick, and was described by Mr. Baker as a new species in our columns, 1868, p. 599. That some doubt should have arisen as to the existence of a new species from a country so well worked as Switzerland was natural enough, but the character now depicted, in addition to those cited by Mr. Baker, renders the case complete. The so-called seeds of *Myosotis* are really seed-vessels, fruits, or nuts containing the seeds in their interior. In most cases these nuts spring from the receptacle of the flower without the intervention of any stalk, as in *M. dissitiflora*, figured for purposes of comparison; but in *M. silvatica*, each nut is borne upon a small white stalk, as shown in the sketch. It is curious that of all the European species described and figured by Reichenbach the only other species that possesses this little stalk is *M. sparsiflora*, the name of which indicates a resemblance in the inflorescence to *M. dissitiflora*, but which in other respects is widely different. *Anchusa sempervirens* has its nuts supported by a similar stalk. The small white process at the rounded end of the nut then serves to distinguish the so-called seeds of *M. dissitiflora* from those of any species likely to be confounded with it. We owe this useful little means of knowing what is what to Mr. Barr, who brought it under our notice. Ed.

Abnormal Growth of a Fungus.—Two curious specimens of abnormal growth in fungi were found last week at Hardingham, in Norfolk. The honey-

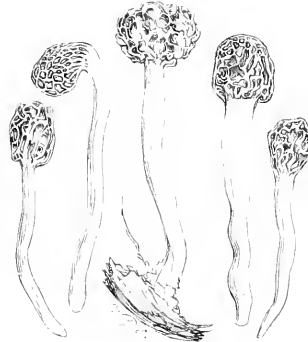


FIG. 45.—MORRILL-LIKE AGARIC.

combed pileus, 4-inch in diameter, looked something like a liliputian Morell, with a stem 2 inches long and 2 lines thick, but a section through it showed that the resemblance was merely external. I sent one specimen to Mr. Worthington Smith, who referred me to a short note by himself which appeared in the *Gardener's Chronicle* for March 9, 1878, p. 299, in

which a precisely similar growth is figured and described. These latter Mr. Smith considered to be specimens of *Agaricus furfuraceus*, many normal specimens occurring among the others. I have no doubt that the Norfolk plants are deformed specimens of the same or some very closely allied *Agaric*. 7. 31. D. P.

Casuarina sumatrana.—A fine specimen of this lovely plant is producing a quantity of cones in the gardens at Wilderness Park, Sevenoaks, Mr. Carlton, the gardener, grows this extensively for table work; it is a gem for that purpose, and when large, as seen here, is a lovely object. O.

Petunias.—I had a bed, 10 feet by 7, filled with single *Petunia*, planted about 1 foot apart, or perhaps rather less. The soil had been well dug over after the bull crops of Tulips, Hyacinths, and Crocuses, which made a good show, had done flowering), and a large barrowful of old manure dug in with it. Three dozen plants, costing about 5s., grown in small pots, were turned out into the newly-made bed early in April last, and for several months there was continuous bloom of large variegated self-coloured flowers that made a good show, in the wet and cold weather in September made them shabby. Carefully tended and pegged down occasionally, the bloom was gay and incessant. Larger or smaller patches of this bright flower would be very suitable generally for suburban gardening. Nothing is easier than their culture; in fact, they require only the most ordinary attention. Where no gardener is kept, or only a man occasionally called in to "flily up" a small plot, it is sufficient if occasional visits are paid to the bed to see that the pegging-down is neatly carried out (and large hair-pins would make good pegs), dead flowers and weeds taken away, and water given during drought—not much for the lady of the house to look after—*not per alium ut per se*—to secure a brilliant bed during all the summer months. The young plants can be purchased for less than 2s. per dozen, if separated from a clump and dibbled in; but young potted plants are altogether more satisfactory, and make at once strong growth. Those I had planted in the bed, &c., came, to my regret, only 7-, and certainly the brilliancy and continuance of the flowers was a good result from so small an outlay. Any shape of bed may of course be adopted, according to the adaptability of the ground, and suburban gardeners may thank you for the hint, if you think it proper to give it to them, for the coming summer. Several of the plants had exceptionally large flowers, in which the anther leadlets were quite striking. The florist from whom I bought them said the seed was ordinary from which they were raised, and that he never noticed a similar growth; neither had I ever seen anything of the kind either here or in Bangalore where I used to grow them freely in effective masses for their gay appearance and delicate scent. But it may be common enough. The question that occurred to me was this:—Would the seed saved from the best specimens of this sporting kind, likely to produce double flowers, or exceptionally fine or "pedigree" flowers? In my neighbour's garden I found a double *Petunia* sending out anther leaves the same way. 7. *Puck*, 13, *Elton's Case, Blackheath, S.E.* [In the specimens sent the "connective" of the anther was prolonged into a small petal—a condition not uncommon in *Petunias*. Ed.]

Spring Flowers.—I do not remember to have seen so many spring flowers in bloom at so early a period of the year. Fortunately large trees have shown less disposition to bud forth. The large beds of *Saxifraga lingulata*, *Anemone fulgens*, *A. blanda*, are really wonderful in their perfection of bloom and precocity. The spring garden will be very bright and gay early in March, when *Aubrietia*, *Arabis*, *Heath*, and *Primrose* will be in full beauty. *Rhododendron daluricum*, *R. praecox superbum*, and *R. Nobileanum* are making a great show at this moment. *Empetrum verna* is blooming more abundantly now than I ever saw it. W. Ingram, *Edwin*.

Market Gardeners' Liabilities.—When so much is being written and said about the responsibilities of landlords and in favour of tenants of land it is worth while to consider a case that is not an apocryphal one but a reality. Some years since a market gardener took a lease for twenty-one years at the high rental of £10 per acre annually—30 acres of land in a West Middlesex parish, that had been set apart under an Enclosure Act as poor's land, and which was in trust with the parish authorities, the rental being devoted to the purchase of coal chiefly, for distribution annually amongst the poorer residents as compensation for the loss of rights of turbery, &c., once enjoyed by all the inhabitants prior to the enclosure. The land at the time of letting was in good condition and fully cropped throughout with top and bush fruit. After a few years, the tenant finding the rent was too heavy

HOME CORRESPONDENCE.

The Fernery at Nash Court, Faversham.—This lovely fernery was erected for Mrs. Lade about two seasons ago, and is a span-roofed house about 30 feet long, 22 feet wide, and 15 feet high. A path is not made twice a year, but the luxuriant growth the Free Ferns are making will soon render them too large for their positions—some of the Dicksonias, *Cyathea*, *Alsophilas*, &c., already measure 17 feet across. The interior arrangement is very good, consisting of a winding walk, which at almost every step brings a fresh object into view. The waterfall arrangements are also very effective. I was pleased to see the distinct *Adiantum Williamsii*, which has been over 4 feet through the fern for such work, also *Microlepia laria cristata*, *Adiantum concinnum* *Var. A. decorum*, *A. cardiolobum*, and the lovely *A. gracillimum*, *Todeas*, *Woodwardia*, *Lomaria*, and *Lycopodium* of all the best and most suitable sorts are here to be seen growing luxuriantly. Pockets are left for inserting in the summer season various neo-foliaged plants, such as coloured *Dracenas*, *Caladiums*, &c., which form a lively and beautiful contrast. The whole of this work was carried out by Mr. Humphrey, the gardener, and his great credit upon his abilities, for he has evidently studied well the natural requirements of the various plants used in this lovely place. O.

Green with Cut Flowers.—There can be no question, I think, but that all flowers look best with their own foliage, but unfortunately we cannot at all times get enough of it, and have to resort to Ferns and other plants to make good the deficiency. At this season, and as long as it can be had forced, I find nothing equal to Solomon's Seal, the lovely delicate tint of the leaves of which are quite unvariegated. Dug up from the open and put thickly in pots or boxes of light soil in heat it soon grows, and yields a long succession of gracefully arching shoots for cutting, which, thickly hung with their silvery bell-shaped blossoms, are a great ornament and finish to any vase or glass they may be placed in. The plan we adopt is to make a plantation under the Apple trees or among the Gooseberry bushes, so as to have plenty to run to, and the roots are stood away in the pots when done with for forcing and planted again. The first year they are not so strong, but that is often an advantage, as the smaller sprays are sometimes more useful for working up in bouquets. The leaves of *Spirea japonica* are also very good, but to last they must be fully grown and nearly mature. For drooping over the sides of tall glasses nothing can be better than the small, deeply cut Ivies, either plain or variegated, as they all have a natural look. Sweet Brier is most valuable, and as its scent is so delicious and refreshing, no vase should be without a sprig or two, which will perfume the air of a large room with rich odour. In the depth of winter we often use sprays of the large glossy leaved Box, and sometimes *Berberis Aquifolia*, the foliage of which, when set thin on the branches, is as nice-looking as anything that can be had. *Cupressus Lawsoniana*, with its thin, gracefully fern-like pendulous shoots, is very effective; and in spring and

a lurch, induced the trustees, with the consent of the Charity Commissioners, to lower it to £8 per acre. Some four or five years of the lease have yet to run, but now the tenant shows such disregard of the future letting value of the orchard, that not only has the soil become throughout quite choked with couch and other perennial grasses, but for two years not one of the fruit bushes has been pruned, so that the crop is fast deteriorating. The point upon which information is desired is as to the duty of the tenant towards the land and the power of the trustees or parishioners as the landlord to enforce penalties against the tenant for thus permitting such obvious depreciation of the property to take place. It is evident that, should this neglect be continued, the land when the lease expires will be worth not more than one-third what is now paid for it, and the interests of the poor of the parish must greatly suffer. *A. P.*

Cinerarias from Seed.—I quite agree with Mr. Culverwell's remarks respecting Cinerarias raised from seeds at p. 229. We have now a fine lot in bloom from seeds, and have had for some weeks past, the flowers being everything in colour, size, substance, and form, one could wish for, and grown with half the trouble required for named sorts. *A. M.*

Salvia cerulea alba.—At the beginning, one may almost say, of the plant growing season a word of seasonable advice may be useful to plant growers. Those who live within a few miles of the metropolis, and who have frequent opportunities of visiting the leading shows and nurseries, seldom think of their brethren who are distant from London some hundreds of miles, and whose opportunities for obtaining knowledge about new or useful plants is solely derived from the horticultural press. Gardeners having large conservatories to keep gay—many of them are difficult enough even to fill—should grow *Salvia* more extensively than they do, and in greater variety. Writing as a gardener, and not as a critic, I have no hesitations in recommending the extensive cultivation of this class of plants. They are not dear to purchase, are easily grown, and as flowering plants they possess a grace and beauty exclusively their own. I have mentioned the variety above named having seen it in flower only a few days ago, its blue and white flowers being quite fresh and light, and that at the end of February. When we know—and there is no harm in writing the naked truth—the hundreds of private gardens where only two or three of the old varieties have been grown for the last quarter of a century, and when we remember that a good collection may be bought for a few shillings, I think it follows that an addition to the general stock of conservatory plants would not be unacceptable where much variety has not previously existed. So much is expected from gardeners now-a-days, and in so short a time, that the nearest way to accomplish success will be by cultivating extensively plants of rapid growth that are readily obtained and attractive in appearance. *W. Hand.*

FRUIT NOTES.

Apple, Mela Carlo.—Three or four months ago enquiry was made by one of your correspondents about the Mela Carlo Apple. I did not see any answer, so I send specimens. They were grown in the open, trained against the stone pillar of a Dutch barn facing the south. Their condition would have been better had I not taken them at the end of October a journey of 160 miles. They have remained ever since in paper in the basket in which they were carried. I had only four, and those were the first (the tree about twelve years old) had borne. The colour is not as high as I expected. *Philomelos.* [The fruits received are of medium size, ovate in form, with a small, depressed, closed eye, and short, slender fruit-stalk set in a deep basin, the skin of a clear yellow colour all over. The flavour is said to be most delicious, but these were past their best. *Ed.*]

King of the Pippins and Golden Winter Pearmain.—I do not see that your correspondent, John Scott, has thrown much light on the difference of opinion that prevails in regard to these two kinds of Apples, for in his *Ochardist*, p. 88, that he quotes from, he says that Golden Winter Pearmain far surpasses King of the Pippins in richness and flavour, yet, in his note on the subject, p. 82 of the last volume of the *Gardeners' Chronicle*, he makes it appear that King of the Pippins is best. How does he make the two statements agree? My own experience of the two fruits is that the flesh of King of the Pippins is yellowish, firm, with a nice flavour, and keeps much longer than Golden Winter Pearmain, whose flesh is white, with no flavour—only fit to grow

for its handsome appearance. I think Mr. Culverwell and Mr. Saul must have got Golden Winter Pearmain for King of the Pippins. *A. T. S.*

The "Irish Crofter" Apple.—I imagine the Irish Crofter mentioned in p. 226 as being selected by Dr. Lucas as one of the best ten Canadians, must be either the Early Crofton (Irish Peach), or the Scarlet Crofton, another Irish Apple. The first is one of the best early Apples we have, becoming ripe about the first week in August, the latter in December. *Lewis A. Killick, Mount Pleasant, Maidstone.*

THE GOOSEBERRY.

It is somewhat remarkable that the most wholesome, and by no means the least delicious of the fruits cultivated in this country, should be, what few of them are, indigenous. But such is in reality the case as regards the Gooseberry, which is found wild in various localities in this country, and is known to botanists under the names of *Ribes grossularia* and *Ribes uva-crispa*, or the rough and the smooth Gooseberry. They belong to the natural order, Grossulariaceæ, an order which contains only one genus, that of the Ribes, which is, however, composed of many species, several of which are indigenous to Britain, others to the south of Europe, a few to Siberia, and some to North America. None of them, however, attain to the dignity of trees, but are all comparatively dwarf-growing shrubs, some of them remarkable for the beauty of their flowers; others, in addition to the two species mentioned, bearing useful fruit, such as the red, the white, and black Currants. The modern varieties of the Gooseberry are no doubt derived from a blending of the two species named; if, indeed, they ought to be regarded as distinct species, or if they are so considered they are certainly not separated by any very hard or fast line, as there are now many varieties which can hardly be said to be rough, and yet are not altogether smooth. But they have naturally, as it were, divided themselves into four distinct sections, viz., sorts bearing green, red, yellow, and white coloured fruit, and well-defined varieties in each section are very numerous.

The comparatively cool, moist atmosphere of the northern counties of England and of Scotland is better suited to the development of this fruit than the light land and drier air of some of the southern and south-eastern parts of England. And Lancashire has long been celebrated for its large and brooding napsian examples of this fruit; and plants of the Lancashire show varieties, as they are called, generally command a higher price, forming as they do a distinct class of this fruit. But it does not follow that the large-fruited kinds are also of the best quality; indeed, the reverse of this is rather in reality the case. But in each of the four sections there are numerous varieties remarkable for their quality or fine flavour, as well as for their immense size.

Like most of other fruits, the Gooseberry succeeds best in soil of moderately good quality, although it cannot be said to be very particular in this respect, but will generally succeed in any ordinary good garden soil. The plants are generally grown in the form of bushes, and should be planted in rows or lines at a distance from each other of not less than 7 feet. They should be annually pruned, and the branches should not be allowed to become too crowded, or the fruit will not be so fine as would otherwise be the case; and it is generally advisable to defer the annual pruning until the spring is somewhat advanced and the buds ready to unfold, as the bushes are liable to be attacked by bullfinches and other predators, who will sometimes, before being observed, strip off the swelling buds from the branches, and thus frustrate all expectations of a crop of fruit; and this attack, if made upon bushes which have been pruned, is more serious than when made upon them before this operation is performed, when there are, of course, more buds to spare. Late spring frosts also not infrequently prove destructive to this crop, so that in most cases it is advisable to defer pruning until all danger from this cause has passed.

The Gooseberry is also liable to be attacked by fungoid diseases, which sometimes prove troublesome, but possibly its most formidable enemy by far is the caterpillar, and for this pest the bushes should be carefully watched during the early spring months; and

there is possibly no better remedy for this evil than the application of powdered hellebore, which may either be applied to the bushes in the form of a powder, or in the form of a decoction of the same, which should be of about the strength of 1 lb. of the powder to 10 gallons of rain-water, and this should be allowed to stand some forty-eight hours before being used, and should be applied to the bushes with a syringe during a still evening; one dressing will generally prove a cure, but if not it should be repeated. Two years ago, for want of attention to this matter, in many gardens all over the country plantations of Gooseberries were to be seen with the bushes divested of every leaf for want of applying in due time this or some other simple remedy, and the consequence was that any fruit such plants bore was, of course, flavourless, if not altogether worthless.

Although, as has been said, this useful and delicious fruit is generally grown in the form of comparatively low or squat bushes, it is nevertheless amenable to other methods of training, such as the standard form, and trained to a north or other wall, where such late sorts as the Red Warrington may be kept in good condition until the middle or end of November, and we have some recollection of seeing in a garden in Perthshire years ago a single plant of the variety named covering the entire east end of a large building upwards of 30 feet high, and clothing many square yards of wall, and the plant was said to annually furnish heavy crops of fruit of excellent quality. We have never, however, seen this fruit more successfully grown than in the form of pyramids, and this was accomplished in the following manner:—The portion of land intended for the plantation was heavily manured and trenched; the surface was made quite level, and lines were drawn upon it each way at a distance of 6½ or 7 feet from each other, that is, the lines were drawn from north to south and from east to west, and at each intersection of these lines a strong Larch post was fixed in the soil; the posts were some 6 or 8 inches in diameter at the lower end, which had previously been well charred. The posts were then cut to a uniform height of 7 feet above the level of the soil, and in order to give increased stability to them a strong cord or wire was made to extend from the top of one post to that of the next, and so on. A healthy young Gooseberry tree was planted upon the south side of each post, and from each plant four shoots were allowed to grow, which were either nailed or tied to the posts, while from these leading shoots lateral branches were allowed to extend themselves, so as to get the plants into the desired pyramidal form; and as soon as the leading shoots reached the top of the post a shoot was trained along each wire or cord. When the plants forming the plantation attained to their full development the thing was considered unique and was much admired, and during the fruit season was much resorted to by ladies and others, as the fruit could be readily picked from the branches without the trouble of stooping to do so.

The Gooseberry has, we believe, been successfully grown under glass in orchard-houses and similar structures, but it is doubtful if it would submit to anything like forcing, even if this were necessary or desirable, which can hardly be said to be the case. It has already been said that the Gooseberry is the most wholesome of fruit, and when quite ripe most of its varieties are delicious, and in all stages of its development it is useful; when in a green and unripe condition it is much used and appreciated for culinary purposes, and when ripe some of the varieties are made into the most delicious preserves, and green Gooseberry wine is even said to have done duty for champagne. *J. Griev.*

THE SO-CALLED COMPASS PLANTS.

THE American Compass-plant was figured in the *Botanical Magazine* last year, plate 6534, and we reprinted the account there given of it by Dr. Asa Gray, and this brought several interesting communications (*Gard. Chron.*, n.s., xv., pp. 74, 276, 571, and 699) respecting this plant. And in one of these communications—that from Dr. Engelmann (*l.c.*, p. 276)—it is stated that other Composite with vertical leaf-blades have the stomates equally distributed on both surfaces of the leaf. This is especially the case, the writer states, with *Lactuca scariola*, a plant unknown here (St. Louis) formerly, but extremely abundant of late years in waste places. The leaves not only assume a vertical position, but also a meridional one, similar to those of the Silphium, though perhaps less pro-

nounced. The fact that the leaves of *Lactuca scariola* assume vertical positions has long been known, and is mentioned in several books; but it has only lately been recorded that they also stand in a meridional plane—that is, point north and south.

Whether Dr. Engelmann was the first to record this fact, as quoted above, or Professor E. Stahl, of Jena, we cannot say. But the latter botanist last year published an account of some experiments and observations he had made on this plant. Dr. Stahl's experiments were undertaken for the purpose of determining the cause of this remarkable orientation of the leaves. In order to determine the manner in which light affects the leaves of this *Lactuca*, Dr. Stahl cultivated a number of plants in diffused daylight. Plants cultivated in a room and only exposed to the light that entered at a north window lent the tips of their stems towards the window, whereas the leaves turned themselves vertically to the incidence of the light. Plants growing in ditches or among bushes, so that they were only exposed during growth to the diffused light of the firmament, had perfectly horizontal leaves. From this experiment it seems that the leaves of *Lactuca scariola* behave exactly like those of other dicotyledons under the influence of feeble light—that is to say, they are what Darwin terms diateliotropic, or in a position transverse to the light by which it is caused.

In order to ascertain the effects of sunlight on the position of the leaves the following experiment was carried out:—Two flower-pots with plants of equal age were taken; the one was exposed from 10 A.M. to 3 P.M. to direct sunlight, and kept in the dark the rest of the time; and the other was kept in the dark from 10 to 3 and exposed the rest of the time. As the weather was continuously fine during the experiment the plants enjoyed direct sunlight during the hours of exposure. The plants grew, though slowly. The newly formed leaves of the plants exposed during the mid-day hours showed no difference to the meridional position, whereas it was distinctly noticeable in the plants exposed up to 10 and after 3 o'clock.

As the foregoing experiment was not altogether satisfactory it was repeated in the following modified manner:—Some plants growing in the open air were so covered by a board resting on four posts that they were sheltered from direct sunlight during the mid-day hours, but exposed to it during the earlier morning and later afternoon hours. In these plants the newly formed leaves assumed the meridional position as decidedly as those of plants exposed all day to direct sunlight. Other plants were placed among bushes, so that the sun could only fall upon them when at a great altitude. Although these plants received diffused light all day long from above, the leaves were by no means horizontal. The effect of the sun-light was exemplified in the south or south-west direction of the upper surface of the leaf.

That the meridional position of the leaves of plants standing quite free is caused by the light of the sun on the horizon is evident. Dr. Stahl says, from the following experiment:—

A pot of young plants was placed near a window looking north, in which position the plants were exposed to direct sunlight for a few hours after sunrise and before sunset. All the leaves developed under these conditions inclined their tips towards the north, and the upper surface was turned either to the east or to the west. When the plants were removed so far from the window that the sun did not shine upon them at all, the above described vertical position to the diffused light.

This phenomenon is not an uncommon one, but the leaves of *Lactuca scariola* are much more sensitive to intense light than those of many other plants. The leaves of many Papilionaceæ—beans, for example—assume such a position during intense heat that the least surface is exposed to the sun, thereby avoiding excessive heat and light. *H. B. H.*

The Poultry Yard.

WINTER LAYERS.—The particular white hens to which I referred last week as being such capital winter layers, I now learn, are either the product of a cross between white Dorkings and white Leghorns, or between the former and white Spanish breeds. I incline to the former cross, especially as the Leghorns are such capital winter layers, but they have yellow legs and flesh, not a desirable table feature. My fowls are white throughout. *D. B.*

Obituary.

ENGLISH visitors to Ghent who have experienced the courtesy of Count KERCHOVE DE DENTERGHEM, late Burgomaster of Ghent, will receive the announcement of his death, which occurred on the 21st ult., with sincere regret. The Count—a member of one of the oldest families in Flanders—took a leading part in agricultural and horticultural matters, and in this capacity he came into contact with English horticulturists, and always in such a manner as to secure their respect. The Winter Garden erected at Ghent by the late Count is one of the sights of that interesting city, and was freely opened for the inspection of visitors. We took occasion in 1875, vol. iii., to publish some illustrations of this noble house, in which a tropical ravine, with Palms in great beauty and variety, Tree Ferns, rocks, waterfalls, &c., is successfully and artistically imitated; and in 1876, vol. v., p. 181, we published a portrait of the deceased nobleman. Count de Kerchove identified himself with everything that was likely to promote the prosperity, not only of his native city, but of Flanders—indeed, of his country generally. It is no matter for surprise, therefore, to find that he was honoured alike by the Government and by his fellow-citizens.

Count de Kerchove was born in Ghent in 1819, and in early life took high honours at the Ghent School of Engineering. In 1848 he became a member of the Royal Society of Agriculture and Botany of Ghent; and in 1859 became honorary President of the society, and presided in this capacity over the great Exhibitions of 1868, 1873, and 1878. On the death of M. Edmond de Ghellinc de Walle, in April, 1875, Count Kerchove was nominated President of the Society, and also of the Cercle d'Arboriculture. In 1851 the Count was selected as "Conseiller Provincial" for the canton of Ghent, an office which he filled until 1864, when he was elected a member of the Chamber of Representatives for Ghent—a position to which he was several times re-elected. In 1857 his fellow-citizens elected him as "Conseiller Communal," and the late King Leopold appointed him burgomaster of the city—a high office, which he filled with honour and distinction, his government being marked by energy, firmness under circumstances of great difficulty, and great courtesy. Horticulturists will specially feel his loss, for the reasons already assigned. The late gentleman's eldest son, Count Oswald de Kerchove, Governor of the province of Hainault, who now succeeds to his father's title, has associated himself even more intimately with horticulture, and with the members of the horticultural press; on which account we feel that we do but interpret the feelings of English lovers of gardening, connected by so many ties with the old Flemish city, when we offer to the family a cordial expression of respectful sympathy with them in their distress.

MR. E. FANCOURT.—In our obituary column last week appeared a brief notice of the demise of Mr. Edwin Fancourt, a name doubtless familiar to numbers not personally acquainted with him, as it was to the very many in one way or other connected with gardening who were. For it would be difficult to imagine any individual connected with the nursery business of this kingdom who has not at least heard of the most renowned of propagators, father and son, which this country has ever known. The remark is often made that it rarely happens that when a man has excelled in any particular art or calling, that his mantle descends upon his son. Yet here, at all events, was an exception; for, although the elder Fancourt has been looked on as the father of English plant propagators, his son, following his footsteps, was equally successful. A word here may not be out of place respecting Mr. John Fancourt, the father of the deceased. He commenced his career in connection with the trade in 1814, at the Bedford Nursery, New Road (Mr. Smith's); thence he went to the Ball's Pond Nursery; afterwards to the Clapton Nursery; and finally to Messrs. Henderson, at Edgware Road, where he remained thirty-three years. Edwin was born on the site now occupied by the Euston Station, a circumstance which reminds us of the ceaseless extension of bricks and mortar on this as on other sides of London—an extension as irresistible as the wave of lava from a volcano in eruption. At Messrs. Henderson's his father taught him the mode of multiplying in quantity plants the most difficult to increase, and soon he became an expert in the art. From the

Pine-apple Nursery he took a turn in a private establishment—the Marquis of Downshire's, after which he returned to the trade, and amongst other places was foreman with Knight & Perry, King's Road, Chelsea; Cant, of Colchester; Standish, of Ascot; and again at the Pine-apple Nursery; afterwards with Mr. William Cutbush, of the Barnet Nursery, for whom he was manager eighteen years; from there he went to Messrs. Osborn, of Fulham, where he stayed until shortly previous to his engagement with Messrs. James Dickson & Sons, of Chester. Here he remained until his death, which occurred on February 2, at which time he was in his fifty-seventh year. Although only a comparatively short time with Messrs. Dickson, we believe he earned their full confidence and esteem. During his long and painful illness these gentlemen treated him with the greatest kindness—a kindness alike worthy of the employers and the employed. Those who knew Mr. Fancourt intimately need not be told of his genial nature and unassuming manner, which at once enabled him to make a host of friends, and keep them. He died of heart-disease, and was buried at South Mimms, near Barnet. He has left a widow, two daughters, and four sons.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MARCH 1, 1882.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				Hygrometrical Direction from Glasgow's Tables 6th Edition.	WIND.	RAINFALL.	
	Mean Reading at 3 P.M.	Departure from 30 in. at 18 Years.	Highest.	Lowest.	Range.	Mean for Day.				
Feb. 23.	30.70	+0.39	46.0	41.0	5.0	47.6	+34.36	80	N. N. E.	0.00
24	30.73	+0.42	48.0	40.5	7.5	44.3	+50.38	79	W: SW	0.00
25	29.52	-0.20	53.0	43.5	9.5	49.0	+56.65	92	S. S. W.	0.06
26	29.91	-0.80	54.0	42.0	6.0	50.5	+51.46	88	S. W. W.	0.16
27	29.68	-0.72	50.0	45.0	7.0	47.0	+48.43	87	W. S. W.	0.10
28	29.18	-0.64	48.0	45.0	8.0	44.0	+48.81	88	E. N. E.	0.28
Mar. 1.	28.83	-0.94	51.0	43.0	8.0	46.1	+58.39	78	S. W. W.	0.22
Mean	29.49	-0.41	50.4	43.1	7.3	46.5	+69.41	85	SW	0.04

- Feb. 23.—A fine day, though overcast and dull. Fine night; dark sky.
- 24.—A fine but overcast and dull day. Fine night; thin clouds.
- 25.—A dull, cloudy, rainy day. Rough night, thin drizzling rain.
- 26.—Strong wind all day, with rain. Windy night.
- 27.—A fine bright day; warm; rain. Dull night.
- 28.—A dull, damp morning. A fine afternoon; overcast. Rain all the evening.
- Mar. 1.—A fine day; sun shining; frequent showers. Rain-bow seen at 4 h. 53 m. Overcast; occasional rain, and strong wind at night.

LONDON: Atmospheric Pressure.—During the week ending February 25, the reading of the barometer at the level of the sea increased from 30.30 inches at the beginning of the week to 30.85 inches by 9 A.M. on the 20th, decreased to 30.62 inches by 9 A.M. on the 21st, increased to 30.72 inches by midnight of the same day, and was 29.51 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.41 inches, being 0.29 inch higher than last week, and 0.42 inch above the average of the week.

Temperature.—The highest temperature in the shade during the week was 53° 5, on the 22d. On the 23d the highest temperature reached was 46°. The mean of the seven high day temperatures was 49° 4.

The lowest temperature in the shade in the week was 33° 5, on the 20th; on the 25th the lowest temperature was 43° 5. The mean of the seven lowest temperatures was 39° 7.

The greatest range of temperature in one day was 13°, on the 20th and 21st; the smallest was 5°, on the 23d. The mean of the seven daily ranges, 9° 7.

The mean temperatures were on the 19th, 42° 5; on the 20th, 40° 4; on the 21st, 40° 1; on the 22d, 40° 8; on the 23d, 42° 6; on the 24th, 44° 3; on the 25th, 49°. And these were all above their averages by 3° 7, 1° 5, 7°, 7° 7, 3° 4, 5° and 9° 5 respectively.

The temperature of the air for the week was

SEEDS.—SEEDS.

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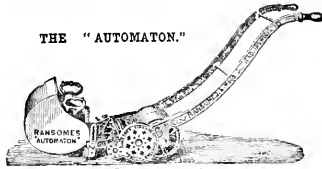
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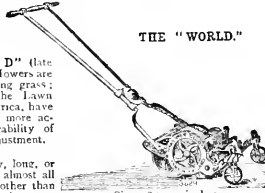
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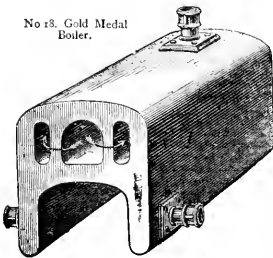
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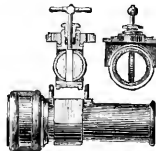
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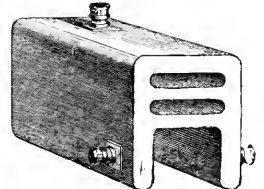
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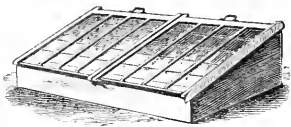
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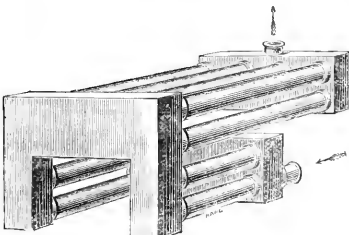
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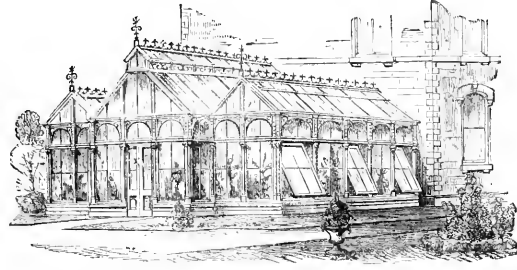
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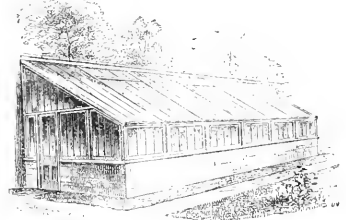
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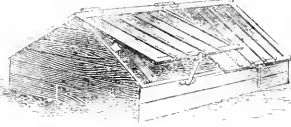
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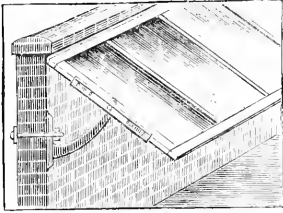


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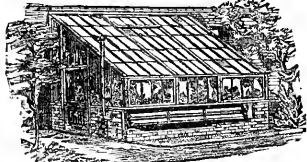
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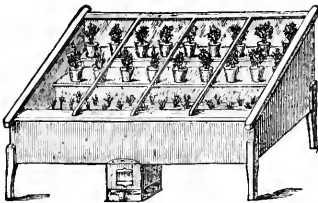
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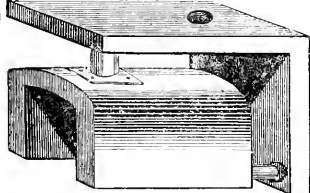
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20 "	18 "	30 "	5 0 0	9 0 0
24 "	24 "	24 "	7 0 0	12 0 0
24 "	24 "	30 "	8 5 0	14 0 0
24 "	24 "	36 "	10 0 0	16 0 0
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28 "	28 "	60 "	15 0 0	25 0 0

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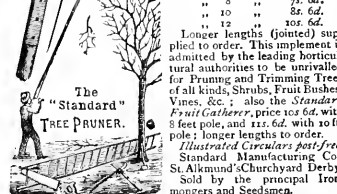
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JOURNEYMAN (FIRST), or FOREMAN (INDOOR).—Age 23; nine years' experience. Good testimonials.—State wages and particulars to H. G., 51, Park Road, Crouch End, Hursley, London, N.

JOURNEYMAN, or next to Foreman.—Age 21; four years' good character from Mr. Nash, Gardener to the Duke of Beaufort.—W. GUY, Cedar Gardens, Wells, Somerset.

JOURNEYMAN, in the Houses.—Age 21; good character from present and previous employers. Bothy preferred.—J. W. WILSON, The Gardens, Wellhead, Halifax, Yorkshire.

JOURNEYMAN, in a good establishment.—Age 20; seven years' experience. Four and a half years' in a Nobleman's establishment. Good testimonials. Bothy preferred.—R. WILLIAMS, Eleanor Road, Waltham Cross, Herts.

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PROPAGATOR and GROWER in Professional Nurseries.—Age 27. Satisfactory references.—H. L. Mr. Manson, 7, Layton Terrace, Granton Road, Edinburgh.

PROPAGATOR, chiefly Soft-wooded.—Apply, by letter, stating wages, &c., to JOHN REEVES, Acton, W.

PROPAGATOR (HARD-WOODED), where Roses, Rhododendrons, Camellias, Clematis, Fives, Shrubs, &c., are required in quantity by the most approved methods.—Age 22; nine years in present situation. Character and ability will bear strictest investigation.—H. ABEAR, Messrs. Lee's Nurseries, Wood Lane, Isleworth.

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PROPAGATOR (UNDER), or ASSISTANT GROWER, near London preferred.—Six years' experience; accustomed to Market Nursery work. Good reference.—E. Y., Mrs. H. Bassett, Swanmoad Villas, Cemetery Road, East End, London, E.

IMPROVER, or JOURNEYMAN, in a good establishment.—Age 21; can be highly recommended from present situation.—M. PEARSON, Scampston Gardens, Kilmington, York.

IMPROVER, under Glass.—Age 19; two years' experience. Can be highly recommended.—B. C., Sutton Cottages, Church Road, Ixley Heath, Kent.

IMPROVER, in a Gentleman's Garden.—Age 19; five years' excellent character.—JOSEPH HORNER, Cross Lane, Leeds.

IMPROVER.—Age 19; seven years' character.—Apply, by letter, in person, to JOHN CLARKE, The Gardens, Beaumont Park, Leicestershire.

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IMPROVER, in the Garden, by a thoroughly good working young man. A Premium if required, if the wages are good.—GARDENER, Barton Court, Colwall, Malvern.

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GARDENERS' CHRONICLE.

Established 1841.

No. 428.—Vol. XVII. { NEW } SATURDAY, MARCH 11, 1882.

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ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE.—COMMITTEE MEETINGS. Fruit and Floral, at 11 A.M., Scientific, at 1 P.M., on TUESDAY NEXT, March 14.

ROYAL BOTANIC SOCIETY,
Nepesin Park, Regents Park, London, W.
EXHIBITION OF CAPELLIAS.
An Exhibition of CAPELLIAS, HYACINTHS, and other SPRING FLOWERS is now on view daily to March 13, 9 o'clock.
Admission as on ordinary days, or by Spring Exhibition Tickets, 2s. 6d. each.
The Plants are from the Nursery of W. Paul & Son, Waltham Cross.

BRISTOL SPRING FLOWER SHOW.
THE TWELFTH EXHIBITION OF SPRING FLOWERS, &c., will be held in the Victoria Rooms, Clifton, on MARCH 22 and 23. Schedules, &c., of GEO. WEBLEY, Hon. Sec. Eastfield, Westbury-on-Trym.

THE INTERNATIONAL POTATO EXHIBITION will be held at the Crystal Palace, on WEDNESDAY and THURSDAY, September 20 and 21. SCHEDULES and further particulars may be had on application.

PRETYMAN, 23, Upper Thames Street, London, E.C.
STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—THE ANNUAL EXHIBITION will be held in the Assembly Rooms, Stoke Newington, on NOVEMBER 13 and 14. Particulars on application to the Hon. Sec., Mr. W. GOLDSMITH, 1, Stafford's Place, Grove Road, Stamford Hill, N.

ROYAL AQUARIUM, WESTMINSTER.
—THE BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY will hold the THIRTY-SIXTH ANNUAL GRAND EXHIBITION OF CHRYSANTHEMUMS, FRUIT, and VEGETABLES on NOVEMBER 13 and 14, at 10 o'clock. Prizes considerably increased in value. Many valuable Special Prizes are also offered for competition. Schedules are now ready, and may be had with all particulars from WILLIAM HOLMES, Hon. Sec. Frampton Park Nursery, Hackney, E.

ARAUCARIA IMBRICATA.—A large Stock of fine Specimens of the above, from 6 to 9 feet high. Price on application to J. JACKSON AND SON, Nurseries, Kingston-on-Thames.
PANCRATIUM CARIBÆUM, invaluable for cut flowers, 12s. per dozen; LILIUUM AKIKATUM, 3s. 6d., and 12s. per dozen; LILIUUM KRZETZKI, 6s. per dozen.
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W. FROMOND AND SON'S new Descriptive CATALOGUE of Vegetable and Flower Seeds and Garden Requisites will be forwarded on application. Sutton Court Nursery and Seed Establishment, Turham Green, London, W.

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LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. To Trade supplied.
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RASPBERRY CANES.—A Cheap Bargain for cash—5000 Northumberland Fillbaskets, well-rooted plants, 15s. per 1000, 10,000 STRAWBERRY PLANTS, best sorts, 4s. per 1000.
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The Home for Flowers, Swanley, Kent
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Novelties, Rarities, and Quality.

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GARAWAY AND CO., Durdham Down, Clifton, Bristol.

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THOMAS S. WARE can still offer the above in choicest mixture, saved from the finest varieties extant. These should now be sown at once, 1s., 2s. 6d., and 5s. per packet. Trade price upon application.
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WANTED, a few thousands of RHODODENDRON PONTICUM, 6 to 10 inches, top. Price and sample to THOS. HORSMAN, Rose Mount Nursery, Ilkley, Leeds.

WANTED, a few thousands of MANETTI STOCKS, CHINA ROSES, in variety: OAKS (English), 2 to 4 feet; Double Crimson PRIMROSES.
TO OFFER.—Strong LARCH, 3 to 4 1/2 feet, Cheap, to clear ground. Samples on application.
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PANSIES.—The very finest, newest, and best only of Show and Fancy sorts; no Violets, bedders, or inferior sorts kept. Twelve for 3s., twenty-five for 5s. 6d. Free with LIST. Trade supplied.
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ROSES, Dwarf, on Manetti.—The strongest and best Plants (all good sorts), that money can buy, 30s. per 100, 25s. per 1000, my own selection. Strong Earwig SEAKALE, 4s. per 1000. 6000 Planting do., 30s. per 1000. Cash with orders.
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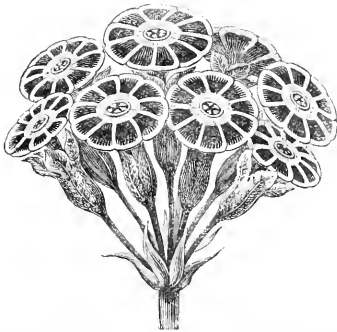


MALLOW (*Malva moschata alba major*).

When we brought the Single Dahlias from oblivion, as it were, many laughed and said they must return from whence they came; yet, strange to say, with hardly a single exception they had favour with these very critics. Not only in England but in America and Australia, they are eagerly sought after. We may rely that they will never cease to be grown so long as the eye has a desire for beauty. J. Harvey, Esq., of Wilmington Hall, grows them extensively in tubs, and places them where desired, and as soon as the frost threatens they are removed to the conservatory, and continue blooming until Christmas, and the effect amongst the Chrysanthemums is both unique and beautiful.

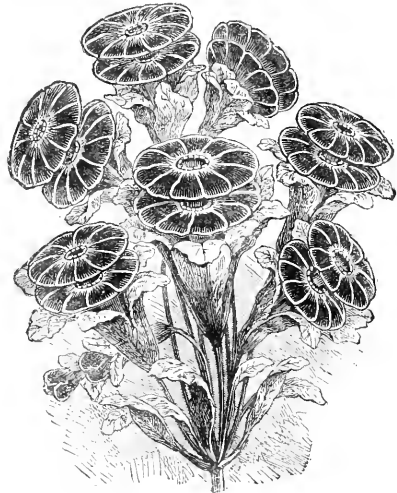
The above will take a similar position with every lover of beauty, and be sought after by all, particularly those fond there are few exceptions) who admire a pure white flower with a dense green foliage. Its delicious fragrance will most assuredly bring this plant into the highest repute, and it will be seen by the engraving how very curious but elegant are its flowers, and when intermingled in cut blooms with the round shaped fluted flowers—and some are better adapted and last longer in water than, this—the contrast is beautifully pleasing, and, like the new Cactus Dahlia, only need to become a favourite. Being hardy it will grow in any ordinary border. For table decoration no flower is better adapted, and its beautiful Fern-like foliage lovely and valuable for garnishing dessert plates and dishes all the autumn; and to confirm its value the Floral Committee awarded a First-class Certificate on a small bunch of its flowers being brought before them.

2s. 6d. each; Seed, 2s. 6d. per packet.



Many that offer the POLYANTHUS, and issue peculiar drawings, probably never grow a named variety (old as it is), and are utterly unacquainted with its properties, which almost every exhibitor will confirm. Whereas we invite all to "Come and See" our Collection. Our seedlings are fast coming into flower, many of them are splendid; and the same with Primroses. Our "Harbinger" (of the latter) which was honoured with a First-class Certificate of the meeting of the Floral Committee of the Royal Horticultural Society, is now splendid, and surpasses anything in its class.

Seeds: *Polyanthus* and *Primroses*, from our Named Collection, 1s. and 2s. 6d. per packet.



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This class for general garden decoration must become the order and fashion of the day for several important reasons: First, two flowers in the space of one, is of longer duration, and the diversity of colours may justly be compared to the Belgian Pansy; some of their tints are brilliant and quaint, and the variety of peculiar shapes they assume is surprising; some partake of the Jack-in-the-Green type, others Jackanapes on horseback, and Golligskitts, &c., which render them not only old-fashioned but favourites of former days, and cannot fail to be grown and become valued favourites in every border by everybody.

1s. 6d. and 2s. 6d. per packet.



NICOTIANA AFFINIS (True).

Nicotiana affinis is a most extraordinary plant:—Firstly, because so good a plant should be a Tobacco plant.—Next, because it is so different, both in growth and flowers, to the ordinary kind.—Thirdly, is because of its producing such splendid pure white noble flowers on long tubes, which renders it valuable for bouquets.—Fourthly, because it has such a delicious scent; in fact, it perfumes the whole surrounding atmosphere.—Fifthly, because its flowers fully expand at early evening and morning.

Its gigantic white Bivardi-like flowers have a most striking effect all the summer. It is beyond doubt the greatest novelty of the garden for 1882. In our nursery it was the amazement of all, and the result of several hundreds of packets of seeds being sold. It will unquestionably make a splendid Green-house Plant, and probably adaptable for Market-work. At night it emits its most agreeable fragrance, when its flowers are fully expanded; very free, and only attaining the height of a foot in any ordinary soil.

W. COLLINGFORD, Esq., introduced this splendid novelty, to whom all honour is due.

Figured and highly eulogised in *Gardener's Chronicle*.

Seed 2s. 6d.; Plants, in May, 1s. each.

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THE HOME FOR FLOWERS, SWANLEY, KENT.

SPECIAL OFFER.—The undernoted may be relied upon as being unsurpassed in quality, having been saved under the personal superintendence of Mr. F. Smith, Esq., who has for 30 many years been famed for the production of the most perfect Florists' Flower Seeds:—**F. MARIA**, £4 per ounce; **CALCEOLARIA**, £5 per ounce; **FRIMULA SINENSIS**, **FIMBRIATA ALBA**, £4 per ounce; **FRILARGONIA**, white and variegated, in 25 separate varieties, 2s per 100 seeds; **Intermediate STOCK**, Scarlet, 6s per ounce. **CATALOGUE** on application.
FRED. SMITH, Junr., The Nurseries, West Dulwich, S.E.

CABBAGE PLANTS.—Red Pickling **CABBAGE PLANTS**, Both Cos, and Lee's Immense Hardy Green **CABBAGE**, 100 per bushel of 100 Plants Flower Seeds:—**70s per 20,000**, £15 per 100,000; **Early CABBAGE PLANTS**, Sugarloaf, Ethelred, Rainbow, Schilling's Queen, Nonpareil; **SAVOY BRUSSEL'S SPROUTS**, Green, 250 per KALE, £2 per 100, 3s per 1000, 15s per 20,000; **Cattell's Eclipse BROCCOLI**, 4s per 100, 6s per 1000, £5 per 20,000 on rail. Cash under order or Banker's Order. Lists on application.
N.B.—All above plants warranted autumn sound and strong, from the open ground (not raised in frames). No charge for packing.
EDWARD LEIGH, W. Ham Farm, Dunsfold, Godalming.

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ASHLEAF KIDNEY, £4 per ton.
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FORTYFOULS, £4 per ton.
EARLY OMAHA, £4 per ton.
For Nett Cash, and Free Rail at Edinburgh,
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HEATHS and EPACRISSES, 16s 6d to 21s per dozen.
5000 **TULIPOUS GEMMAS**, some tuberos, in variety of colours, 3s 6d, 5s, 6d, and 9s per dozen.
5000 **GLOXINIAs**, erect and drooping varieties, good sound tubers, 2s 6d to 3s per dozen.
5000 **CYCLAMEN PERSICUM**, from splendid strains; good flowering plants, 7s 6d, and 10s per dozen; smaller, 2s 6d, and 3s 6d per dozen.
Descriptive **CATALOGUE** of these and general Nursery Stock free on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

Special Offer for Cash.
POTATOS for SEED.—Myatt's prolific Ashleaf, 4s; Scotch Champion, 3s; Paterson's Victoria, 3s 6d; Early Rose, 2s 6d per bushel of 100.
CITY FLOWER and SEED DEPOT, 162A, Fenchurch Street, E.C., and Kennington Park, S.E.

STRAWBERRIES—Strong roots for fruiting this year, 4s per 100. Descriptive LIST on application.
RICHARD SMITH and CO., Nurserymen, Worcester.

HARDY EXOTIC FERNS—Having received several very large consignments of **NORTH AMERICAN FERNS**, in the best condition, strong, true, well rooted, fine for Outdoor Ferneries, we offer many varieties at 6d each and upwards. LIST on application.
W. and J. BIRKENHEAD, The Fern Nursery of Britain, Sale, Manchester.

Carnations, Picotees, and Plinks.
THOMAS S. WARE begs to announce that the Spring edition of his **HARDY FLORIST'S FLOWER CATALOGUE** for the present season is now ready, and includes, in addition to the complete Lists of the choicest varieties of Anemuriums, Delphiniums, Paeonies, Pansies, and Violas, Penstemons, Pyrethrums, Dianthus, Pionettes, Sweet Violets, &c., &c., on application.
Trade prices on application.
Hale Farm Nurseries, Tottenham, London.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

Hardy Rhododendrons and Azaleas.
ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded **RHODODENDRONS** of the best and most popular kinds. **Hardy AZALEAS**, in the best condition, many thousands, all well furnished and well budded.
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
Knapp Hill Nursery, Woking, Surrey.

CEDRUS DEODARA—"The Indian Cedar." Beautiful specimen trees, frequently transplanted and well-rooted, offered at the undermentioned low prices to effect a clearance.—
5 to 6 feet, 45s per bushel of 100; 7 to 8 feet, 75s per dozen.
6 to 7 feet, 60s per bushel of 100; 8 to 10 feet, 84s per dozen.

ABIES DOUGLASSI—One of the most noble trees grown, well-rooted specimens.—
6 to 7 feet, 3s 6d each; 7 1/2 to 8 feet, 4s per dozen.
7 to 8 feet, 4s 6d each; 8 1/2 to 9 feet, 4s 6d per dozen.
8 to 9 feet, 5s 6d each; 9 to 10 feet, 6s per dozen.

The above-taken trees are highly suitable for Avenues, Lawns, Shrubberies, or Woods, and the opportunity of purchasing on such terms rarely occurs.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Gardenia intermedia.
MESSRS. JOHN STANDISH and CO. have to offer a very extensive stock of **GARDENIA INTERMEDIA** of all sizes, in plant form, in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s 6d each; larger, 3s 6d; 1 to 100, 6d each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1 1/2, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

TO THE TRADE and EXTENSIVE PLANTERS—10,000 Green **EUONYMUS**, from 20s to 20s per 100; also a large quantity of Double **Crimson and White PINKERHURMS**, Scarlet **LOBELIAS**, **HEPATICAS**, **VERONICAS**, **ANTHEMIS**, **PANSIES**, **DELPHINIUMS**, **PHLOXES**, **HERBS**, and the usual Spring Flowering Plants, including **ACRUCULAS**, and others.
THOMAS, Gardener, Plant and Mechanical Herbalist, Elm Grove Nursery, Brighton; and at Seaford.

SEED POTATOS.
MYATT'S ASHLEAF (true), 4s per bushel.
SCHOOLMASTER (100), 4s per bushel.
MELBURN HUNDM, 3s per bushel.
THE GREAT BRITISH GUMBER PLANTS, 1 foot high, 1s each, 5s per dozen.
HEATH and SON, Florists, Cheltenham.

Evergreen Screens or Blinds for Town Gardens.
W. MAULE and SONS offer CHINESE ARBOR VITAE, 40 to 120 feet, fine plants, with good holly, safe to transplant, 84s per dozen for cash. Carriage free to any railway-station in direct communication with Great-Western or Midland.
The Nurseries, Bristol.

To the Trade.
CATALOGUE OF NEW ROSES for 1882.
TEA ROSES, &c., now ready, and may be had post free on application to
CRISPION'S NURSERY and SEED COMPANY (Limited), King'sacre Hereford.

To the Trade—Seed Potatos.
H. AND F. SHARPE are prepared to make a very low offer of the following varieties of **SEED POTATOS**, all grown specially for Seed purposes from the best selected stocks. The quality is very fine, and free from disease—
Walker's Improved Ashleaf
Kivert's Royal Ashleaf
Myatt's Prolific Kidney
Alma Kidney
Gloucestershire Kidney
Schoolmaster
Walker's Improved Regent
Paterson's Victoria
Yorkshire Regent
Early Rose
J. M. J. M.
Peerless
Seed Growing Establishment, Wisbech

SCOTCH FIR SEED—Seed from the true Native Highland Scotch Fir (guaranteed). Price per 100 on application to
R. AND A. MORRISON, The Nurseries, Elgin, N.E.

500,000 Quicks. "White Thorn" Quicks, Yearling, or VERY SUPERIOR QUALITY.
GEE is prepared to supply the above, which are very magnificent, strong shouldered stuff, and root to root equal to those of a very choice lot, all carefully selected, at 10s per 1000 for cash with orders.
CATALOGUES and lowest prices of other superior Plants, Potatoes, &c., on application to
FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Beds.

SPECIAL OFFER.
PEAS, Huddfield or Cook's Favourite.
BRUSSEL SPROUTS, Covent Garden Strain, select.
PARSNIP, Hollow Crown, select. Also
WATERBURY BEANS.
Special quotations for above in quantity on application.
Wholesale **CATALOGUE** free by post on application.
WATKINS and SIMPSON, Wholesale Seed-men, Exeter Street, Strand, W.C.

SURPLUS NURSERY STOCK.
LARCH FIRS, 1 yr., 2 yr., 2 1/2 yr., 3 yr., and extra strong, 1/2 to 4 feet.
SCOTCH FIRS, 2 yr., 2 1/2 yr., and 2 yr. 3 yr., 1 to 2 feet.
EVERGREEN PRIVET, 1 1/2 to 2 and 2 to 3 feet.
Can supply large quantities of the above at specially moderate prices. Apply
HUGGESS Wood, Nurserymen, Cl. Stream-on-Tweed.

Special Offer.—7,000,000
GEE'S superior **CABBAGE**, **KALE**, **SAVOY CAULIFLOWER**, and other **PLANTS**, **ASPARAGUS**, and **SPINACH**, **RED-BUD**, **BEDFORDSHIRE-GROWN SEEDS**, **POTATOS**, &c.

GEE is prepared to supply the above in any quantities for cash with orders as follows:—
CABBAGE PLANTS, which are this season splendid, strong, healthy, firm-rooted stuff, grown from his far-famed selected stocks, comprising Early Enfield, Early Nonpareil, Early Dwarf York, Imperial Thousand-Head, and extra large Drumheads, all 3s per 1000 of 1000. Very fine plants can also be supplied of above kinds, which are not grown from F. GEE's own stocks, but which he believes are very good, at 2s per 1000, or cheaper in large quantities. Very fine Red Dutch or Pickling ditto, at 5s per 1000.
SAVOYS, large Drumhead and Green Curled **SCOTCH KALE**, and **BRUSSEL SPROUTS**, 2s per 1000.
LETUCE, the Old Brown Cos and Hardy Hammer-stem, fine plants, at 4s per 1000.
CAULIFLOWER PLANTS, splendid transplanted stuff, F. GEE's Autumn Giant at 2s 6d per 1000, 2s per 1000. Early London and Walcheren, 15s per 1000, 2s per 1000.
ASPARAGUS PLANTS or ROOTS (the true large French Large) in vigorous healthy stuff, recommended for making New Beds, 25s, 35s, and 5s per 100; 15s, 25s, and 40s per 1000.
SEAKALE, 8s, 10s, and 12s per 1000; cheaper by the 1000.
RHUBARB ROOTS, Early Scarlet, Prince Albert, and Victoria, 2s, 3s, and 4d per dozen, from 20s per 1000.
SAGE and COMMON THYME roots, at 3s. per 100, 2s per dozen.
DAISIES, choice sorts, **Bacchus**' Dark Scarlet, and others, at 10s per 1000, 20s per 1000, 50s per 1000.
WALLEFLOWERS, choice Dark Early, Blood-red, 500,000 fine plants, at 1s, 2s, and 3s per dozen, 7s 6d, 15s, and 20s per 1000.

QUICKS, splendid rooted 2-yr-old stuff, 8s. and 10s. per 1000. (See other Advertisement.)
Choice Seed Potatos, in any quantities, cheap and good. (See other Advertisement.)
Superior **BEDFORDSHIRE-GROWN SEEDS** of all kinds for the Farm or Garden. Every requisite supplied. **Free** to all buyers (noting names) (sured) liberally dealt with. See **CATALOGUES** on application.
Packages charged for, but which are returnable if sent back at once, carriage paid and advice of order.
N.B.—Unknown Correspondents, to save delay, should accompany their order with a remittance (either P.O., or Cheque) payable to
FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

LILIUAM AURATUM, splendid sound bulbs, at 4s, 6s, 10s, 12s, and 18s per dozen; 50s, 60s, 75s, and 100s per 100; extra strong, 3s and 4s per dozen.
LILIUAM HUMBOLDTI, beautiful, hardy, and easily grown, 18s per 100; 20s per dozen; 2s per dozen.
LILIUAM WASHINGTONIANUM, a splendid, hardy, easily grown species, 30s and 40s per dozen.
LILIUAM VARIOUS SCOTT'S cutters for Greenhouse, Conservatory, or Open Border, by the dozen, 10s or 1000.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, W.

Hyacinthus candicans (Galtonia candicans).
LARGE and **SMALL** flowering stock in the **WORLD**, 100,000 flowering Bulbs ready for Immediate Supply.

E. H. KRELAG and SON, NURSERY.
MR. KRELAG and FLORISTS, Haarlem, Holland, beg to offer this splendid stock of the good qualities of which may be said to be generally known at present. It is a first-rate Plant for Bedding-out, to be placed in beds alone or allied with Gladioli brecheiyeensis or other plants with striking colours. The pure white flowers are very useful in Bouquets, &c. We supply this Plant in three qualities, according to the size of the Bulbs, viz:—
First Size, per 12, 5s 6d; per 100, 25s; per 1000, 240s.
Second " " 3s 6d; " " 18s; " 180s.
Third " " 2s 6d; " " 15s; " 150s.
The Bulbs of all these sizes are suitably large to give flowers next summer. Trade prices on application.

Verbenas—Verbenas.
VERBENAS—Strong, healthy, well-rooted Cuttings, perfectly free from disease, of White, Purple, Scarlet, and Pink, 6s per 1000, 50s per 1000; 100 strong rooted Cuttings, in twelve most splendid varieties, First-price flowers, for 8s. Terms cash.
EXECUTORS of the late **H. BLANDFORD**, The Dorset Nurseries, Blandford.

To the Trade.
THOMAS IMRIE and SONS can offer **SEED POTATOS**, in variety. Quotations and sorts to offer on application. **LIST** of Surplus Nursery Stock to offer on application also.
Nurses and Seed Warehouse, Ayr.—February, 1882.

GRAPE VINES—All the leading sorts, well trained and in fruit. Quantities of **STRAWBERRIES** also, in pots, on application. **Price**, &c., on application to
F. VAS R. KINGHORN, Seed Nurseries, Richmond, Surrey.

To the Trade.
MANGEL WURZEL and TURNIP SEED.
H. AND F. SHARPE are prepared to make special offers of **MANGEL WURZEL and TURNIP SEED**, grown last season from carefully selected transplanted Bulbs. The quality is excellent, having been harvested in fine order, and the roots will be found exceptionally fine.
Seed Growing Establishment, Wisbech.

To the Trade.
PRIMROSES.—PRIMROSES.
Double **LILAC**, per 100, 12s 6d.
Double **WHITE**, per 100, 12s 6d.
Double **YELLOW**, per 100, 16s.
POLYANTHUS, Yellow, Rose-in-hose, per 100, 16s.
All in fine plant condition, on bloom.
RODGER, McCLELLAND and CO., 79, 77, 75, 73, 71, 69, 67, 65, 63, 61, 59, 57, 55, 53, 51, 49, 47, 45, 43, 41, 39, 37, 35, 33, 31, 29, 27, 25, 23, 21, 19, 17, 15, 13, 11, 9, 7, 5, 3, 1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

CHOICE SEED POTATOS.
Very low prices.
50 tons Schoolmaster 20 tons Flukes
50 " Gordon Victoria 20 " Redskin Fourball
50 " Myatt's Ashleaf 20 " Beauty of Helron
50 " Improved Early Bloat 10 " International
30 " Early Shaw 10 " Trophy
20 " Gloucester Kidneys 100 " Early Rose

Special quotation according to quantity required on application to
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Cabbage Plants for Sale.
S. BIDE can offer good strong Drumhead or Little **CABBAGE**, Early Bloat, Imperial, and Nonpareil, at 3s per 1000 for Cash with Order. Packages free.
S. BIDE, Alma Nursery, Farnham, Surrey.

FOR SALE, SEAKALE for Forcing and Planting, in large or small quantities. For price per 1000 apply to
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FLOWERING SHRUBS, in great variety, such as Hydrangeas, Lilacs, Deutzias, Spiraeas, Cytisus, Broom, Pyracantha, Herberis, Double Cherry, Scarlet Hawthorns, Guelder Rose, &c., &c., on application.
Descriptive **LIST** on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

PYRETHRUMS.
DAHLIAS—Pot-roots, 300 sorts.
CATALOGUES to be free.
KELWAY and SON, Langport, Somerset.

W. MAULE and SONS, in regulating their special Rhododendron Garden, have a few fine plants to offer of all the proved hardy and best kinds, such as **MAJESTY**, **ELLING**, **CATHARTIC**, **MINNIE**, **WINDMILL**, **THE QUEEN**, &c., &c., 6 to 6 feet high, and as readily as such through, all grown without peat. Price 10s 6d each for cash.
The Nurseries, Bristol.

Seed Potatos.
JOSHIAH H. BATH offers the following varieties of **POTATOS** for seed:—
Myatt's Ashleaf Early Don
Kivert's Royal Ashleaf Schoolmaster
Early Rose Paterson's Bonum
Snowflake Paterson's Victoria
Early Goodrich Scotch Regent
Lea's Hebron York Regent
Dalmahoy Fluke
Pennyfold Champion
and other leading varieties.
Also 100 bushels of **JERUSALEM ARTICHOKE**, 1 and 3, York Street, Loughborough Market, S.E.

Laurustinus.

R. H. VERTEGANS has a few thousands to offer to the Trade, fine bushy Plants, well-rooted. Sample of four Plants, carriage free on receipt of Postal Order for 5s.

R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston, Birmingham.

CEDRUS DEODARA (Indian Cedar).—Perfect well rooted plants, transplanted last May, 2 to 3 feet, 2s. per dozen; 3 to 4 feet, 3s. per dozen.

ABIES DOUGLASSII, one of our hardiest and most valuable ornamental trees, 5 to 6 feet, 3s. per dozen; special prices per 100. Suitable for planting, Specimens, Avon, &c.

Also a large stock of the best and hardiest varieties of **CONIFERÆ**, and **ORNAMENTAL SHRUBS**, equally cheap. **FREDK. PEAKINS**, Nurseryman, Regent Street, Leamington.

JOSEPH NAPOLEON BAUMANN, Ghent, Belgium, will be happy to book orders, until May 15, for **INDIAN AZALEAS**, with flower-buds, grown in pots, for early forcing, and for forwarding in September and October. On May 15 the general stock of Azaleas are planted in the open ground for late forcing.

He has still in hand a good stock of **AZALEA MOLLIS**, hardy **GHEENT AZALEAS** with flower-buds, at reasonable prices.

His new **CATALOGUE** may be had free on application for 1d. postage stamp.

3000—Tree or Perpetual Flowering Carnations—3000.

A. ALEGATIERE, scarlet; **Vulcan**, mottled red; **Irma**, mottled pink; **La Flor**, 1/2 white; **Fisher**, rose striped; **Le Favori**, carmine-pink, &c., extra strong plants, showing to 20 buds, the best in the trade, 2s. per dozen; also good flowering plants, 1s. 6d. per dozen. **Souvenir de la Malmou**, 2s. each, 15s. per dozen. Descriptive **CATALOGUE** free on application.

5000—BORDER CARNATIONS—5000.

CHOICEST NAMED VARIETIES, 6s. 6d. to 12s. per dozen; also show **PINKS**, 6s. per dozen. By post or in 60-pots.

Descriptive **CATALOGUE** free on application.

M. CROWE, Boleyn Nursery, Upton, Essex.

GARDENIA INTERMEDIA.—Extra strong

clean healthy plants of the above, very well set with buds, in 5-inch and 7-inch pots, 15s., 18s. and 24s. per dozen. **ERICA WILLMOREANA**, in 7-inch pots, 15s. and 12s. per dozen. **SPHERE JAPONICA**, 6s. and 12s. per dozen. **CINERARIAS** (Smith's strain), 6s. per dozen. **AZALEA INDICA**, to name, 12s. per dozen. All well flowered, fine plants. Cash with order.

FRED SMITH, Jun., The Nurseries, West Dulwich, S. E.

ONIONS—ONIONS, and LEEKS.

Splendid strong Autumn-sown ONIONS, now ready for transplanting, can be supplied in any quantities, as follows, for cash with order.—

ONION, Giant Rocca	Per 100 of	Per 1000
..	six score.	of 1200.
..	1s.	7s. 6d.
..	1s.	7s. 6d.
..	9d.	5s. 0d.
..	9d.	5s. 0d.
LEEKs, Broad Flag and Musselburgh	..	7s. 6d.
Small quantities can be sent by post at the extra charge of postage.		

A remittance or reference must accompany all orders from unknown correspondents. Cheques or Post-office Orders made payable to

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SPECIAL OFFER.

GLADIOLUS BRENCHELEYENSIS, extra large also

LILIUM CHALCEDONICUM.

.. **LONGIFOLIUM**, imported from Japan.

Special quotations on application. Also

STOCKS, Ten-week, Scarlet, White, and Mixed, saved from best imported Seed.

NEMOPHILA INSIGNIS, SWEET PEAS, Mixed, and **GRUVILLEA ROBUSTA.**

WATKINS AND SIMPSON, Wholesale Seedsmen, Exeter Street, Strand, W. C.

LIGUSTRUM OVALIFOLIUM, 3 feet, 40s.

per 100.

YEWS, Irish, 2 1/2 to 3 feet, 35s. per 100, £16 per 1000.

.. 2 feet, bushy, 20s. per dozen.

THUYA AUREA, 10 inches, 9s. per dozen, 70s. per 100.

ESCALONIA MACRANTHA, pots, 24s. per 100.

extra, 6s. per dozen.

ELIOMYRS JAPONICA, 8 to 12 inches, 16s. per 100.

LILAC, White, 1 1/2 foot, 12s. per 100.

Purple, 2 to 3 feet, 7s. per 100.

RHUS COTINUS, 2 feet, 12s. per 100.

GUELDRES ROSE, 5 to 4 feet, 16s. per 100.

PICEA NORDMANNIANA, 2-yr. transplanted, 50s. per 1000.

.. **PINSAPO**, 2-yr., 22s. per 100.

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LAPAGERIA ALBA—Best variety, well

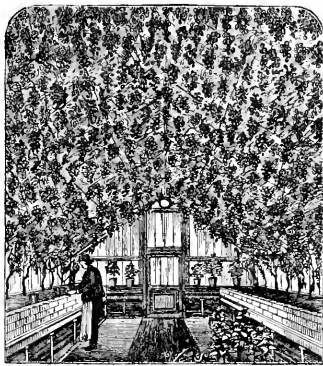
established Plants for 10s. 6d. to 12s. each. Many of the above have flowered freely during the past season. Cultural instructions will be sent (when required) with each order. Trade price per dozen on application.

R. H. V.'s Collection of Double **CINERARIAS** are now in full flower. Inspection invited.

R. H. VERTEGANS, E. R. H. S., Chad Valley Nurseries, Birmingham.

NISBET'S VICTORIA TOMATO

This is a seedling from Vick's "Criterion," and for cultivating under glass or in the open air there is no Tomato can approach it for fruitfulness. The plant requires no stopping, as it keeps growing and fruiting in the greatest abundance. The fruit is pyriform, and grows in bunches, each bunch containing from eight to twenty fruit, which are the size and colour of a Victoria Plum. It contains but few seeds, and for flavour is unsurpassed.



By cultivating the Victoria Tomato there is no difficulty in obtaining a crop of Tomatoes ALL THE YEAR ROUND. The plant requires plenty of room and a rich loamy soil, with liberal applications of liquid manure. There is no fear of it producing a quantity of wood without fruit, as the bunches of fruit show at every joint; it needs no stopping, as it keeps growing and fruiting in the greatest abundance, and either for cultivating under glass, or in the open air, it surpasses all others for fruitfulness.

To grow it in the greatest perfection a few of the many bunches should be removed and the fruit thinned out a little. This will produce fine, large, handsome fruit.

"The Original Plant is growing, under glass, at Aswarby, covering a space 15 feet by 6 feet, and at the present time is carrying a crop of 600 bunches of fruit, as many more having been gathered from it during the summer."
"August 30, 1879. "RICHARD NISBET, Gardener, Aswarby Park."

GOLDEN TANKARD MANGEL.

WE HAVE A SPECIALLY FINE STOCK OF THE ABOVE, GROWN ON OUR OWN SEED FARMS, TO OFFER TO THE TRADE.

PRICE ON APPLICATION.

CHARLES SHARPE & CO., SLEAFORD.

PELAGONIUM EDWARD PERKINS

is one of the most distinct and best winter bloomers yet introduced. Coloured Plates, or Bunch of Flowers, 6d. each, returnable to Customers.

Strong Plants, 5s. to 10s. 6d. each.

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and as full as can be desired of useful and reliable information on Garden and Flower Seeds, yet without any unnecessary costliness, post-free on application. Such a catalogue as this is claimed to be must of necessity conduce to economy, both as regards purchaser and vendor.

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are included, but unproved and excessively expensive kinds are omitted.

Every endeavour is made to supply Seeds of the *Finest Quality and of the Best Varieties at a Moderate Price*, to attain which desirable object neither trouble nor expense are spared in the procuring and proving of the Seeds.

THE GUINEA COLLECTION

(Carriage free), for the Amateur's Garden, has been much approved, and contains a most valuable and useful assortment of Equable Seeds.

All Vegetables are gladly and promptly attended to.

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.. Good popular varieties	.. 2 6
.. Ivy-leaved, double-flowered, fine trusses of charmingly beautiful flowers	.. 4 0
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TOWN CLOSE NURSERIES, NORWICH.

SEEDS: VEGETABLE, FLOWER, and FARM.

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Spare neither expense nor trouble in obtaining the finest quality, and they invite a comparison of their prices with those of any other firm.

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VEGETABLE and FLOWER SEEDS OF SUPERIOR QUALITY.

CARRIAGE PREPAID.

DICKSON and ROBINSON, SEED MERCHANTS, 12, OLD MILLGATE, MANCHESTER.

Offer the following extra choice Seed:—

- Per packet... BROCCOLI—D. & R.'s Superb Dwarf Early White... CABBAGE—D. & R.'s... CELERY—D. & R.'s... CUCUMBER—D. & R.'s... LETTUCE—Early Paris Market... MELON—Best of All, flesh whitish... ONION—Magnum Bonum... PEAS—Cuthwell's... PEAS—Marvel... TOMATO—Stamford... Queen...

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Also SMALLER COLLECTIONS OF CHOICE FLOWER SEEDS, 15s. 6d., 2s. 6d., 3s. 6d., 5s. and 7s. 6d. each.

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GENUINE SEEDS ONLY.

ALL WHO HAVE A GARDEN should send their Name and Address for

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Choice and Popular Vegetable Seeds and New Potatos for 1882,

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Warranted true, 45s. per bushel.

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Barbark's Seedling, Cobswaster, Covent Garden Perfection, Advance, Improved Peach Blow, Midtown Compeer, Triumph, Brownell's Superior.

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New and Rare Orchids, NEW and RARE JAPANESE MAPLES, &c. (Importations of) CATTLEYS, ODONTOGLOSSUMS, DENDRIPS, &c. THE NEW PLANT and BULB COMPANY. PANSY beg to announce that their SPECIAL LIST (No. 57) is just published. Besides the above it contains a List of all the new and other Plants for present planting. Post-free on application. Lion Walk, Colchester.

LARGE ORNAMENTAL TREES, suitable for Planting Avenues, Screens, &c. BIRCH, Silver Barked, 10 to 15 feet. ELMS, English and Welsh, 10 to 12 feet. SYCAMORE, 15 to 20 feet. SPANISH CHESTNUTS, 12 to 15 feet; Horse CHESTNUTS, 12 to 15 feet. Mountain ASH, 10 to 15 feet. POPLARS, Lombardy and Austrian, 10 to 20 feet. Salix, 10 to 15 feet. well-grown Plants, all transplanted spring, 1882; will remove any distance. For price, &c., FREDK. PERKINS, Nurseryman, Regent Street, Leamington.

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Orchids a Speciality.

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HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

CLAPTON NURSERY, LONDON, E. CHOICE FLOWER SEEDS IN PENNY PACKETS.

A splendid assortment of the most showy, popular and beautiful varieties, including Irish Double German Aster and Tree Peonies, Scarlet Linum, Phlox Drummondii, Double Zinnia, Mignonette, Pansy, Sweet Pea, Nemophila integrifolia, Calliopsis, Dwarf Nasturtium, Clarkia, &c. 100 packets in 100 choice varieties, post free... 8s. 6d. 50 packets in 50 choice varieties, post free... 4s. 3d. 25 packets in 25 choice varieties, post free... 2s. 6d. Each packet contains sufficient seed for making two or three nice patches, all the varieties are easy of cultivation, and will be found excellent for distribution among cottagers or children.

Beautifully Illustrated Catalogue Free to Customers.

DANIELS BROS., The Queen's Seedsmen, NORWICH.

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Have just received their Last Consignments of the

"MONARCH OF LILIES"

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Direct from the Japanese Bulb Farms,

AND ARE ENABLED TO OFFER CASES (AS IMPORTED)

WITH ALL RISKS AND IMPERFECTIONS, CONTAINING:—

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100 BULBS (MORE OR LESS), CARRIAGE FREE. AT THE UNPRECEDENTEDLY LOW PRICE OF 50s. PER CASE. SO FAR AS UNSOLD. TRADE PRICE ON APPLICATION.

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WILLIAMS' NEW HOTHOUSE SHADING.

The most suitable for Shading Orchids, Ferns, Palms, Stove and Greenhouse Plants.

The only kind of shading used at the Victoria Nurseries. It is a strong durable Netting, woven in squares, so close as to exclude the direct rays of the sun, but admitting the greatest amount of light attainable through shading. It withstands the weather better than any other class of Shading, and, on account of the thickness of its texture, it may be very beneficially used during cold weather to keep out the frost.

BLINDS MADE UP AND FIXED COMPLETE.

Sold in Pieces, 30 yards long by 1½ yard wide. Price, 45s. each.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 15, at half-past 12 o'clock precisely, by order of Messrs. HUGH LOW & CO., very fine imported plants, in the best possible condition, of the rare and lovely CATLEYA AMETHYSTOGLOSSA, amongst them several grand masses of unusual size. This Cattleya is the finest of the section of the genus to which it belongs, and some idea of its beauty may be formed by an inspection of a plant which will be on view, which has produced upwards of thirty flowers on a spike. At the same time will be offered imported plants of CATLEYA AGLANDLIE, and other choice ORCHIDS; also 100 established plants of PHALÆNOPSIS SCHILLERIANA, &c., the majority in bud or flower.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THURSDAY NEXT.

PHALÆNOPSIS TETRASPIS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. SANDER, on THURSDAY NEXT, March 16,

A Consignment of the above New Phalænopsis, Now offered for the first time.

In habit it is like VIOLACEA, but the flowers are pure white, produced in quantity on spikes, and so sweet-scented are they that a very few flowers will perfume a whole greenhouse.

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Offer the following:—

LARCH, 2 to 3 feet.
SCOTCH, 1½ to 2½ feet.
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Prices on application.

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Seed and Bulb Merchants, EXETER STREET, STRAND, W.C.

Immediately at back of Exeter Hall.

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SEED AND TRIAL GROUNDS FELTHAM and TWICKENHAM MIDDLESEX.

ALL KINDS OF Agricultural, Garden, and Flower SEEDS

Of Best Quality.

A FEW OF THE SELECT SEEDS

WE ARE NOW NOTED FOR:—

BROCCOLI, Covent Garden White.
Evesham Giant White (very protecting).
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CELEERY, Covent Garden Red (large and very solid).
COLEWORT, Hardy Green (hearts like a Cabbage).
PARSLEY, Perennial (as-curl'd—splendid).
PARSNIP, Hollow Crowned, select stock.
SAVOY, Covent Garden Drumhead.
VEGETABLE MARROW, long white ribbed (the Largest and best).

FLOWER SEEDS.

BEGONIA, choicest tuberous rooted (from splendid collection).
CANDYTUFT, New Carmine (splendid distinct colour).
CARNATION, The Erle (the best white).
choicest mixed.
CYCLAMEN, Covent Garden strain (best habit and colour).
DAHLIA, Single (saved from all varieties in cultivation).
GERANIUM, Ivy-leaved (choicest mixed).
LOBELIA SPECIOSA, true dark (saved from cutting).
MYOSOTIS DISSEMINATA, true.
AZORICA, true.
POPEY, Dwarf French Ranunculus (all colours and select Double).
Carnation-flowered (all colours and select Double).
PYRETHRUM, Single (choice hybrid).
SUNFLOWER, tall dark centred.
" " yellow centred.
" " Double orange.
WALLFLOWER, Harbinger, early flowering dark.

See our Wholesale Seed Catalogue, free by post on application. Bulb Catalogue published in August.

NEW CATALOGUES of Vegetable and Flower Seeds,

Stove and Greenhouse Plants, Bedding Plants, for 1882. Hortists' Flowers, Herbaceous Plants, &c. &c.

For Plant advertisements, see last week's *Gardener's Chronicle*.

CHOICE STRAINS OF FLOWER SEEDS post-free at low prices. The undernamed are all of one quality, and that really good; the difference being in size of packet only.
SEEDS OF BEDDING PLANTS, 2d. and 6d. packets.—Ageratum, Lobelia of sorts; Petalua nankinensis, single Petunias, Golden Pyretirum, Verbenas, &c.
SEEDS OF FLOWERING PLANTS, 6d. and 12. packets.—The best strains procurable. Carnations, Picotees, Finks, Fansies, Show or Fancy; Antirrhinum, Hollyhock, Stage or Alpine Anemone, French or African Marigold.
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SEEDS OF HARDY BORDER PLANTS, 2d., 3d., and 6d. packets.—Wallflowers, of sorts; Sweet William, Polyanthus, Primroses, Canterbury Bells, Aubletias, Alyssum, Arabis, &c., in great variety.

SEEDS FOR CONSERVATORY DECORATIONS, 6d., 12., and 1s. 6d. per packet.—Special care is taken to supply the finest strains of Primula sinensis, Spotted Calceolaria, Balsam, Cyclamen, Gineraria, Gloxinia, Tuberosus Begonia, Cockscomb, Petunia, Geranium.

SEEDS OF STOCKS and ASHERS, 3d., 6d., and 1s. packets, from the best growers only. 2d. and 6d. packets post-free.
COLLECTIONS. ANNUALS, 12 packets, distinct varieties, 12. 6d. or 12.; 25 ditto, 3s. 6d.; 50 ditto, 6s. or 12s. 6d.
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VEGETABLE SEEDS, see Catalogue. Carriage free for orders of 12s. and upwards. 2d. and 6d. packets post-free of Beet, Broccoli, Broccoli, Brussels Sprouts, Cabbage, Carrot, Cauliflower, Celery, Cress, Cucurber, Fenchel, Leek, Lettuce, Marrows, Melons, Mustard, Onion, Parsley, Parsnip, Radish, Spinach, Turnip, Turnips, Herbs, &c.
COLLECTIONS of the most useful VEGETABLE SEEDS made up liberally; carriage paid, for 10s. 6d., 12s., 14s. and 6s. See Catalogue.

WM. CLIBRAN & SON, OLDFIELD NURSERY, ALTRINCHAM.

SEND FOR A PRICE LIST OF

JOHN BLAKE'S PATENT SELF-ACTING HYDRAULIC RAMS,

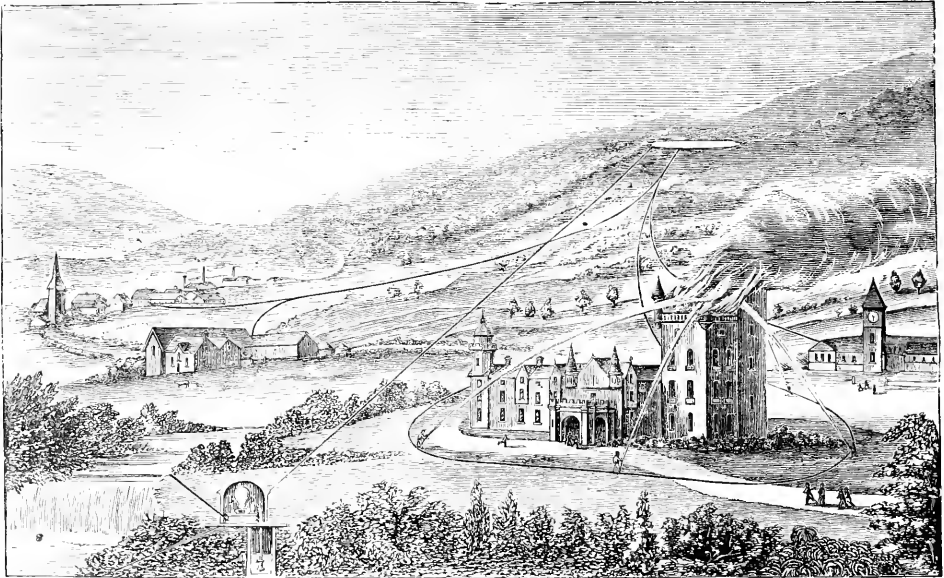
*For Raising Water for the Supply of Towns, Villages, Irrigation, Railway Stations, Mansions,
Fountains, Farms.*

No cost for Motive Power, which is obtained from the Stream of Water passing through the Rams.

NO OILING OR PACKING REQUIRED.

Made in sizes to raise from 300 to 500,000 Gallons per day. Will Force to a Height of 1500 feet.

Special Rams for High Falls to send up Two Gallons out of every Five Gallons passing through them.



APPLICATION OF BLAKE'S PATENT HYDRAULIC RAM B.

This Ram is worked by impure river water, whilst pumping pure water from a well and forcing it to a small reservoir on the hill, at an elevation of 295 feet, and a distance of 1 mile, from which reservoir the water is gravitated for fire extinguishing and general requirements of Mansion, Stables, Farm, and Village.

TESTIMONIALS.

From Mr. WILLIAM LAIT, County Surveyor, Compton Fenner, Watton & Watney 16, 1881.—"I have much pleasure in stating that the Patent Hydraulic Ram I had from you for the Rev. J. Cardwell-Gardner, of the Vicarage, Butlers Marston, is, I consider, remarkably successful, as indicated below. 4120 gallons of water per day are passing through the Ram with a descent of 13 feet 8 inches; out of this small quantity, 1020 gallons are sent up to a height of 41 feet; showing 75 per cent of useful effect; and the noise of its working is so slight as to be almost inaudible.

From V. F. BENNET-STANFORD, Esq., M.P., Pyt House, Tabery, Wilts, August 20, 1880.—"I have no hesitation in saying your Self-acting Hydraulic Ram and Apparatus for Extinguishing Fire, which you laid down here, including about 1 mile of pipes, are very satisfactory. The Ram forces upwards of 5000 gallons per day to a service reservoir, holding 25,000 gallons at an elevation of 295 feet, being 70 feet above the roof of the house, from which reservoir the water is distributed to the house, stables, home farm, and several cottages; and, in case of fire, four jets can be thrown on to the house from different sides at a great force and large volume. I consider the work has been done well and efficiently, and does you credit."

From the Right Hon. the Earl of GRANARD, Castle Forbes, March 11, 1880.—"The Hydraulic Ram, erected for me at Castle Forbes has answered perfectly. Considering the very small fall attainable by the nature of the ground, it is a great success, and throws up water to a cistern on the top of the tower 80 feet high. When Mr. Blake first proposed to put it on I doubted the possibility of its succeeding, owing to the nature of the ground, but I have been most agreeably undeceived."

From T. H. STODDERTON, Esq., Etherow House, Hindfield, February 29, 1879.—"Induced by the good report of my cousin, Mr. T. A. Siblebottom, as to the working of the Hydraulic Ram he had from you, I ordered the one you fixed here a year ago, which I am pleased to say has since worked well night and day. Yet the two Rams you fixed at SNOW'S Hill Manor, Gloucestershire, for my brothers and myself, are I think a still more remarkable example of your success. We had a Ram fixed by a well-known firm, which proved a miserable failure, and which your Rams displaced. They are forcing the water through $\frac{3}{4}$ of a mile of delivery pipe, a little in excess of the quantity you guaranteed to an elevation of 320 feet, and without the slightest hitch to the time of the last report from our tenant."

From the Right Hon. the Earl of ROSMERE, 56, Eaton Place, S.W., June 12, 1880.—"Sir,—In reply to your inquiry, I have pleasure in stating that the Hydraulic Ram which you erected for me at Gayton, does its work remarkably well, and is a great success. I think the work is especially creditable to you on account of the very small fall of but 3 feet with which you had to deal, and I shall always be glad to recommend you.—Yours faithfully, ROSMERE."

From Sir ROBERT MENZIES, Bart., of Menzies, Rannoch Lodge, Rannoch, August 20, 1880.—"The Hydraulic Ram you fixed for me to supply water to Rannoch Lodge and Camessack, two houses $\frac{1}{2}$ mile apart, is a complete success. The extreme distance the water is carried is $\frac{1}{2}$ mile, and, though the elevations of the two houses are different, there is a regular supply of 7 quarts per minute to each house, which has never ceased since the Ram was set a-going, about three months ago. Your Ram took the place of one previously tried on the same spot, and which did not succeed, and was in fact a complete failure."

From CHAS. C. CARL, The Cray Fisheries, Foot's Cray, Kent, March 30, 1881.—"In reply to inquiry as to my opinion of the Patent Hydraulic Ram you fixed here, I may say that it has displaced two Rams by a reputed maker, which were so unsatisfactory that I put down a live-steam engine and pump, but this being a continual expense and trouble, I resolved to try your Ram, and am happy to say that my best hopes have been more than realized. The quantity of water sent up by the Ram is abundantly in excess of what I need to keep the Fisheries in perfect health, and this without any trouble."

From J. SPENDER CLAY, Esq., Ford Manor, Lingsfield, Surrey, August 6, 1880.—"In reply to your letter of enquiry I am glad to be able to say that the two Hydraulic Rams which you fixed here are working satisfactorily, and that out of 13 gallons 3 quarts per minute, the maximum yield of the spring, they deliver to the top of my house, distant a full mile from the spring, 4 gallons 1 quart per minute, or 620 gallons per twenty-four hours, being 120 gallons above the quantity you guaranteed."

From Captain GANDY, Castle Bank, Appleby, February 11, 1880.—"The Self-acting Hydraulic Ram you erected for me is an excellent example of strength and good workmanship. Whilst working with 3 feet 4 inches fall it forces water 73 feet high, and so far gives me every satisfaction. It will do more work in one day than the old Ram of another make could do in a week."

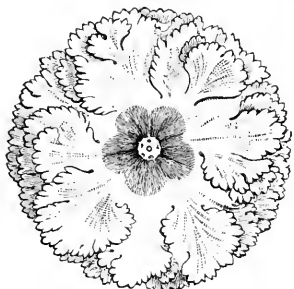
From Captain TOWNSEND, Winclean, February 10, 1877.—"In answer to your inquiry I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long at the rate of 82,000 gallons per day, although you only promised 50,000."

JOHN BLAKE, Engineer, ACCRINGTON, LANCASHIRE.

WILLIAMS' PRIMULAS AND CYCLAMENS

Are the Best in Cultivation.
Post-free.

The quality of all is alike, the difference in price applying to the quantity of Seed put in the packets only.



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| Williams' Primula sinensis fimbriata alba magnifica (New) | 2s. 6d. and 3 6 |
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| Williams' Primula sinensis fimbriata rubra magnifica (King of Primulas) | 3s. 6d. and 3 6 |
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| Abutilon, finest mixed | 1 6 |
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| Begonia, Tuberos rooted, finest mixed, Single, 1s. and 2s. | 2 6 |
| Begonia, Tuberos-rooted, finest mixed, Double | 2 6 |
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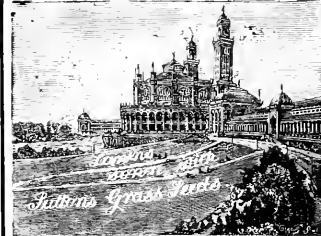
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THE **Gardeners' Chronicle.**

SATURDAY, MARCH 11, 1882.

PLANTS OF POETRY AND FANCY.

A PERSON who dearly loves flowers, as many humble folk do, counted with surprise the various blossoms in her garden and upon the cottage wall on Christmas Day. Lists of flowers out of season—though a flower can never be ill-timed—have been often given by those who have noted them. Staying long or coming early—who can say which in a season when the Rose, and not the Christmas Rose, blossoms in mid-winter?—the Primrose, Snow-drop, Anemone, and Crocus might not have surprised us in a well sheltered garden, but beside the cottage porch the "summer's queen" showed both blossoms and promising buds on Christmas Day.

The poets are the best observers of Nature's good old fashions, and they have never described the Rose as a winter flower. Burns says

"Mild be the sun on this sweet blushing flower,
To the gay rosy morn as it bathes in the dew."

These words breathe of summer! And in the "Legend of the Rose," when the Rose tree itself relates the story of the origin of its thorns, the period of the event is clearly summer. Says the Rose—

"Young Love, rambling through the wood,
Found me in my solitude,
Bright with dew and freshly blown,
And trembling to the zephyr's sighs."

He stooped to the flower to sip, when a bee flew out and stung his lip, and off flew Cupid to his mother. She, to please her boy, strung his bow with bees, from which she had first removed the stings.

"And none since that eventful morn
Have found the Rose without a thorn."

But this winter has been exceptional, and it should be known in all countries where the Rose is met with—that is, throughout the northern hemisphere both in the Old World and the New, from Siberia to Bengal, from Northern Europe to Africa, from Lake Winnipeg and Hudson's Bay to Mexico—that the Rose blossomed on a cottage wall in Sussex on Christmas Day last year. "And what if it did?" says some morose person of purely commercial mind, busy perhaps just now, but destined to regret some day that flowers and gardens and simple tastes yield him no pleasure, and that all the world for him is as void as an empty eggshell. Bless all flowers, trees and plants of every kind, including Toadstools and fungi, especially those which are edible. Bless all floral fancies, legends and languages—all superstitions, errors and absurdities connected with plants—all heraldic badges, and emblems taken from the vegetable world, especially the Rose, the Thistle, and the Shamrock—all sacred trees and plants, such as the Deodar and the Pecup, the Oak and Orchis spotted at Gethsemane, and others, plucked and put in royal bouquets, or in humble garlands and posies worn in caps or button-holes! Bless them!—erect or trailing, climbing, creeping, twining, tall like the Palm, or lowly as the Daisy, sleeping or waking, bless them all!

This invocation and the appearance of the early flowers may remind us of several floral and monkish symbols of religious festivals. A good Franciscan father loving flowers and observing the time of their appearing, invented a useful "timepiece" which, if it did not strike, blossomed with some regularity at about the period when the festivals recurred. The arrival of the pure Snowdrop, white and drooping, reminded the good priest to light the taper to the Virgin, at Candlemas, February 2; the Lady's Smock and the Daffodil ushered in the Annunciation, March 25; the Blue Bell the festival of St. George; the Ranunculus may remind the devout of the invention of the Cross. The scarlet Lychnis arrives about the date of St. John the Baptist's Day or thereabouts; the white Lily at the time of the Visitation of Our Lady, July 2; and the Virgin's Bower at her Assumption, August 15. On the same monkish authority we learn that the section of the stem of the Bracken bears, not the marks of pagan Oak or Roman eagle, as they may seem to some, but a distinct tracing of the sacred letters, I.H.S.

The catholicity of floral tokens, and the antiquity of their use as religious offerings may be recognised in the customs of all Churches; and even now, though superstitious usages are happily on the decline, yet floral decorations are still thought appropriate. Exactly the same flowers that were dedicated to Juno and Diana and to the northern Freya and Bertha, were afterwards devoted to the shrines of the Virgin Mary. The Lily and all white flowers were typical of the Virgin's purity, and the flowers of Diana—humble plants generally, growing in unfrequented glens and shaded dells, unvisited by man—were piled on the mediæval shrines of "Mary," with the same idea of their freedom from human taint. Among our native Mary's flowers were the Cost-Mary (*Balsamita vulgaris*), King Cup, Marsh Marigold, or "winking Marybud with golden eye," a very desirable talisman for the pocket in some companies, for it prevents angry words from being addressed to its possessor. Another Mary-gold, not the *Caltha palustris* just referred to, but the *Calendula officinalis*, was honoured like the above, as its name indicates; while Our Lady's Mantle possessed what some would regard as the divine quality of bringing to those who placed it under their pillow sound and sweet repose. Our Lady's Ded-straw, *Galium verum*, was taken as the plant on which the infant Jesus was laid in the manger, and in a painting of the Nativity, by N. Poussin, this "straw" is represented; and the spell attaching to it has rendered it, in France, with the superstitious, a specific against epilepsy to this day.

Since we are among the fancies of mediæval times another odd conceit of the same sort and date may be noticed in the white marks which spot the green leaves of Our Lady's Thistle, *Silybum Marianum*, where drops of the Virgin's milk fell on them. Several plants in classic story were as oddly stained, as the Rose when Venus pricked her foot, or the same flower when Cupid split the cup of nectar.

There are other plants dedicated by devout Roman Catholics to the Virgin, such as the Cuckoo-flower, otherwise called Our Lady's Smock—

"All silver white,
Which paints the meadows with delight."

Shakspere used a little licence here, for the Cardamine pratensis is nearer lilac than white in colour; perhaps he referred to *C. amara*, which grows in meadows in masses white as linen sheets laid out to bleach. Without exhausting the long list of Mary's flowers, we may just mention in quick succession, Our Lady's Cushion, Our Lady's Fingers, Our Lady's Tresses, her Slipper, Seal, and Hair; also the "Fair Maid of February," the Snowdrop, a

flower of earliest coming whose appearance touches all hearts and awakens pure aspirations, such as Tennyson interpreted in lines of great beauty:—

"Make Thon my spirit pure and clean,
As are the frosty skies;
Or the first Snowdrop of the year
That in my bosom lies."

Perhaps we should explain that Our Lady's Seal is the Black Briony; Virgin's Hair is the Quaking Grass. Flowers of more pomp and presence, dedicated to the Madonna, were the blossoming Almond, the white Iris, white Lily, and Narcissus. She has been herself called the Lily, as by Keble, in the lines beginning:—

"Ave Maria!—blessed maid!
Lily of Eden's fragrant shade."

From the Virgin's tears sprang Lilies of the Valley, in imitation of several flowers as



FIG. 46.—LYGOCHEITON FORSTERI, SHOWING HAIR.

strangely created among Greeks or Romans. Io's breath first called forth the Violets, and others came as suddenly at the wish of gods and goddesses, like the Narcissus, in full bloom.

The "Hail Mary!" of the verses just repeated, leads us to mention in conclusion the "Devotion of the Rosary of the Blessed Virgin Mary;" and the Rosary, the book of the unlettered, belongs to our subject, because it was originally—or at least frequently—a string of beads made of Rose leaves tightly pressed in moulds, and sometimes of Roses strung together. The Turkish and Buddhist Rosaries had 99 and 108 beads, and that of the Mohammedans had also 108 beads, a number corresponding to the number of sins possible to the Mohammedans, and to the prayers proper to be repeated daily. *H. E.*

THE LEE, Blackheath, and Lewisham Horticultural Society's Summer Show is to be held on June 28 and 29.

New Garden Plants.

ERIA VITTATA, Lindl.

THIS species has oblong cylindrical or oblong fusiform bulbs with some furrows, and reaches 4—5 inches in length. The two leaves are more than membranaceous, verging to thin fleshy, being very soft, as in *Eria stellata*. The shape is cuneate oblong-lanceolate acute. The lateral raceme is not many flowered. The green hairless flowers have the sepals, petals, lip, and even the column adorned with red stripes. The oblong crenulate lip has five plaited lamellæ, which are edged with red. The column has a square projection on each side. The flowers are equal in size to those of *Eria profusa*, Lindl. This is a most remarkable curiosity from a botanical point of view. Till now the plant was only known from Cathcart's drawings, prepared in Sikkim Himalaya by Indian artists, and lent by Sir J. (then Dr.) Hooker to Dr. Lindley, who described the plant from the drawing in his second *Contributions to Indian Orchidology*. I feel quite persuaded that the plant at hand is the same as that described, for it corresponds in all details. The glorious dense inflorescence, however, which makes one think of *Saccolabium Blumei*, may be the product of an exaggerated phantasy, perhaps in consequence of a smoke of opium!

I am indebted for good materials to Messrs. Veitch, who tell me they had them from Mrs. Russell Sturgis' garden, at Grove Farm, Leatherhead. A great discrepancy exists in the statement that the plant was of Cingalese origin. I do not think this can be correct. It may, indeed, have been sent by somebody who grows Orchids in Ceylon. The indications of locality sent by possessors of collections of Orchids must be looked at with great caution. Recently *Cymbidium longifolium*, Don, *Galeandra Baueri*, Lindl., *Phaius Tankervillei*, Bl., came to my hands—all reported as coming from Madagascar, in lieu of Himalaya, Mexico, China. Many such instances might be recorded. *H. G. Rehb. f.*

DULBOPHYLLUM CUPREUM (Lindl.) FLAVUM.

A variety with light yellow flowers instead of the red ones. It was sent by Messrs. J. Veitch & Sons, who obtained it from Mr. James Routledge, gardener to C. L. Wood, Esq., Freeland House, Bridge of Earn. *H. G. Rehb. f.*

EPIDENDRUM CINGILLUM, n. sp.*

A botanical curiosity. An *Epidendrum* with thin, very strong stems, the branches at hand shorter than a span. The five leaves are grassy, measuring 3 inches in length, by 3—4 lines in width. The few-flowered raceme of ochre-coloured flowers has lanceolate bracts nearly equalling one-third of the stalked ovary. Sepals and petals linear-lanceolate, the former a little broader. The lip is very curious. It is much broader at the base and cordate, much narrower towards the fore part and retuse. There are two semilunar orange calli at the base, the median vein is keeled a little, and there is a kind of semilunar line around the keel consisting of dark purple spots. The column has at the top some sordid mauve spots. The flower is equal in extent to the smaller flower of an *Epidendrum inversum*. It was sent by Messrs. J. Veitch & Sons, but it came into their hands from Mr. Parr, gr. to Mrs. Russell Sturgis, Grove Farm, Leatherhead. *H. G. Rehb. f.*

PHALENOPSIS SCHILLERIANA VAR. VESTALIS,
n. var.

As we are not rich in grand novelties, there is a very pronounced tendency to break up the immense masses of some species into varieties. There is a great difficulty in avoiding hairsplitting, and the practice of naming individual plants whose differences are so slight, that the next individual may break down the

Epidendrum cingillum, n. sp.—*Epidendrum caulis teretibus rigidibus ramosis; foliis in caule ad 3 membranaceis lanceolatis obtuse acutis; racemo foliis breviori paniculato; bracteis linearisetosis acutis ovaria pedicellata longe non exarquantibus; sepalis linearisetosis acutis; tepalis linearibus; labello adnato cordato utrinque constricto subquadrate, antice bene retuso, callo semilunari utrinque auto basini, carinae elevatius terminis antepositis, lateralibus tamen obscurissimis. Flos ochraceus illi *Epidendri inversi* parvis subæqualis. Labelli calli aurantiaci circumdati linea cingillari macularum rubrarum. Columna: venter maculis sordide violaceo-purpureis. Ex hort. Veitch. *H. G. Rehb. f.**

character, or whose flowers in the next season may present just the same claim for new names, though indeed they may be borne on the same plant. There have been very trustworthy observations as to this point, since the exposition to light, air, heat, have decided influence on the intensity of colour, and even the markings. An immense difficulty results from the interest of importing firms who do not care to let the origin of their plants be known to their dear fellow-workmen, as they may show a decided inclination to hunt upon the grounds of their competitor. If we could watch the importations geographically, we might enjoy many a success we lack now. I have explained my views about this in a memorandum about *Cattleya labiata* Percivaliana which may appear one day in these columns. It is provoking to be urged to name a single flower of a *Cattleya* of the labiata group. Some help might be given as to geographical statements. I am pleased to have before me the inflorescence, and at the same time the water-colour sketch (prepared by Mr. Henry G. Moon, of Stamford Hill) of a white *Phalenopsis Schilleriana*.

the plant. I have carefully dried the glorious flower, so that such of my English visitors who may have a Thomasian sceptic feeling may see and state the truth of my assertions. I feel quite persuaded that Mr. Stuart Low stands now in a grave dilemma. For helping Orchidists he has either to send a traveller afresh to fetch new individuals, or he may deliver to his fellow workmen a speech at Mr. Stevens' about the exact details of the habitat—perhaps his maiden speech in this line. *H. G. Rehb. f.*

FREESIA LEICHTLINII MAJOR.

We have been favoured by Messrs. Charles Smith & Son, Caledonia Nursery, Guernsey, with some very fine cut blooms of the charming *Freesia refracta* alba, and of a hybrid between that plant and *F. Leichtlinii*, for which they propose the name of *F. Leichtlinii major*, the flowers being as large as those of *F. refracta* alba, and much larger and stronger than those of the typical *F. Leichtlinii*. The colour of the flower is pale cream, the lower segment having at its base a blotch of bright orange. The base of the tube

J. Smith separated it as a distinct genus. Unfortunately the character of the venation is hardly perceptible on a superficial glance, and is not represented in the figure.

The plant is a native of the Polynesian Islands, and is therefore not so hardy as the North American and Japanese species commonly cultivated. The plant is not new to gardens, but is much less frequently seen than its merits justify.

SEASONS OF SHAKSPERE'S PLAYS.

REV. H. N. ELLACOMBE has collected for the Shakspeare Society a number of references giving incidental evidence as to the season of the year in which the action in sundry of the plays was supposed by the author to take place. It is obvious that, except in certain special cases, this is not a matter of any great importance, but sometimes it is so, and never is it devoid of interest. Mr. Ellacombe has



FIG. 47.—LYGODICTYON FORSTERI: BARREN AND FERTILE FRONDS WITH SPORES, VENATION RETICULATE.

Every one of us might have guessed its occurrence; but, as I believe, no one had hitherto seen it. It is now before us in Messrs. Low & Co.'s glorious collection of *Phalenopsis*. If there is no artistic liberty in the drawing, then it is a great recommendation of Mr. Low's management, since there is an immense difference between the very small first leaf and the fine last one. Orchids are very eloquent. They tell their master, by their appearance, how they are treated. They praise a good grower, and they resent the careless behaviour of would-be gardeners who neglect those lovely ornaments of tropical paradises. *H. G. Rehb. f.* [We learn from Messrs. Hugh Low & Co., that the leaves of the *Phalenopsis* are accurately represented, as regards size, in the drawing referred to by Professor Reichenbach. Ed.]

PHALENOPSIS STUARTIANA, Rehb. f.

Mr. Norman C. Cookson, Oakwood, Wylam-on-Tyne, has kindly sent me a flower that surpasses the finest wild-grown flowers I had from Mr. Stuart Low, and which equals that of a very good *P. amabilis* flower. Such news may stimulate the demand for

is also of a yellow colour. Like the white-flowered species, the flowers are fragrant.

ODONTOGLOSSUM PISCATOREI FLAVEOLUM.

This is a highly curious variety, with very blunt oblong petals. There is some sulphur on all parts of the perigone. It was sent by Messrs. J. Veitch & Sons.

LYGODICTYON FORSTERI.

At one of the recent meetings of the Floral Committee considerable interest was occasioned by the exhibit of a plant of this desirable climbing Fern. As will be seen by the illustrations now given (figs. 46, 47), the plant has entirely the habit of the species of *Lygodium*, and is suitable for growing on pillars, or on rock-work in a warm fernery. The general character of the foliage is more handsome than that of the species of *Lygodium* generally, and as it is of fine growth it is preferable to them on the ground of effectiveness. The barren and fertile fronds vary considerably in appearance, as may be seen in our drawing. From *Lygodium* the present plant differs particularly in its much more branched venation, on which account Mr.

naturally sought for indications in the mention of flowers and fruits, and prefaces his paper by a complete list of plants mentioned in each play. Mr. Ellacombe admits that his results are not directly of importance, but he very truly adds, as may be done with every piece of honest work, that the value of the research is not to be measured by the visible results at the moment, for it is certain that at some time or another the utility of genuine work will become manifest. In the present case Mr. Ellacombe tells us that the inquiry has confirmed his previous opinion, "that even in such common matters as the names of the most familiar everyday plants Shakspeare does not write in a careless haphazard way, naming just the plant that comes uppermost in his thought, but that they are all named in the most careful and correct manner, exactly fitting into the scenes in which they are placed, and so giving to each passage a brightness and a reality which would be entirely wanting if the plants were set down in the ignorance of guess-work. Shakspeare knew plants well, and though his knowledge is never paraded, by its very thoroughness it cannot be hid."

As an illustration of the manner in which Mr. Ellacombe has executed his self-imposed task we may

quote what he says with regard to *Mitsunomia Night's Dream*:—

"The name marks the season, and there is a profusion of flowers to mark it too. It may seem strange to us to have 'Apricocks' at the end of June, but in speaking of the seasons of Shakspeare and others, it should be remembered that their days were twelve days later than ours of the same names; and if to this is added the variation of a fortnight or three weeks, which may occur in any season in the ripening of a fruit, 'Apricocks' might well sometimes be gathered on their summertime day. But I do not think even this elasticity will allow for the ripening of Mulberries and purple Grapes at that time, and scarcely of Figs. The scene, however, being laid in Athens and in Fairyland, must not be too minutely criticised in this respect. But with the English plants the time is more accurately observed. There is the 'green corn'; the 'Dewberries,' which in a forward season may be gathered early in July; the 'Jush Woodbine' in the fulness of its business at that time; the 'Pansies,' or 'Love in Idleness,' which (says Gerard) 'flower not only in the spring, but for the most part all summer thorow, even until autumn;' the 'sweet Musk Roses and the Eglantine,' also in flower then, though the Musk Roses, being rather late bloomers, would show more of the 'Musk Rosebuds' in which Titania bid the elves 'Kill cankers' than of the full-blown flower; while the Thistle would be exactly in the state for 'Monsieur Chouwhet' to 'kill a good red-lipped humble bee on the top of it' to 'bring the honey-bee' to Bottom. Besides these there are the flowers on the 'bank whereon the wild Thyme blows; where Oxslips and the nodding Violet grows,' and I think the distinction worth noting between the 'blowing' of the wild Thyme, which would then be at its fullest, and the 'growing' of the Oxslips and the Violet, which had passed their time of blowing, but the living plants continued 'growing.'"

PYRETHRUM INSECT-POWDER.

(Concluded from p. 297.)

APPLICATION OF PYRETHRUM IN FUMES.—The powder burns freely, giving off considerable smoke and an odour which is not unpleasant. It will burn more slowly when made into cones by wetting and moulding. In a closed room the fumes from a small quantity will soon kill or render inactive ordinary flies and mosquitos, and will be found a most convenient protection against these last where no mosquito bars are available. A series of experiments made under our direction indicates that the fumes affect all insects, but most quickly those of soft and delicate structure.

This method is impracticable on a large scale in the field, but will be found very effective against insects infesting furs, feathers, herbaria, books, &c. Such can easily be got rid of by enclosing the infested objects in a tight box or case, and then fumigating them. This method will also prove useful in green-houses, and, with suitable instruments, we see no reason why it should not be applied to underground pests that attack the roots of plants.

ALCOHOLIC EXTRACT OF PYRETHRUM POWDER.—The extract is easily obtained by taking a flask fitted with a cork and a long vertical glass tube. Into this flask the alcohol and Pyrethrum are introduced and heated over a steam-tank or other apparatus. The distillate, condensing in the vertical tube, runs back, and at the end of an hour or two the alcohol may be drained off, and the extract is ready for use. Another method of obtaining the extract is by reprecipitation, after the manner prescribed in the American Pharmacopœia. The former method seems to more thoroughly extract the oil than the latter; at least, we found that the residuum of a quantity of Pyrethrum from which the extract was obtained by reprecipitation had not lost a great deal of its power. The first method is apparently more expensive than the other, but the extract is in either case more expensive than the other preparations, though very conveniently preserved and handled.

The extract may be greatly diluted with water, and then applied by means of an atomiser. Prof. E. A. Smith, of Tuscaloosa, Ala., found that, diluted with water at the rate of one part of the extract to 15 of water, and sprayed on the leaves, it kills cotton-worms that have come in contact with the solution in a few minutes. The mixture in the proportion of one part of the extract to 20 parts of water was equally efficacious; and even at the rate of 1 to 40 it

"If the rate of Mr. Galt's (see, p. 29) is to be strictly limited to Blue-Boy, the use of a *Mitsunomia Night's Dream* does not apply. The difficulty can only be met by supposing the scene to be laid at any night in May, even in the last night, which would coincide with our 12th of June."

kills two-thirds of the worms upon which it was sprayed in 15 or 20 minutes, and the remainder were subsequently disabled. In still weaker solution, or at the rate of 1 to 50, it loses its efficacy, but still kills some of the worms and disables others. Prof. Smith experimented with the extract obtained by distillation, and another series of experiments with the same method was carried on last year by Prof. R. W. Jones, of Oxford, Miss. He diluted his extract with twenty times its volume of water, and applied it by means of an atomiser on the cotton-worm and the boll-worm with perfect success. Mr. E. A. Schwarz tried last summer the extract obtained by reprecipitation, and found that 10 drachms of the extract, stirred up in 2 gal. of water and applied by means of Whitman's fountain pump, was sufficient to kill all cotton-worms on the plants. Four drachms of the extract to the same amount of water was sufficient to kill the very young worms.

PYRETHRUM IN SIMPLE WATER SOLUTION.—So far as our experiments go this method is by far the simplest, most economical, and efficient. The bulk of the powder is most easily dissolved in water, to which it at once imparts the insecticide power. No constant stirring is necessary, and the liquid is to be applied in the same manner as the diluted extract. The finer the spray in which the fluid is applied the more economical is its use, and the greater the chance of reaching every insect on the plant. Experiments with Pyrethrum in this form show that 200 grains of the powder stirred up in 2 gal. of water is amply sufficient to kill the cotton-worms, except a very few full-grown ones, but that the same mixture is not sufficiently strong for many other insects, as the boll-worm, the larva of the *Terias nicippe*, and such species as are protected by dense long hairs. Young cotton-worms can be killed by 25 grains of the powder stirred up in 2 quarts of water.

The Pyrethrum water is most efficacious when first made, and loses power the longer it is kept. The powder gives the water a light greenish colour, which after several hours changes to a light brown. On the third day a luxuriant growth of fungus generally develops in the vessel containing the fluid, and its efficacy is then considerably lessened.

THE TEA, OR DECOCTION.—Prof. E. W. Hilgard, of Berkeley, Cal., is the only one who has experimented with Pyrethrum in this form, and he expresses himself most favourably as to the result. He says:—

"I think, from my experiments, that the *tea*, or *infusion*, prepared from the flowers (which need not be ground up for the purpose) is the most convenient and efficacious form of using this insecticide in the open air; and that it is used at times when the water will not evaporate too rapidly, and that it is applied, not by pouring over in a stream, or even in drops, but in the form of a spray from a syringe with fine holes in its rose. In this case the fluid will reach the insect despite of its water-shedding scales, hairs, &c., and stay long enough to kill. Thus applied I have found it to be efficient even against the armoured scale-bug of the Orange and Lemon, which falls off in the course of two or three days after the application, while the young brood is almost instantly destroyed. As the flower tea, unlike whale soap and other washes, leaves the foliage perfectly clean, and does not injure even the most tender growth, it is preferable (at that score alone) and in the future it can hardly fail also to be the cheaper of the two. This is the more likely as the tea made of the leaves and stems has similar, although considerably weaker, effects; and if the farmer or fruit grower were to grow the plants, he would save all the expense of harvesting and grinding the flower-heads by simply using the header, curing the upper stems, leaves, and flower-heads all together, as he would Hops, making the tea of this material by the large boiler, and distributing it from a cart through a syringe. It should be diligently kept in mind that the least amount of boiling will seriously injure the strength of this tea, which should be made with briskly boiling water, but then simply covered over closely, so as to allow only a little evaporation as possible. The details of its most economical and effective use on the large scale remains, of course, to be worked out by practice."

The method of applying Pyrethrum in either of the three last-mentioned forms is evidently far more economical in the open field, and on a large scale, than the application of the dry powder, and, moreover, gives us more chance of reaching every insect living upon the plant to which the fluid is applied. The relative merits of the three methods can be established only by future experience. C. V. Riley, in "American Naturalist."

* *American Entomologist*, vol. iii., pp. 255, 259.

† From 1 lb. of the powder 1 pint of extract was made, each drop of the extract representing 1 grain of the powder. The actual cost of making the extract was 5 cents.

ORCHIDS AT OAKLANDS.

ONE is so accustomed to read accounts of the largest collections of Orchids in the country that it may not be amiss to offer some remarks on a collection which I have many times had the pleasure of inspecting at different periods—a collection which may not be noted for the quantity of plants grown, but certainly for the quality or varieties under culture. It has seldom been my good fortune to see finer cool Orchids grown than those in Mr. Allan Edwards' collection at Oaklands, Dawlish. Many people would grow Orchids but who hesitate for fear of not having suitable houses; the general idea is you must have at least four or five houses. This is quite a mistake, as numbers of small collections in the country prove. Here the cool-house is a low span with path up the centre and stages on each side; on these is spread small coal, and on this stand the pots. The plants are all close to the glass—an important point. This house is heated by a single flow and return pipe. There are ventilators 1 foot apart right round the house, fixed in the brick-work.

Now for the plants. A more healthy and finer looking lot of cool Orchids it is impossible to see anywhere; leaves thick and leathery, not a speck of dirt on them; bulbs in every case far exceeding in size the imported ones, which is saying a good deal. As to varieties of *Odontoglossum crispum* to be seen here I can only say that the finest only are grown; as each plant flowers for the second time, and is found to be below the standard, it is at once weeded out, so that only the finest formed flowers are here to be seen—those with large sepals and petals almost overlapping, and forming, as it were, a square. Some are much spotted with dark brown, others with spots of a purple tint, others highly suffused with pink, others pure white. Here are also several fine plants of *Lycaste Skinneri* of different colouring, among them the rare *Lycaste Skinneri alba*; *Oncidium macranthum hastiferum*, *O. Pescatorei*, blocks hanging with *Cattleya citrina*—among these a plant which has never been taken off the branch upon which it was found growing in its native home, and which annually sends down two flowers on one stem from each bulb made; *O. Rossii*, very strong, and doing well; several of *O. nebulosum*—one especially was the finest for size and quality of flower that I have seen. *Dendrobium Jamesianum* seemed to be quite at home here, as were *Masdevallias*, among them "bull's blood var.," of Harr yana. *O. cordatum*, the finest variety, to which Mr. Sander made reference in the *Gardeners' Chronicle* of July 3, 1880, and which last year had over forty flowers on the spike.

The next is the *Dendrobium*-house, containing a grand lot of the favourite *D. noble*, *D. Wardianum*. The flowers on one superb variety were found to be 4 inches across. Near it hung the old and original variety, now so scarce, also *D. Ainsworthii*. Several *D. Cambridgeanum*—one plant a mass of deep golden flowers; many *D. formosum giganteum*, *D. chrysanthum*, *D. chrysotoxum* and var. *superbum*, *D. thyrsoiflorum*, *D. densiflorum*, one plant of which carried last year thirty odd spikes; *D. Falconeri*, *Lowii*, *heterocarpum*, and variety *philippinense*, and many others.

The next house is devoted to *Cattleyas* and other Orchids, which Mr. Edwards considers do well together. The house is about 40 feet long, has centre and side stages. Here dwell what are considered the gems: it is enough to mention a few—the grand old *C. labiata*, autumn-flowering variety, represented by six or seven plants; as many of *C. exoniensis*—Mr. Dorn's lovely hybrid. I should mention that among these is a variety I have never seen anywhere else; sepals and petals almost pure white, the lip long and deep crimson-purple, with all the other *exoniensis* properties. Near these stood the *C. Reineckiana*, which proved itself by its flowers last year to be a fine variety; *C. Wagneri*, *Lælia Jongheana*, with three spikes, the strongest plant I have seen of this; *C. Dawsonii*, the rare variety of *C. Mossie*; name *Mariane*, with its white sepals and petals; *C. virginialis*, and the very rare *C. Alexandrae*. On the warmest side of the centre stage stand plants of *Lælia elegans* type, *alba Biantii*, *Turneri*, and *Wolstenholmei*. In a warm corner were located plants of *C. Trianae*; these are now a fine sight. Among named ones in flower I saw varieties *Hilli marmorata*, very lovely; *Atalanta*, *niva*, *Vesta*, *gandii*, *splendens*, besides many other splendid forms from a noted importation. The rare

and lovely *Trichopilia lepida*, *T. crisa marginata*, *T. suavis*, all were close to the glass, hanging over the paths. I must not omit the C. Warneri family, one variety of which I understand the Messrs. Veitch described as the finest they had seen of this lovely Orchid. The *Vandas* are strong and healthy, and do well here, *V. suavis* now carrying several spikes, *V. lamellata boxalli*, *V. tricolor*, &c.; *V. teres Andersoni*, which last summer carried several spikes. Mr. Edwards does not consider this hard to flower if managed properly. I was perhaps most struck by the rude health of the *O. vexillariums*—such leaves and growths. The fine plant of *O. vexillarium giganteum* is making growth this year even larger than that of last year, when it threw a spike of nine flowers, each flower measuring 4½ inches across. Two fine large plants of *C. gigas* were enjoying all the sun they could get.

Among the many plants of that most useful winter Orchid, *Lælia anceps*, I noticed several very superior varieties, one truly a *subperismissima*, and *grandiflora*, with the other varieties, *alba rosea*, *Dawsoni*, *Barkeri*. A grand plant of *L. purpurata*, the variety with pure white segments with over thirty bulbs and several fine leads, promised well to make as fine a display as it did last year at the Devon and Exeter Horticultural Show. Near it, in rude health, with over twenty blooms, I noticed the rare *C. amethystoglossa*; the *C. Mendelli* class are well represented by two or three of the pure white variety, with long deep coloured lip, and several others. The quantities of *C. Mossie*, which have an entire side stage to themselves, again promise a grand sight this year. On this same stage last year over 230 blooms of *C. Mossie* were open at one time. A photograph of this grand sight I was shown. Many in this batch have not yet flowered; all inferior forms have been weeded out, as in the case of *O. crispum*. *7. B.*

CROCUS VERNUS.

A VERY agreeable study of some of the least known forms of the spring Crocus is just now being afforded on the rockwork at Chiswick. The various varieties have bloomed very finely this season, owing probably to the mild open weather and the absence of frost and withering cold winds. For novelty and distinctness of colour and charming appearance there is nothing to compare with a self-coloured variety named *L'Unique*, which is of a pretty rosy-lilac colour, lively in tint, and of much individuality of character. It may be said to stand alone among the self-coloured flowers, and it can be particularly recommended for pot culture. The flowers are not so large as some, but they are of good size and shape, and, as *Crocuses* go, appear to flower very freely. Among other blue or purple varieties *Baron Brunow*, rosy-purple, very fine, distinct and good; *Grand Lilas*, bright lilac-purple; and *Sir John Franklin*, deep violet, are all good. Of white flowers *Blanchard*, *Mont Blanc*, *Queen Victoria*, and *Snowflake* were very good. As a matter of course, there is an inevitable amount of sameness in the white varieties, but they differ in size, shape, purity of colour, and prominence or otherwise of the stamens. The striped flowers now represent a large section, including those that are very dark to those that are almost white. *La Majestueuse*, *Mdlle. Mena*, *Lord Fielding*, *Brunette*, *stripes* and *flakes of magenta-purple*, very fine and distinct; and *Lady Stanhope*, are particularly noticeable for their large, bold, and handsomely-marked flowers. How many reputed varieties of *Crocus vernus* there are may be inferred from the fact that one of the foremost of the Haarlem bulb catalogues numbers forty-four blue varieties, one violet, twenty-eight white, and thirty-one striped and variegated—114 in all, and these lists do not include names found in some Dutch and English catalogues. It was once remarked, but many years ago, that one good blue, one white, and one striped, would do for all in their several sections. This was not seriously intended in all probability, and less so now than in times more remote. Additions are constantly being made by seedlings and also by sports, and the increase goes on year by year. The *Crocus vernus* represents an extremely interesting class of flowers, and we should be glad to see Mr. Barron take in hand a representative collection for the purpose of showing what advance has been made during the past quarter of a century. A word or two

is necessary in reference to Mr. Barron's method of carpeting the ground in which the *Crocuses* are growing at Chiswick. This is done with dwarf *Saxifrages*, and the *Crocuses* send up their flowers through these tufts, and by-and-by flowers and foliage both decay, leaving the *Saxifrages* to enliven the spot, which they do for the remainder of the year.



The Rosery.

ROSES UP CHIMNEYS AND TREES.—Some years since attention was directed to the prodigious waste of running rosettes on bare chimneys and bald roofs and fences; and an earnest appeal was made that these should be draped with verdure and clothed with beauty. Since then a good deal has been done in these directions; still, a great deal more has been left undone. Turn where we may, walls, fences, roofs, chimneys, all seem bald and bare. Cottages, outbuildings, sheds, warehouses, might be greatly improved, and the bald outlines of much hideous architecture hidden, were *Roses* and other plants and trees more generally planted against our buildings. Chimneys also offer special advantages to tender plants, such as *Roses*. Most of them are storehouses of warmth, and many scarce tender *Roses*, such as *Maréchal Niel*, *Climbing Devoniansis*, &c., that might languish on bleak roofs and bare walls, would grow luxuriantly and flower profusely on the genial surface of a chimney. And then the flowering drapery of the *Rose* would not only redeem the chimney from stiffness and ugliness, but convert it into a thing of beauty, if not a joy for ever. And if *Roses* could thus transform chimneys into beautiful objects, what could they not do by way of artistic embellishment to the trunks of trees? It is only needful to look at trees in woods or hedgerows clothed with *Ivy* or *Traveller's Joy*, to see what climbing or trailing plants can accomplish in this way. And *Roses* can do so much or more than these; for, in addition to their foliage, they provide flowers of the most varied colours, and odours of the sweetest fragrance. The latter is most valuable quality in woods. For after the first blush of spring has passed away with its fresh odours of *Violets* and *Primroses*, woods are apt to become dark and damp, and to lack sweetness. *Beech*, *Limes*, *Lilies of the Valley*, may prolong the sweetness of woods, but long before the autumn tints lighten them with the hectic flush of coming tints the perfume has departed. But wreath the trees round with the sweet *Eglantine*, *Roses*, and wild *Honeysuckle*, and the woods remain fragrant till leaf-fall. Not would *Roses* up trees bring fragrance only, but wild and tangled luxuriance and highest beauty. Who that has seen the common *Sweet Briar* or the *Dog Rose* in its simple elegance and wild tangled masses, up or among trees, can ever forget the sight? Such plants are like glowing fountains of beauty. The more petals that fall the more buds seem to open, and there appears to be neither measure nor end to their rich prodigality of sweetness and beauty. *Briers* and *Roses* up the trees of our home woods and plantations would so greatly enrich them as to lend a new charm to the landscape. The verdure of our woods is so deep and dark at times, as to greatly need enlivening with lighter graces and more brilliant colours. It is this that renders *Rhododendrons* so valuable as base lines; rich and beautiful in themselves, the contrast they impart deepens the verdure of the masses of woods and plantations. But *Roses* being less formal are far more effective. They impart the much needed colour without either the formality or the stiffness incident to most sub-plants. *Roses* also climb to every possible variety of height, and droop down from infinitely varied elevations. Their erratic heights and distances, the varying bulk of their masses of branchlets, their varying colours and odours, render them invaluable in woods and plantations.

Apart from the value of *Roses* and *Briers* to run up or climb or roam wild over or among trees, many of them are capable of making respectable underwood or valuable cover. Where *Roses* are too scarce or valuable for such purposes *Sweet* and other *Briers* form no bad

substitute for them. For if it be true—and it is—that beauty unadorned is adorned the most, it is equally or more so that the wilding *Roses* or *Briers* are often by far the more beautiful in woods and plantations; and besides, a good stock of the several varieties of *Dog Rose* and *Sweet Briers* may be sown or planted with the wood. It is easy to cut these out if not wanted, and there is no means of establishing *Roses* in woods equal to working them plentifully on to the arms and branches of wilding *Briers*; plants or cuttings of some of the more common and free growing *Roses* should also be planted in woods, and shrubberies. Some of these may be encouraged to run up trees, and others permitted to ramble into wild masses. There is little fear in having too many of these, and it is easy to reduce them, but most difficult to establish or make *Roses* grow freely on old-established wood unless one has the vigorous roots of *Briers* or the plants already well established to work upon. In all cases where it is needful to establish *Roses* in old woods blocks of roots and soil should be taken clean out, and some impenetrable barrier established between the new soil and the old, as otherwise the tree roots will speedily impoverish the soil provided for the *Roses*, and but little progress will be made in draping the forest trees with higher beauty. The following are among the most suitable varieties for this purpose:—*Gloire de Dijon*, *Maréchal Niel*, *Climbing Devoniansis*, *Cheshunt Hybrid*, *Madame Gerard*, *Belle Lyonnaise*, *Climbing Aimée Vibert*, *Lamarque*, *Celine Forestier*, *Reve d'Or*, *Coupe d'Hebe*, *Paul Verdier*, *Fulgens*, *Charles Lawson*, *Blairii No. 2*, *Chénédiol*, *Madame Plantier*, *Climbing Victor Verdier*, *Général Jacqueminot*, *Anna Alexiev*, *Duke of Edinburgh*, *Maréchal Vaillant*, *Monsieur Boncenne*, *Souvenir de la Reine d'Angleterre*, *Glory of Waltham*, and also the so-called climbing hybrid perpetuals.

The more distinctly climbing *Roses* of the *Arlyshire*, *Boursault*, *Evergreen* and hybrid *China* varieties, such as *Dundee Rambler*, *Queen of the Belgians*, *Splendens*, *Elegans*, *Gracilis*, *Félicité Perpetuelle*, *Princess Louise*, *Rampant*, *Russelliana*, *Queen of the Prairie*, *Selina*, *The Garland*, &c., would all answer well. In mild sheltered positions even the *Banksian* *Roses* might do well up trees, especially the common yellow variety, which is more hardy than the larger flowered richer yellow *Jaune Serin* or the common white and the larger white *Fortunei*. But any free-growing robust *Roses* will look well up trees, though perhaps those of the most slender growths and with the smallest flowers are the more effective, combining as they do the maximum at once of grace and beauty. *D. T. F.*

THE ROSE-HOUSE AT MILTON PARK, as described at p. 267, is a lean-to with a pit in the centre and a path and staging all round. It is built against an ordinary garden wall about 14 feet in height; aspect south-east. Part of the stock is planted out and part grown in pots. Treatment: encourage liberal growth by repotting or top-dressing after flowering, plunge in bed of ashes in full blaze of the sun during summer, and water regularly; syringe every evening to keep clean and healthy; pinch off all buds as they appear, and in autumn take out of ashes and stand on hard bottom in full sun, giving less water in order to get wood well ripened and let plants go to rest. Take indoors about the end of September and encourage to make fresh growth, which will flower from November to March. Those planted out are treated in a similar manner, and come in for succession, being later kinds such as *Maréchal Niel*, *Gloire de Dijon*, &c. The sashes should be movable so that they can be taken off in summer to let the plants go to rest after making growth. I do not recommend a lean-to Rose-house where one has to be built, but an "unequal span," or a "span-roofed structure with a pit in the centre," and "movable sashes," for reasons stated. Best winter-flowering kinds are *Niphetos*, *Safano*, *Madame Falon*, *Isabella Sprunt*, *Souvenir d'un Ami*, *Sombreuil*, *Madame Ducher*, *Abriest Montplaisir*, *Belle Lyonnaise*, *Madame Trifle*, and *Devoniansis*. *Reporior*.

NEW ROSE "THE EARL OF SHEPPOKE."—On Saturday last Mr. H. Bennett, of Shepperton, kindly sent me a bloom of his new *Rose*, named as above. The colour is intense, clear, deep crimson, and, judging from the specimen sent, which was said to have been cut from a small plant in a 4-inch pot, I should say it is a *Rose* of great promise; and it is certainly not open to the objection of being scentless, as it possesses the most exquisite perfume. *T. Clialli*.

The Herbaceous Border.

GEUM COCCINEUM AND HYBRIDS.—We have lately had many lists of precocious children in the garden coming into flower a fortnight or a month before their right time, but I have seen no mention of *Geum coccineum*, many plants of which are full of forward buds, and some are already in flower in my garden. I refer to the semi-double variety, which has now almost superseded the old single form, though that has merits of its own. But the new favourite has a longer flowering period, the flowers last longer when cut, and the colour is deeper and richer. Being only semi-double it produces seed freely, and is very easily raised; so that it is desirable to keep a young stock constantly on hand, though the plants last for several years. By a judicious succession of plants of different ages they may be had in flower every year from April till November; but during the past winter the plants have never been quite without flowers. I generally make two sowings, one in February and another in April. The first sown come into flower in August, when the old plants are going out of flower. The second sowing are set with buds by winter, and if the winter is severe the buds are killed back, and the plants flower with the old ones in May and June; but if the winter is mild, like the last, they come in with the earliest spring flowers. Last spring I bought two hybrids, probably between *Geum coccineum* and *Geum montanum*—both have single orange-coloured flowers, and one I bought from Mr. Robert Parker, of Tooting, under the name of *G. miniatum*. It was a strong plant, such as Mr. Parker always sends to his customers, and in the summer I divided it into twelve pieces, each of which is now a strong plant. The other, which has a strong family likeness to it, was raised and brought out by Mr. Clibran, of Altrincham. This, too, is a very strong grower, and increases very rapidly. They are distinct and new in colour, and seem better adapted to light soils than to heavy strong soils, in which they have a tendency to grow coarse. *C. Woolly Dod, Edge Hall, Malpas, March 5.*

SANIFRAGA STRACHEVIL.—This is perhaps the finest of the cordata section of Saxifages. A fine plant is now in flower in the hardy herbaceous house of James Dickson & Sons, Newton Nursery, Chester. In the same house we saw the rare *Trinanda floribunda* in the flower. It is well named, being one mass of flower, and very attractive from the remarkable brilliant yellow colour of the flowers. No collection of *Trinandas* should be without it. *Edor.*

ANEMONES.—The mild weather we have had has caused these into flower, and most valuable have they been for cutting, especially the bright scarlet variety, *A. fulgens*, which, associated with either the Christmas Rose or *Eucharis amazonica*, produces a most striking effect. Seeing the great use to which *Anemone fulgens* may be put, and the early season at which it comes into bloom, it should be largely planted in sheltered sunny spots under walls, or on warm borders where, if necessary, the plants could be protected by having hand-lights placed over them. I once tried them in pots for forcing, but found them impatient of artificial heat, and now I mean to plant along the fronts of some of the houses, close up to the bricks. There I think they will feel just sufficient warmth below to help them into blossom, and if so, a row of them will afford something to cut at. I find the best way of getting the other tuberous-rooted kinds is to sow seed in beds, where they come up thickly, and yield masses of blossoms. If sown at once they will flower freely in the autumn, and the same again early in spring. *Anemones* like rich loose soil in which there is plenty of sand to keep it open and porous; so favoured the roots be sung, and keep from wet, to which they are subject in ground that remains wet and cold. *J. S.*

SANIFRAGA PURSERIANA.—Let the praises of this little gem be sung ever so often, yet it will richly deserve everything recorded in its favour. Mr. Barron has it now at Chiswick in pots in a cold frame, and also on the well-finished rockwork, and in both cases it is most charming. Under glass the flowers are larger and purer in colour than on the rockwork, and look like so many floral bowls raised upright on their tiny stems. On the rockwork it is also exceed-

ingly pretty, and very free; while it is all the more valuable because blooming so early. It requires to be let alone till it becomes nicely established on tufts, and it should have a somewhat elevated position on the rockwork. There is a great number of these dwarf Saxifages, and the one under notice is a chief gem among them.

FORESTRY.

FORESTRY divides itself into two branches: the first is called silviculture, or the culture of woodlands in all that concerns the crop which grows upon them; the second refers to their administration from an economic point of view, or in regard to the supply of timber for sale or use by the community, and the revenue to be derived from them.

As regards the first, it may be said that there is no mystery in scientific forestry. It means simply to observe the action of Nature in a forest, and to follow it, or to utilise it for our advantage when we are able to do so. Its object, then, should be to obtain the utmost possible advantage from the soil, by keeping it always covered with a growing crop of trees; and, when the trees arrive at maturity, to remove them in

calculation will show that a tree 10 feet in girth, which makes a ring of wood of only one-eighth of an inch in thickness, adds to its bulk at the rate of rather more than 1 cubic foot of timber annually for every 10 feet of the length of its stem—or, in other words, such a tree, if its stem be 30 feet in height, will in thirty years have increased in bulk by at least 100 cubic feet of solid timber. At the same time, during these thirty years the young trees which are springing up will become perfectly hardy and capable of supporting the whole force of the summer heat and winter frost. Nothing, then, is lost by the system of natural reproduction, as must be the case when a forest is cut down to be replanted; for not only in the latter case is there a degradation of soil from exposure, but also a dead loss in the production of woody material during the whole time that both the old crop and the young can remain on the ground together with mutual advantage.

But it is not only in the removal of the timber and the reproduction of the forest that we ought to study the action of Nature. It is equally necessary that we should do so in the felling for improving the growing crop, or, as they are commonly called, thinnings. To understand this, let us glance at the constitution of a high timber forest in its natural state, that is to say, a forest, whatever be its age, springing from seed, and therefore capable of living and thriving through a long series of years. In such a forest the

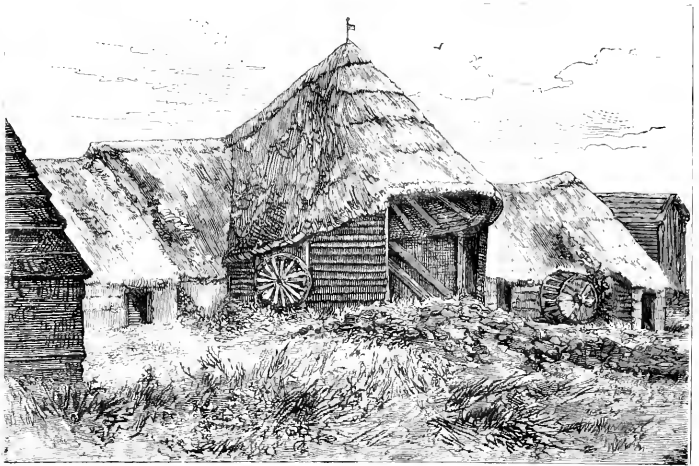


FIG. 48.—VIEW OF WIND MILL AT FARSON DROVE, NEAR WISBECH. (SEE P. 335.)

such a manner that the smallest possible interruption may be caused to the productive work of Nature in the forest.

PRACTICAL MANAGEMENT.

In a natural state, the reproduction of the forest is effected by the germination of the seed which falls from the trees in it, whenever the necessary air, light, and warmth are admitted to the ground, by the fall of any tree, either from accident or age; the work being carried out gradually, and the soil never being exposed over any large area at once. For the young seedlings which spring up would wither and perish at once, unless they were sufficiently shaded. So in forest operations, when the time has come for the removal of the timber, on no account should the ground be anywhere cleared of trees at once; but a commencement should be made by felling a tree here and there, and so breaking the thick cover of the forest, to allow sufficient air and light to reach the ground, and so cause the seed which has fallen to germinate. In this way, about one-fifth of the mature trees should be removed every five or six years, never breaking the cover by making large gaps in it, but taking a tree here and there, and always leaving the finest and most vigorous trees till the last; so that in about thirty years the whole of the old trees will be cleared off, and a new forest established in their place. Thus the seeding of the forest will be effected by the agency of the finest trees, which will be themselves all the while increasing in bulk, and thus the productive power of the soil will be utilised to the fullest possible amount. A short cal-

tures will, when young, form an almost impenetrable thicket of various heights; later on they begin to assume a definite form, and being in close contact with each other they soon begin gradually to lose their lower branches, which fall off and wither; but as a compensation they throw all the vigour of their growth into their heads, and as these push themselves upwards, seeking the light of the sun, the stronger ones overtake the weaker, so that a certain number of the latter perish and disappear each year. When about half their full age the trees will have attained their full height; but from that time till they arrive at maturity they go on always augmenting the diameter of their stems, but at the same time decreasing in number; so we may calculate that, if 1600 trees of 4 inches in diameter can stand and thrive on an acre of ground, there will not be above 400 when the trees are 8 inches, 200 when they have attained 12 inches, and from 100 to 140 when they are 16 inches in diameter. In our thinning operations, then, these considerations should be our guide. In the early stages of a forest's growth, there is little to be done except to keep the heads of the young trees of the most valuable species from being overtopped by those which stand near them; and this can be best done, not by removing the others, but by cutting off or breaking their tops, for it is in this stage that the process of natural pruning is going on, which Nature does so much better herself than we can do for her, and to this end it is necessary that the trees should grow as close as possible together. Later on, when the trees have taken a more regular form, we can

assist Nature, and at the same time save much valuable produce by judicious thinning, which should be arranged so as to pass through the whole forest at intervals of from ten to fifteen years, so that the whole area may be operated on in turn. In executing these, the most delicate of all forest operations, it will be well to remember that their object is to give room to the heads of the trees, and not to their stems; for the stems will never be too close together as long as the heads have room properly to develop themselves. The details, however, which govern the operation of thinning differ for almost every species of tree operated on, and to touch on them would be to enter upon a whole course of lectures on forestry. It will be enough to say here that in every case the favouring of the most promising trees and the removal of the weaker ones, together with the preservation of continuous shade to the surface of the ground, while all the trees have sufficient room to grow, should be the objects aimed at.

ECONOMIC MANAGEMENT.

The second point to be considered is the administration of forests from an economic point of view or with reference to the revenue to be derived from them.

The basis on which all sound forest management depends is the revenue which any forest can be made to pay—that is to say, the income which it will

whole of the present crop of trees will be removed, and the youngest now on the ground will have come to maturity. This will be about 200 years for Oaks, 120 to 150 for Beeches and Scotch Firs, and so on. These divisions are again subdivided into (usually) four or five working subdivisions, or compartments, to each of which a sub-period of thirty years or thereabouts is assigned, as being sufficient for the removal of all the old trees in it, and the reproduction of the new crop. There must be, then, as many sub-periods in the number of years assigned for the complete working out of the forest as there are sub-divisions in the whole forest. We take whichever of these subdivisions contains the greatest number of mature trees, and assign to it the first sub-period of thirty years, calling it No. 1. We count and measure the trees in it (neglecting all, if there be any, of less than a inches in diameter), and ascertain the total volume of timber they contain. This, divided by thirty, or whatever is the number of years in the sub-period, will give, as is evident, an amount or volume of timber somewhat short of the possible annual yield, but near enough to it for all practical purposes: it remains, then, only to remove each year from this compartment the quota of timber indicated above, following, in doing so, the method for the reproduction of forests explained just above—that is, we should remove one-fifth of the trees from one-sixth of the surface of the subdivision each year, or thereabouts,

But besides forests which spring from seed, there are others which consist of shoots springing from the stools or stumps of trees which have been killed, and which are commonly called coppiced forests. In many cases these give very good returns for hop-poles, mine-stays, bark, and other purposes for which large timber is not wanted. Their management is well understood, and the only points on which suggestions may be offered, are—

1. The necessity of giving sufficiently long intervals between each felling, as every time the copse is cut the soil suffers from exposure, and its fertilising power is wasted, as it is also by the production, during the first four or five years after the cutting, of a mass of useless grass and leaves, which profit nothing.

2. The necessity of using sharp instruments for felling and cutting the wood close to the ground, leaving the stools or stumps of such a form that the wet may run off them. These precautions are necessary for ensuring healthy re-shoots.

3. The cutting of the copse, if possible, in the early spring instead of in the winter, as is usually the case. If the work is done just before the sap begins to move the shoots are made at once, before wet and rot have attacked the stools, and rendered the production of healthy vigorous shoots impossible.

It may be added that the more standard trees that are reserved in a coppiced forest the greater will be its value; and there is nothing to prevent their flourishing over the lower growth, which serves to keep up their heads, and to give them a clean stem.

Now what is the practical application of all this? We have in Scotland about 800,000 acres of forest which have been planted during the last 100 years, for few of them exceed that age. Besides these, there is a small remnant of the old natural forests in Strathspey. In England we have, belonging to the Crown, about 50,000 acres of forest, the greater portion of which has been planted within the last hundred years also, with some remnants of the old natural forest, chiefly in the New Forest. It is impossible to speak too highly of the admirable work done by the able men who have created these forests at Scone, Blair Athole, Dunkeld, in Strathspey, on the Findhorn, and at Beaulieu, Scotland, as well as in some of the English Crown forests. In our colonies, including India, there are millions and millions of acres of forest land, some of which is of the greatest value, so that Great Britain is perhaps the country most richly endowed in forest wealth of all the countries of the earth. Every one, not only in our own country but elsewhere, is interested that all this great forest-wealth should not be wasted or frittered away by a single generation of men. But nevertheless, what is the future of all the forests? I have visited many of them, and scarcely anywhere did I see any of that young growth which is the link uniting the forest now on the ground with that of the future. Can any one say, then, that the future of these forests is assured? As they exist at present one of two conditions must befall them—either they will be cut down any day by timber dealers, or they will in due course perish naturally and disappear of themselves. In either case the result is deeply to be deplored, for when once the forest disappears it can only be replaced at a great expense of time and money. *Extracted from Col. Pearson's Lecture before the Society of Arts.*



FIG. 49.—WOOD MILL: SHOWING CONSTRUCTION OF THE WALLS. (SEE P. 339.)

produce in proportion to the volume of the standing trees; or, in other words, its capitalised value. To this end a forest should be considered as so much capital, represented by so many cubic feet of wood, while the amount of wood produced each year by its growth represents the interest thereon, and, in fact, is the revenue of the forest. It is evident that it is possible to cut and remove every year a quantity of timber equal to this annual increase of wood without diminishing the volume of the standing crop. The quantity that can be so removed is the proper yield of the forest—that is to say, the continuous yield; and French foresters have called it "the possibility" or possible annual yield—of the forest.

Now, if we suppose that a period of 150 years will be required for the youngest trees in a forest to arrive at maturity, it is evident that the 150th portion of it might be felled every year, and that the increase of timber in the first year would equal the volume taken away. But, as we cannot apply such a plan in practice, and at the same time insure the reproduction of a high timber forest, we arrive at the possible annual yield in another way.

It is in order that we may have to deal only with areas of a workable size, the forest is divided, in the first place, into large blocks or divisions, which should not be more than 2500 or 3000 acres each, and arranged generally so as to be convenient for the roads, rivers, or other means of transport for the timber. Each of these must be considered, and dealt with as a separate forest by itself; and to each a period is assigned, in which the

taking care not to exceed the volume indicated as the possible annual crop.

The other subdivisions or counterparts will be numbered 2, 3, 4, &c., and to each of them a sub-period will be assigned in succession. In the meanwhile, the necessary thinning, and the removal of trees that would otherwise perish, must be carried on continually during the first sub-period in all the other subdivisions, so as to go over the whole ground at regular intervals, not exceeding fifteen years each. At the conclusion of the first period No. 1 will contain a young crop of trees, from one to thirty years old; and then No. 2 will be taken in hand; and after No. 2 then No. 3, and so on, until in the full period the whole forest will have been renewed without the ground having been once entirely cleared of trees. Any one visiting Baden Baden will do well to explore the forests in the beautiful valleys of the Oos and the Murg in its immediate neighbourhood, which furnish a splendid example of the successful working of forests on this system. As examples of private forests which have been admirably managed in the same way, I may mention those of Prince Furstenberg, near Rippoldsau, to the east of Baden Baden, where there are some excellently constructed and most ingenious devices for bringing timber down the mountain torrents to points from which it may be carted away.

* Trees cannot be made to grow spontaneously in a forest, as we can place the men on the squares of a chess-board. The distribution of the felling, must therefore rely upon numerous cultural exercises which develop themselves from time to time, which time will not admit our noticing here.

WOOD MANUFACTURE AT WISBECH.

In the *Gardener's Chronicle* for June 18 last, p. 787, an interesting description was given of the manufacture of wood from the leaves of *Isatis tinctoria* as still carried on in the neighbourhood of Wisbech—a curious survival from the times when, as Cæsar tells us, the Britons stained themselves blue with woad. Prof. Oliver has succeeded in obtaining sketches both of the exterior and interior of these rude mills, and I am indebted to him for the loan of the illustrative sketches. Fig. 48 is a general view of the building. Upon referring to the article before mentioned it will be found that the central building is described as being circular with a conical thatched roof. Fig. 49 represents a portion of the mill, the walls of which are described as being built with turf, about 3 feet wide at the base and narrowing upwards. The blocks of turf are about a foot deep, cut in a slanting direction and arranged in a herring-bone fashion resembling old Saxon brick-work.

Fig. 50, p. 339, represents the grinding machine, which is contained in the circular building before alluded to. This machine is worked by direct shafting, one being attached to each of the grinding wheels, which, as will be seen, are somewhat conical in shape. They are 7 feet high on the outer side, and 6 feet 6 inches on the inner. The cross bars are of iron, and the wood leaves being thrown into the mill, and these drums or wheels passing over, are soon reduced to a pulp. *John K. Wilson, Acct.*

Orchid Notes and gleanings.

WORK IN THE HOUSES.—In the East Indian-house the winter-blooming species of *Saccolabium*, such as *S. giganteum*, *S. Harrisonianum*, and *S. violaceum*, should be cleaned, and have all the old material removed from about their roots, re-surfacing them over with freshly-gathered sphagnum moss. We prefer growing these soft-rooted species in baskets or cylinders, as in this way they are better aerated, and the roots are in a better condition for taking up supplies of nourishment from the atmosphere than when they are confined to pots. The early-flowering variety of *Angraecum sesquipedale*, which will now have passed the flowering stage, should be treated in the same way as advised for the *Saccolabium*, except that this, being a harder-rooted plant than the *Saccolabium*, it will be found to do and retain its roots in a healthy state as long in a pot as in a basket. The late-flowering form of this plant, which is much the finer of the two, will now be showing its spikes freely if the plants are healthy and strong. They are shy-rooting plants, and require to be very carefully handled when they need repotting. *Vanda gigantea* will now be passing out of flower, and should be sponged over and put right at the roots for the season. Any small plants of *Aerides* and *Vandas* that a shift would benefit ought to have that attention, so as to get them re-established before the sun obtains much power. Most of these will grow well in pots, giving them abundance of drainage, and crocking them up over the roots nearly to the surface of the pots, finishing off with a couple of inches of sphagnum moss. Where a careful hand guides the water-pot, 3 or 4 inches of sphagnum moss may with advantage be placed over the roots of these young plants, but it should be rammed in firmly so as not to hold too much moisture, and a sprinkling of sand through the moss will assist in preserving the roots. Some of the *Aerides* do better in baskets than in pots, especially the shy-rooting species, such as *A. Veitchii*, and *A. roseum*; and even when in baskets these species should not be overloaded with sphagnum about their roots, as when this is the case and the plants are not carefully watered a spotty and diseased condition in the plant is soon induced. A light fumigation once a fortnight or so through the spring months will do much towards keeping the plants in this house clear of the yellow thrips for the season. Good shag tobacco should be used for fumigating these plants, as a light dose of this will be more effectual than a strong dose of the best tobacco-paper. Plants of *Odontoglossum Phallopis* that have finished flowering may be divided and repotted, giving ample drainage, and using the best fibrous peat with a little sphagnum moss about their roots. We find when this plant is grown on large enough to occupy a 24-sized pot that many of the old bulbs commence to get decayed, and if this is not arrested the whole plant soon gets affected. When the plants get into this state we split them up into pieces large enough to fill 18-sized pots, when they soon get established, and grow away freely for several seasons. *J. Roberts, Ginnersey-street.*

PHALLOPIS SCHILLERIANA.—In March, 1881, I saw three plants in bloom at Mr. C. Perkins, Kirkley Hall, the original plant with over 160 flowers, and the other two, which had been taken off a flower-spice on the old plant some years previously with over 80 and 120 flowers each. I have lately seen these plants again in flower, but all with an increased number. The original plant had thrown up a rooted growth from last year's spike, which Mr. Perkins kindly allowed me to cut out and take home, and this plant, not twelve months old, then carried no less than fifty-eight fully-developed flowers. The variety is much more than usually sweet-scented, of good colour and fair form and size. The plants are grown in a mixed stove, where they get more light and less shade than is usually allowed *Phallopis*. These have thick leathery leaves, considerably longer and not so round and broad as is generally the case with home-grown plants; in fact, they strongly resemble the leaves of the strongest imported plants. *Norman C. Cobson, Oakwood, Wylam-on-Tyne.*

TRICHOPILIA SPANIS ALBA.—This rare and beautiful variety is now flowering with Mr. E. S. Williams at Holloway. It is a charming plant, and is very free-

flowering, producing its white blossoms when white flowers are in much request. In habit of growth it resembles the type, and the fine bold dark green leaves make a striking contrast to the delicate flowers. It succeeds well in the cool-house, and requires treatment similar to other cool Orchids.

MR. BULL'S COLLECTION.—In Mr. Bull's nursery the *Odontoglossum*-house still contains some fine examples of this genus. *O. crispum roseum* is a lovely variety with well formed flowers; and amongst some good forms of *O. triumphans* there is a remarkable specimen with two spikes—one has twenty-five flowers and the other twelve. In the Cattleya-house *C. Trianae* is flowering very profusely, some of the varieties being remarkable for the rich colour of the lip. One has been named *C. Trianae magnifica*. It is of fine form, the sepals and petals delicate rose, the petals having a spot or blotch of crimson on the tips—a distinctive mark not at all common.

PHALLOPIS TETRASPIS.—This rare, very distinct, and beautiful species, is now in flower at Messrs. Veitch's, Chelsea. The habit and characteristics of the plant are those of *P. Ludemanniana*; the flowers are rather larger than those of the latter species, and are pure white, except the crest of the lip, which is yellow.

THE BLENDON HALL COLLECTION.—Blendon Hall is the residence of W. C. Pickersgill, Esq., at Duxley, who has a comparatively small collection of Orchids, but which are excellent in quality, many of the varieties indeed being magnificent. At the present time there is a grand display of *Lycaste Skinneri*, forming quite a show in themselves, two of the varieties being exceptionally good—the finest I have ever seen. One named *gigantea superba* measured 6½ inches across the outer segments and 2½ inches in breadth, the colour a beautiful bluish-white; the petals are very broad, and suffused with rosy-purple; labellum white, with light rosy-purple markings in the centre. This flower, as its name implies, is gigantic. The variety *virginalis* is a great beauty—I think the gem of the collection; the outer segments are pure white, sparkling as if studded with diamonds, upwards of 6 inches across and 2 inches in breadth; petals white, slightly suffused with pink at the base; labellum delicate rose with white margin. *Formosa* is a light variety, and very handsome in contrast with the highly-coloured *rubella*. But the most remarkable plant in this collection is *Dendrobium heterocarpum*, probably the finest specimen in this country, having upwards of thirty gigantic pseudobulbs, and showing eight young growths. The largest pseudobulbs are upwards of 2 feet in height; and six of them are at the present time laden with fragrant blossoms; the variety leaves nothing to be desired, being simply superb. There is also a chastely beautiful large variety of *Cymbidium chloranthum* in flower. The collection includes besides some grand specimens showing in bloom, the most noticeable being *Cattleya labiata* Warneri, with about thirty pseudobulbs and four flower-sheaths—a magnificent variety, producing enormous flowers; *Saccolabium retusum*, a grand plant, showing two flower-spikes; *Dendrobium Farmeri*, a handsome healthy specimen, showing fourteen flower-spikes; *D. thyrsoiflorum*, with splendid growths; and some very healthy *Vandas*. A grand plant of *Aerides Lobbia* has fourteen pairs of leaves—a really handsome plant. Of *Cattleya gigas imperialis* there is a fine specimen with thirty pseudobulbs. This is one of the very finest forms of this splendid species. There is a remarkably fine specimen of the long-bulbed variety of *Cattleya coniensis*, with between twenty and thirty large pseudobulbs. *Cypripedium caudatum* is also well represented, this specimen producing annually from fifteen to twenty flowers. *Dendrobium superbiens* is evidently quite at home, making grand progress. Of *Miltonia Moreliana atrovirens* there is also a large pan, in the best of health; also *Laelia anceps* alba and many other fine things. Nearly all the Orchids in this collection have been grown from small plants in an ordinary span-roofed plant-stove, where *Trichoceras*, *Matanzas*, *Crotans*, *Ferns*, *Gardenias*, and a general collection of stove plants are cultivated, and the condition of the plants abundantly proves that they are quite at home. That they are handled in a practical and masterly manner is very evident, and a word of praise is due to Mr. F. Moore, whose management of this place for upwards of ten years has, it is needless to say, given his employer every satisfaction. *Leo Gordon.* We have had an opportunity of seeing flowers of the *Lycastes* and of the *Cymbidium*, which bear out our correspondent's statements. [Ed.]

The Flowery Garden.

LILIU ABRATUM, &c.—These grand additions to the herbaceous flower borders should now be planted, and if the operation can be carried on simultaneously with the digging of the borders so much the better. A light, rich, and deep soil, with thorough drainage, appears to suit them best. The best situation is at the back of the borders, with a sheltering background of shrubs and a southern aspect. We usually take out the soil to the depth of 6 inches, on which is placed an inch of silver-sand, and on this the bulbs, either three, five, or seven, according to the size of the patch required; but, as a rule, five will make a very fine display. These are covered with another inch of sand, and the soil levelled, the site being marked with a stout caken peg a foot or so long. They will amply repay for any amount of trouble bestowed upon them. They are also very suitable for planting in patches amongst *Rhododendrons*. The shelter afforded by these appears to suit them well, and they thrust up and expand their flowers over the tops of the *Rhododendrons* at a time when the flowering season of the latter is quite over. Many of the hardier sorts, such as *L. candidum*, *L. aurantium*, and *L. tigrinum*, are also very suitable for the above purposes, as is also the Yellow Turk's Cap Lily. These must all be carefully marked, and only disturbed at long intervals when the roots become very much crowded. *Gladiolus brechenleyensis* in particular, and many other sorts in general are great additions to the herbaceous border, and should be planted at once about 5 inches deep, and be well embedded in sand; there is no more useful and showy plant than *G. brechenleyensis* for the purpose, and it is so accommodating that many little sheltered nooks may be found where they can thrust up their spikes and interfere with nothing else.

HARDY ANNUALS.—A first sowing of the early flowering and most showy sorts should be made at once in small and under glass for filling up vacancies in the herbaceous borders; such fine showy things as Prince's Feather and Love-lies-Bleeding, however, may be sown at once in the open border in patches where they are intended to flower—from 6 to 8 feet from the margin of beds is best, and they will pay for a deep and rich soil. A very showy bed of *Antirrhinum* may be obtained by sowing the seed at once where the plants are intended to flower, so also will *Erysimum Perofskianum* make a good orange-coloured bed in the autumn if sown at once in good ground and well thinned afterwards.

TENDER ANNUALS.—It is as well to bear in mind that the sowing of the various sorts of tender annuals must soon take place, so that attention must be directed to the accumulation and preparation of fermenting material for securing a gentle bottom-heat for the purpose, and as at this season such materials are in great request in every department, it will be fortunate for those who have been able to secure a good supply of tree leaves, as a small quantity of fermenting dung mixed with these forms a far better and sweeter medium for obtaining the required temperature than all manure, which is apt to be too violent.

ROCKERY.—Several things here are now in flower, or growing fast and showing for flower, so that a neat appearance becomes imperative, and the necessary reduction in size of the strong growers may be commenced at once. Sedums, the moss *Saxifrage* and scarlet *Monarda* are very apt to outgrow their bounds, and must be kept under, the great object being to get as great a variety as possible in the space. The ground should be thoroughly well cleared of all extraneous matter, then well top-dressed with some rich new compost, which should be simply raked in as the operation of regulating the plants proceeds; it is not yet safe to fill up vacancies from the stores in cold pits.

PLEASURE-GROUNDS.—It is astonishing to see the rate at which the grass has been growing through the winter, and it is worthy of note that, commencing on January 25, we went over a considerable portion of the lawns with the mowing-machine, and edged the

flower-beds, giving them quite a summer-like appearance; and we find that, according to present appearances, this practice must be followed up, and that we may expect that the season for the general routine of pleasure-ground work will be much earlier than usual, so that if any improvements or alterations are in progress, no time must be lost in bringing them to a close at once, and all operations connected with the digging and renovating of empty beds, or beds with flowering shrubs, &c., must be completed, so that nothing may interfere with the requisite finished appearance of the dressed grounds. *John Cox, Keble, leaf.*

Grapes and Vineries.

The earliest house can still be kept at a night temperature of 65° with a rise of 10° by day. Raise the temperature to day heat early in the morning, so that the forcing is done when there is the greatest amount of sun and light; on cold sunless days a few degrees lower will be better than excessive fire-heat. Admit air early in the day on the back ventilators, and increase it as the temperature rises, being careful to avoid cold draughts. On bright days close the house early enough for the temperature to reach 85° after closing, and thoroughly damp down paths and borders. Water the border when dry with tepid manure-water, giving sufficient to go thoroughly through the border, for if not done well the Vines will suffer for want of moisture; keep the evaporating pans filled with manure-water, as the ammonia will greatly assist the Vines, and keep respicer down. Add fresh fermenting materials to outside borders as the heat declines. Succession Hamburghs will now be ready for thinning, and if not already done take off all surplus bunches at the first opportunity, for if left on longer they only weaken the Vines and rob the other bunches. After thinning is completed give the border a thorough watering with tepid manure-water, and keep the temperature as advised in previous Calendars. Hamburghs started about February 1 can be kept at a night temperature of 60°, with a rise of 10° by day. Muscats in bloom keep at a night temperature of 70°, and if the nights are very cold a few degrees lower, with a rise of 10° by day. Damp the paths and borders with tepid water early in the day, so that it will dry up before noon; and then damp the house again at closing time on bright days, but if cold and sunless do not damp the house in the afternoon. Tap the rods twice daily to disperse the pollen, and if they do not set freely fertilise them with Hamburgh pollen, but where the Vines are in a good state tapping the rods will be sufficient for them to set well. Let the evaporating pans go dry until they are out of bloom, and admit air on the back ventilators early in the day. Do not stop the growths during the period they are setting, but take off the surplus bunches as soon as possible. I usually take a good many of the bunches off before they come into bloom, and the remainder never fail to set well. If not already done start the latest house of Muscats at once, at a night temperature of 50°, with a rise of 10° by day, letting it run up to 75° at closing time on bright days, to save fire-heat. Keep the evaporating pans filled with clear water, and syringe the rods thoroughly several times daily. All late varieties of Grapes for keeping through the winter should by this time be started, for a little fire-heat now will save a great deal next autumn, and the Grapes will keep much better than if ripened late. All our black Grapes were thoroughly ripe last year by the middle of September, and cut from the Vines on January 7, and they have all kept satisfactorily and will do until April. Keep them at a night temperature of 50°, with a rise of 10° by day. Keep late Hamburghs as cool as possible, leaving the ventilators open night and day. Do not close for a few degrees of frost, but if severe close them. Early pot Vines must have liberal supplies of manure-water, and the paths and borders be damped down several times daily. Keep the night temperature at 45°, with a rise of 10° by day. Grapes still hanging in the fruit-room keep as near 45° as possible, but with the mild weather we have had this winter our Grape-room has sometimes stood at 50° without fire-heat. Do not use fire except to dispel damp if the temperature keeps up to 45°. Fill the bottles with soft-water of the same temperature as required. *Joshua Atkins, Lockinge Gardens, Wantage.*

THE Twelfth Spring Exhibition of the Bristol Chrysanthemum and Spring Show Society will be held in the Victoria Rooms, Clifton, on March 22 and 23.

The Pine Stove.

NEWLY-POTTED plants making their first growth have a tendency to become drawn at this stage, owing to the absence of sunlight; therefore extreme caution is necessary to prevent this by judicious ventilation and by keeping the plants close to the glass. Give a little air on every favourable opportunity; this is best done at mid-day, say from 11 A.M. to 2 P.M., if the temperature does not recede below 70°. This is an important point that should not be lost sight of, for should the plants become drawn now they will never afterwards assume a robust and sturdy habit or acquire the same stamina in after-growth. Those plants that were potted into fruiting pots last September and kept steadily growing all through the winter in a light structure will now require more room. These are a useful lot, which will show their fruits in July and August and ripen them in November and December, after the summer batch is finished. A good method of plunging is to get a number of empty duplicate pots exactly the same size as those containing the plants that are about to be shifted, place the empty pots at measured distances of 2 feet apart each way in the places where the plants are intended to occupy; this distance will be ample for the large varieties, such as Smooth Cayenne and Charlotte Rothschild, &c.; a distance of 22 inches will be sufficient for Queens or the small varieties. When the empty pots are placed in position tread the tan or other plunging materials firmly round the pots: when this is done remove the empty pots one at a time, then place the plants in the holes thus made, putting the largest at the back. Any plants that have drawn to one side should be placed with the leaning side to the north, when the action of the sun and light will draw them back into a vertical position. Examine those plants that have stood in the beds some time; see that the pots are level, to take water, and if the plunging material has shrunk from the sides of the pots make it good. If the beds have sunk generally make them up to their proper level with tan or other material. The young leaves in succession plants and growth made during the dull winter months have a tendency to stick together, in that case they should be assisted to unfold their leaves by carefully disengaging them by the hand or a gentle touch with a stick, and those leaves that touch the glass should likewise be got down with care. Where succession plants are shifted put them into their permanent place so as to avoid unnecessary moving, which only breaks the finest leaves. Where the plants are transferred from one place to another never under any circumstances tie up their leaves, as it is an error to do so. *D. Wilson, Castle Hill, Devon.*

The Hardy Fruit Garden.

FINISH at once the pruning and tying of any fruit trees that from any cause yet remain undone, with the exception of protected Fig trees, from which it would be unsafe to remove the covering material for some time as we may yet experience severe weather. All pruning, training, and staking ought now to be completed; and the freshly bordered borders, with the effectual mulching and labelling of newly planted trees will combine in giving a finished appearance to the winter routine work in this department. Where the Gooseberry bushes are much affected by caterpillars, means should be taken to subdue the plague in every stage of its existence, and if nothing has been done in the way of removal of the surface soil from beneath the affected bushes, that operation may yet be performed with advantage. In the case of established bushes that bear heavy crops a liberal use of rich surface dressing to replace the removed soil will be of great assistance; while the destruction of the chrysalids will be best secured by using the old soil for the purpose of covering up heaps of rubbish being charred. Before the wall trees break into bloom it will be well to carefully scan them over in order to see that no scale has been suffered to escape, and again touch with mineral oil if it be found necessary. American blight on Apple trees should also be carefully looked for in the early part of the season. Use a strong infusion of Quassia, tobacco-water, sulphur, and soft soap applied with force from the garden engine on all fruit walls before the bloom-buds burst; and

where aphides have been very troublesome during the previous season it may be necessary to use the same materials thickened with clay and applied with a brush to all nail-holes and other cavities, if not already done, especially on Cherry walls.

Protecting materials will now soon be required for the most forward blossoms. Prepare for its immediate use should bright sunshine prevail, tempting forward the bloom, by looking over the available stock, repairing it where necessary, seeing to the security of any loops, strings, or rings used, and procure additional appliances where required. The branches of Silver Firs, where obtainable, are means of protecting the bloom from frost that ought not to be despised where more convenient material is wanting. Where stocks have been duly prepared by being headed back, as advised some time ago, grafting may now be proceeded with. Rind grafting may be adopted for the large limbs of cut-back trees with advantage, having ease of execution combined with good results in its favour. For smaller stocks no form is better than the whip graft, which may be depended upon as being one of the best modes of performing the operation. Small stocks are not, however, much worked in private gardens, except to increase some local variety, or when the operator has a hobby for the work; but for the establishment of approved varieties on large healthy trees previously producing inferior sorts, grafting becomes one of the most useful operations of the hardy fruit department. It may not be out of place to remark that old trees which have become unhealthy are rarely rendered more vigorous by being cut over and regrafted, and such trees certainly are not worth the trouble of the attempt. If clay be used for covering the junction in preference to grafting-wax, it ought to be well tempered some time before it is required for use, mixing well with cowdung and moss, or chopped hay. Let all dwarf stocks be worked as low as possible, and after claying let them be earthed-up, to prevent the drying and consequent cracking of the clay. A good covering of moss should be firmly bound over all elevated grafts, which, with occasional sprinklings from the rose of a water-pot in drying weather, will preserve the clay in a sufficiently moist condition. A useful grafting wax can be made from equal parts of resin, tallow, and bees-wax, by simmering over a slow fire, and which will save much of the after attention required to prevent cracking where clay is used. *Ralph Crossling, St. Fagan's.*

FRUIT NOTES.

Apple Cox's Pomona.—This is, in my opinion, one of the very best Kitchen Apples in cultivation. The tree is a great and constant bearer, producing fruit both large and handsome, which keeps in good condition for several months; in fact, it has kept with me better than the Blenheim Orange, which is enough to show its good qualities. I would advise all who have not grown it to give it a trial. It would be a boon to market growers; for, besides being a sure and heavy cropper, its appearance is such that when placed side by side with its rosy-cheeked rivals from across the Atlantic, it seems to put them quite in the shade. *H. L., Syndale Park, Faversham.*

Apple Golden Harvey.—To any one requiring a dessert Apple of the highest quality, in use from December to August, I can recommend the Golden Harvey as being equalled by few, if any, for richness and flavour. To have it in the best possible condition the fruit must be thoroughly ripe, and not removed from the tree till the leaves begin to fall, and are therefore no longer of use in maturing and elaborating the juices so necessary to produce flavour of the richest description. After being gathered the fruits should be laid on boards till dry, and then be packed in air-tight boxes, when they can be taken out as required, and will be found to be quite firm, and to have arrived at the highest point of excellence. *A. L. H.*

SCILLA bifolia.—There are not many early-flowering hardy plants which can vie with this in beauty, and still fewer which surpass it. Perhaps the type, with its lovely blue blossoms, is preferable to either the pure white or the flesh-coloured varieties. The "Starrie Inchin" of the old writers still seems to occupy the same place in the affections of the horticultural world that it did many generations ago.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Mar. 13	Fadhon of Cambles, &c., at Regent's Park, open to end of week.
TUESDAY, Mar. 14	
WEDNESDAY, Mar. 15	Meeting of Horticultural Society: Meeting of Royal Horticultural Committee, at 11 A.M.: Scientific Committee, at 4 P.M. Exhibition at Town Hall, Manchester.
THURSDAY, Mar. 16	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY, Mar. 17	Luncheon Society's meeting, at 8 P.M. Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY, Mar. 18	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

A VERY important paper on the TEACHING OF FORESTRY was read recently at the Society of Arts by Colonel PEARSON, and by courtesy of the Society we are enabled to lay before our readers in another column some lengthened extracts relating to the more practical portions of the subject. Colonel PEARSON began his observations by defining the nature and objects of scientific forestry as follows:

"1. The obtaining, within approximate limits, of a regular sustained revenue from the land which the forest covers; 2. The utilisation, to the fullest extent possible, of the natural productive powers of the soil; 3. Progressive improvement in the value of the property; 4. Final realisation of the crop to the greatest advantage."

In this country the management of woods has hitherto been confined mainly to cultural operations, designed rather with a view to the present advantage of individuals, than to future requirements of the country at large, though of course not wholly so.

We cannot follow Colonel PEARSON in his historic survey of the condition of forests in this and other countries, and of the gradual rise of systematic forestry as now practised in Germany, France, and some parts of India; nor is it necessary here for us to say anything as to the advantage that may accrue from the extension of properly devised schemes of forest management in our colonies, and, indeed, also at home, for they are obvious to any one who has paid the least attention to the subject. The forest management in India has proved very successful, and in a way that commends itself to the revenue officers, who are apt to look coldly enough upon expenditure which is not reproductive. Thanks, however, to such men as Drs. BRANDIS and CLEGGHORN, forest administration is successful even from a commercial point of view. In order to secure a supply of properly trained forest officers—men competent to administer as well as execute all the complex details relating to forest management, men versed in the best means of administering forest law so that while the immemorial rights of the natives are protected or compensated for, the proper development of the forests in the future shall be secured—recourse had hitherto been had to the forest schools of Germany and France. A certain number of young Englishmen have been trained in these establishments, and, as we have said, their work has been of a satisfactory character and is full of well grounded promise for the future.

Little or nothing, however, has been done at home for the advancement of forest science. When the subject has been mooted we have been told that it was impossible to carry out such a scheme here, as the conditions of our woodlands, the tenure under which they are held, and the legal and fiscal regulations pertaining to them are so different from those of India and the colonies that any instruction that could be given here would be totally inadequate. On the other hand, where forestry has been reduced to a science, and where large areas of forest are under Government control, facilities exist which are not available at home.

Admitting our deficiency we fail to see any valid reason why the deficiency may not be in a very large measure supplied. No one will, we presume, doubt that the general principles which underlie successful forest management can be learnt in London, Edin-

burgh, Dublin, or any other centre as well at Tharandt or Nancy. Vegetable physiology, botany, chemistry, entomology, surveying, draining, road-making, forest laws, and the general details of estate management can surely be as well learnt here as on the Continent. Is it not practicable to devise a scheme of education like that carried out at Cirencester but so extended that it should be available for students in all branches of estate management, forestry, agriculture and horticulture? It is surely not utopian to advocate the formation of one or more universities of this nature in each of the three kingdoms and which would surely prove of immense advantage in the future. When a thorough grounding in the principles of those sciences and arts which underlie all cultural operations of whatever nature have been obtained the pupils might be drafted off, some to the forests, some to the farms, some to the gardens and nurseries, to learn how to apply to the best advantage in practice the principles learnt in the laboratory and college. Practical knowledge can only be gained by practical work, but there can be no question that he who has been best trained in the principles, and knows how best to apply them to new and varying conditions, is likely to be the best practitioner. The thing is so obvious and the necessities of the case are so urgent throughout our great empire, especially in the face of the great competition and the disadvantages under which we now labour, that the time has surely come when a determined effort should be made to bring this matter to a practical conclusion. It is a shame to our boasted civilisation and progress that this matter has not been energetically taken in hand before, and we trust Colonel PEARSON'S paper may tend towards the realisation of a plan the necessity of which all admit, but the practical difficulties of which seem hitherto to have scared our administrators. Whether limited to forestry or taken up on the broader basis we would advocate, we cannot believe that we are a whit less able or less deficient in the means to supply these deficiencies than Germany, France, Belgium, or America with their scores upon scores of forest schools, schools of horticulture, agricultural stations, and the like. If it be not practicable to found new establishments for the purposes we have indicated, let us, at least, turn to better account than we have done the resources open to us in London, Cirencester, Edinburgh, Dublin, and elsewhere. Even in the matter of practical instruction, if we have not the vast and systematically administered forest areas of Germany and France, we have surely sufficient, if properly availed of, to supply a sound practical training which might, if necessary, be supplemented by experience gained elsewhere, and which would enable us to hold our own, and be less dependent on foreign aid.

In the discussion which followed upon Colonel PEARSON'S paper, Mr. THISELTON DYER forcibly pointed out the disastrous results arising from greed and neglect that have rendered some places mere cinder-heaps, and pointed out the great need that exists in almost all our colonies of a carefully regulated system of forest management; and it was satisfactory to hear from General STRACHEY of the desire of the Indian Government to obtain for its forest officers the necessary education in England. "That idea was about to be acted on, and no doubt before long a school would be established here, whether the Home Government joined in it or not." These words are about the most hopeful we have heard on the matter, and we earnestly trust that the General's expectations may shortly be fulfilled.

— THE SEASON'S PROSPECTS. — It cannot be said that the marvellously open and comparatively mild winter has yet created any need for doubt or

distrust, for few are the things which show undue precocity, and, indeed, surprise generally is felt that with such an open time vegetation should yet be so stagnant. This apparent quietude on the part of Nature, however, is one of the most hopeful features of the season, whilst it is also proof that although we have had one of the most open genial winters man can remember, yet we have had others which, if not so even in temperature and pleasant, have yet had softer or milder periods when Nature has been unduly forced and the worst results have followed. Pessimists even now will not allow that such a winter as the present can pass without leaving behind its sting. These will always regard pleasant things in Nature as wasps in disguise, charming humanity with its beauty and then administering a sharp sting, just to remind the too credulous beings that under its sweetness it hides a store of venom. Why may we not reasonably hope that the winter will remain complaisant and the spring will be as delightful. We have had a remarkable winter, and a remarkable spring would be one devoid of keen biting cast winds and sharp white frosts. If the forces of Nature are just now in array in a diverse clime, if the winds prefer to kiss the melancholy Atlantic rather than the ice-bound surface of the Arctic seas, why may not the same mood prevail till the summer sun in all its warmth and glory shall have rendered the winds innocuous? One special feature of the season is the very equable temperature of the soil. It has not been subject to fluctuations of intense frost and of relaxing thaw—changes that seem for the time to hold Nature in the grip of iron, and then to loosen it with stimulating activity. These sudden rebounds in Nature are far more provocative of early growth than is the moderate, even, but comparatively resting temperature such as has marked the present winter. We hear on every hand of the grand promise of the cereals, of the abundance of winter pasture, of the restriction of cattle diseases, and of hopeful prospects for agriculturists. Gardeners may well be not less hopeful, their prospects are good also; the soil works well, seeds are going in well, and in all departments the crops promise well. It is only the croak of the human raven that is heard amidst so much that is bright and promising.

— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We understand that at a meeting of the Committee of Management, held on Monday evening last, Mr. N. SHERWOOD, of the firm of HURST & SON, Houndsditch, was unanimously elected a Trustee of the Institution, in the place of the late Mr. WILLIAM HURST. With reference to the Pension Augmentation Fund, we are requested to call the attention of the friends of the Institution to the list of collectors published in our advertising columns, and to state that the amount collected was so satisfactory that the committee have decided upon repeating the experiment during the forthcoming autumn. It is also considered that it should be more widely made known that when any subscriber or collector has raised and sent in the sum of 10 guineas he will be entitled to all the privileges of a life subscriber. The total amount of the funded property of the Institution, including £500 raised last summer for the Augmentation Fund, and £800 received from the ARTHUR VEITCH Memorial Committee, is £15,359, leaving the sum of £4650 to be raised by voluntary contributions before the committee will be in a position to increase the amount of each pension by £4 per year. As one objection to the Institution has hitherto been the small amount of the annual pension, we trust the means now taken to remove this may be crowned with success.

— HIBBERTIA DENTATA.—Amongst cool-house climbers which flower during the dull winter months this deserves honourable mention. It is, moreover, a plant of the easiest cultivation. The dark bronzy leaves furnish a striking contrast to the rather large bright yellow blossoms. *H. dentata*, too, does not possess the extremely fetid odour which characterises one or two otherwise very desirable species of the same genus.

— MEZEZEON.—In very many old-fashioned gardens *Daphne Mezezeon* and its white-flowered variety occupy honoured places. Of all the shrubs which "take the wind of March with beauty" probably none can vie with this both in the beauty and the fragrance of its blossoms. As a set-off, however, against this it may be as well to repeat the fact that

all its parts are acrid and poisonous. LINNÆUS speaks of a person having been killed by a dozen Mezezon berries; and in Sweden they are employed to poison wild animals. It is also asserted that Russian and Tartarian women sometimes rub the berries of the Mezezon on their cheeks to produce a slight irritation, which of course gives the effect of rouge, only in a more permanent degree.

— A NEW DRACONTIUM.—A good many visitors to Kew last year could not fail to notice an Aroid of striking appearance and noble size growing in one of the warm compartments of the T range. It attained a height of about 8 feet, and did not look unlike *Godwinia gigas*, as far as leaf was concerned. Like a number of the Aroids, the flowers and leaves of this are produced at different seasons; an infor-

is a very distinct and good variety, purplish-crimson, the margin and tips of the petals white. *Excelsior*, fine light scarlet, quite 7½ inches across, broad well formed petals. Indeed in this matter of good form the Chelsea *Amaryllis* excels all others, if the richness of colouring is taken into account. *Empress of India* is yet in grand form.

— GIANT CYCLAMEN AND PRIMULAS.—There is a grand show of these at the Victoria and Paradise Nurseries, Holloway, at the present time; the plants of *Cyclamen* are very large, and well represent Mr. WILLIAMS' superb strain. There is also a fine lot of *Primula alba magnifica* in flower, as well as the Chiswick Red and rubro violacea, raised by Mr. BARLON, at Chiswick. There is also a fine show of *Amaryllis*, for which these nurseries have long been

Jewish villages of pulling up the root by means of a dog which was killed by its shriek. A very interesting résumé of the superstitions connected with this plant is given in the chapter on "Mystic Plants," in Dr. M. C. COOKE'S recently-published book, *Freaks of Plant Life*. Apart, however, from its history, &c., the Mandrake with its compact tuft of lance-shaped leaves and its numerous rather pretty purplish-tinged flowers, is well worth growing for its own sake. A good specimen of it is now finely in flower in the herbaceous department at Kew.

— HOW THEY MANAGE MATTERS IN BELGIUM.—The *Bulletin d'Arboriculture* contains an account of a *fiête* lately given in honour of M. BOSSAERTS, sub-curator (*sous chef de culture*) of the Botanic Garden, Ghent, on the occasion of the

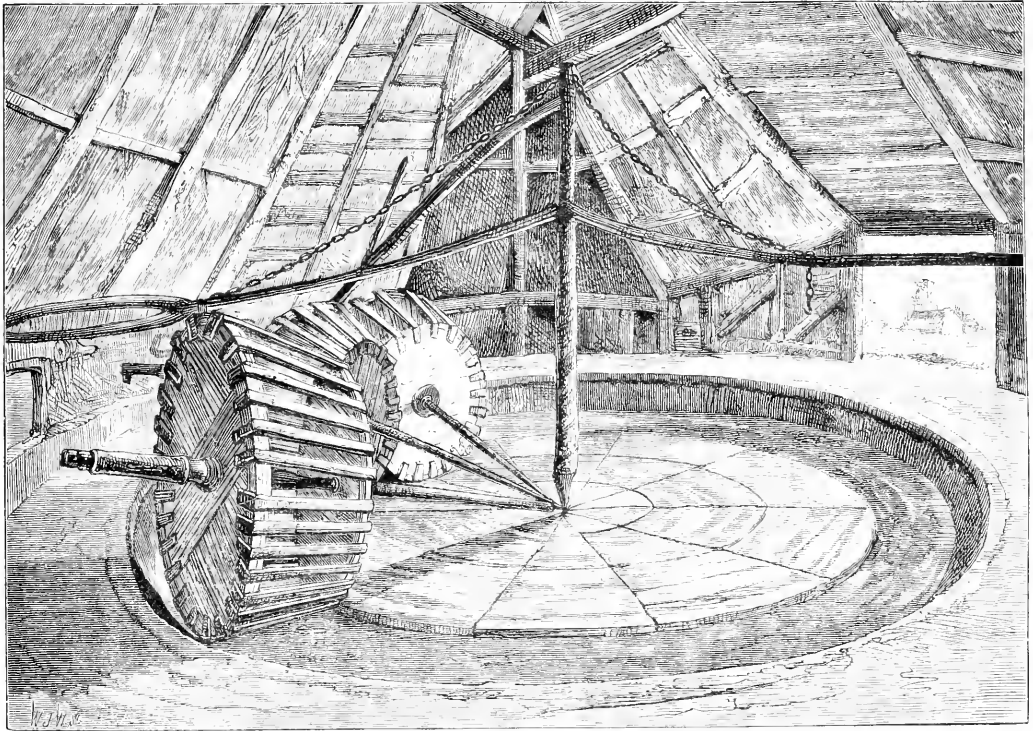


FIG. 50.—INTERIOR OF WOAD MILL AT PARSON DROVE: THE CRUSHING WHEELS. (SEE P. 335.)

essence has just been developed, and proves that the plant is a new and undescribed one. It was introduced to Kew from the forests of British Guiana.

— MESSRS. VEITCH'S AMARYLLIS.—Again referring to the new forms of *Amaryllis* in flower at the Chelsea nurseries, we may state that Miss Alice Gair is a star of the first magnitude. It received the highest award given to new flowers last year from the Royal Horticultural Society. This really fine flower is nearly 8 inches across; it has fine bold petals of great substance, of a rich scarlet colour shading to crimson at the centre of the petals. Mr. H. Little, also certificated last year, is finely in flower; it is of a purplish-crimson tint with fine broad petals very distinct. *Thalia*, a flower evidently from the same cross, is also very fine. *Iris*, scarlet with broad petals of good form, is a valuable acquisition. *Royal Standard*, also certificated last year, is true to its maiden promise of goodness, as the *Auricula* fanciers would say. It

noted. We also noticed some grand specimens of *Imantophyllum minutum splendens* in full bloom, with many spikes of great strength.

— THE METEOROLOGICAL SOCIETY. — At the ordinary meeting of this Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 15th inst., at 7 P.M., there will be an exhibition of anemometers and of such new instruments as have been invented and first constructed since the last exhibition. During the evening the President, Mr. J. K. LAUGHTON, M.A., F.R.A.S., will give a historical sketch of the different classes of anemometers, and will also describe such forms as are exhibited.

— MANDRAKE. — *Mandragora officinarum* in bygone times has played a very important part in the superstitions of many people. Some belief in its power was evidently current amongst the Hebrews, and JOSEPHUS gives an account of the custom in

twenty-fifth anniversary of his appointment in that establishment. The director of the Botanic Garden and the Professors of the School of Horticulture invited M. BOSSAERTS to a banquet, toasted him of course, and presented him with three magnificent bouquets! A deputation of the pupils of the School of Horticulture offered their congratulations, and one of the number recited a poem in Flemish in honour of M. BOSSAERTS, who was farther presented with a copy of the poem engrossed on vellum within a garland of Roses. After that our system of testimonials seems tame.

— BRITISH GUIANA.—It is intended to publish, under the editorship of Mr. EVERARD IM THURN, a half-yearly journal, to be devoted to the transactions of the Royal Agricultural and Commercial Society of British Guiana, and which will contain papers and occasional notes on agricultural, commercial, geographical, meteorological, chemical, botanical, ornithological,

entomological, anthropological, and literary subjects connected with British Guiana. As an indication of the scope of the journal it may be mentioned that the Editor has already at his disposal papers "On the Indiarubber-bearing Trees of the Colony," by G. S. JENMAN, Superintendent of the Botanic Gardens; "On the Poisonous Principles in Bitter and Sweet Cassava (Janijha)," by E. E. H. FRANCIS, Government Analytical Chemist; "On Cane Soil and Manures," by the same author; "On Cocoa Cultivation in British Guiana," by A. H. HENSON, of Anna Catharina; "On Farming and Irrigation," by the Hon. WILLIAM RUSSELL; "On the Reason why the Red Men of America Tame Wild Animals," by the Editor; "On the Literature of Guiana: being an Attempt at a Complete List of all Works published on the subject," by the Editor; "On the Recent Journey of an Orchid Collector in the Neighbourhood of Boraima," by DAVID BURKE; "On the Best Method of Weighing Canes: a Discussion," by various Authors; "On the Encouragement of Small Industries," by J. S. BLAKE, of Skeldon. A meteorological record will, as soon as it can be organised, form a regular feature in the journal. Lists of the known flora and fauna of the country will be given from time to time, as they can be prepared. A series of vocabularies of the Indian languages of Guiana is also in preparation. Folklore, collected from the Negroes and Indians, will occasionally be given, and many other kindred subjects will be treated. Subscribers in England are requested to send their names to WILLIAM WALKER, Esq., 48, Hilltop Road, London, N. Subscriptions in the colony may be paid to the Librarian, at the rooms of the Society; subscriptions in England may be paid to Messrs. RIDGWAY & SONS, 2, Waterloo Place, London, S.W.

— **FUCHSIA PENDULIFLORA.**—For grouping at exhibitions or private purposes it would be hard to name another variety better calculated to produce a rich effect. The plant is a rapid vigorous grower, bearing long acuminate leaves with a violet midrib. The flowers are freely produced, those from the terminal points hanging gracefully over. Such rich foliage gives a massive appearance, at once taking to the eye and giving tone and substance to an ordinary collection of plants.

— **LINNEAN SOCIETY.**—The papers to be read at the meeting to be held on March 16 are:—1, "The Action of Carbonate of Ammonia on the Roots of Certain Plants," CHARLES DARWIN; 2, "The Action of Carbonate of Ammonia on Chlorophyll Bodies," CHARLES DARWIN; 3, "On the British Salmon," Dr. F. DAY; 4, "Observations on the Breaking of the Shropshire Meres," WILLIAM PHILLIPS.

— **AMERICAN BLIGHT.**—M. PRILLIEUX has made the injuries inflicted by the American blight the subject of study, and has published the results in a pamphlet which has only lately been issued though dated 1879. After describing the insect and the superficial appearances of the injuries it inflicts, M. PRILLIEUX proceeds to investigate matters more closely by describing first the normal structure of the shoots of the Apple. The insect inserts its sucker, composed of three lancets, into the bark so as to reach the cambium between the bark and the wood and where is stored up the greatest quantity of nutritive matter required for the growth of wood and bark. As a consequence the bark is not much affected but the young wood-cells become much enlarged, their walls remain thin and not strengthened by woody deposit, at the same time the cells do not cohere but are disposed loosely so as to form a spongy mass, which ultimately increases so as to cause the bark to crack open, the tumor protrudes, becomes covered over with a corky investment which however offers no sufficient shield either against the insect or the weather; so that when frost comes the spongy tissue is soon killed, dries up, and leaves a cavity in the wood which forms a convenient shelter for the insects during the winter and from which they emerge next spring to renew their destructive attacks upon the new tissue formed at the edges of the wound in the attempt to repair it.

— **THE FROST AND THE PINE WOODS.**—During the two winters immediately preceding the present thousands of *Pinus maritima* planted on hitherto sandy wastes in France unfortunately perished

from the frost. The timber of these trees fetched a very low price, and the turpentine did not flow from incisions in the bark, as in the case of the living tree. M. PRILLIEUX, in investigating this matter, has ascertained that the frozen wood is as rich in resins as that which was not injured, but that it did not flow when the bark was notched, this defective flow being due to an alteration in the cells. The cells of the frozen wood lose their water, become flaccid, and thus exert no pressure on the resin canals as they do in the healthy condition when filled with water. Nevertheless, there is as much water or more in the wood that has been frozen, only it is no longer in the cells, but infiltrated among the tissues in such a way as to produce neither turgescence nor tension.

— **GREVILLEA ACANTHIFOLIA.**—This species was first discovered by ALLAN CUNNINGHAM in peaty bogs on the Blue Mountains of Australia. In general outline its handsome dark green rigid leaves do suggest a resemblance to those of the *Acantbus*. It is a neat-habited bushy plant, and, apart from its racemes of pale purple flowers, is well worth growing for its distinct and striking foliage character. Specimens are now in bloom in the Winter Garden at Kew.

— **WHITE CZAR VIOLETS IN POTS.**—Those who grow Violets in pots for sitting-rooms or other purposes will find in the White Czar a good companion for the common Czar or Victoria Regina, the latter of which makes a splendid pot variety. Violets are always welcome in whatever way they are presented, but as pot plants they are perhaps more enjoyed because not so common as in a cut state. The double white French kind, Belle de Chateaufort, which produces fine large blooms, does fairly well planted out under the protection of glass or even in the open air in a mild climate, but the percentage of ill-formed blooms upon a single plant makes it out of the question to recommend it as a pot variety. A variety to be suitable for growing in pots must be a profuse bloomer, and in this respect the White Czar will make not only a good companion but a very pleasing contrast to other varieties.

— **"EUROPEAN FERNS."**—The last part of this publication (CASSELL & Co.), has lately been issued. It contains, in addition to a full index, for which the readers are, or should be, grateful, a coloured plate, representing various species of *Asplenium* and *Ceterach*.

— **HELIOTROPE WHITE LADY.**—This is one of the best of Mr. CANNELL'S productions, and as seen at Swanley it is the freest flowering variety in a young state in cultivation. A remarkable peculiarity of the plant is that it grows and flowers from a rooted cutting—the flowering apparently being no impediment to growth, and this not only in the case of an exceptional plant or two, but with hundreds in all stages of growth. Even rooted cuttings are flowering freely. Gardeners having much house-work to do will find in this plant a true helpmate. Who ever heard of a gardener having too many sweet-scented flowers in winter? This variety will have a fine effect arranged alternately in jardinettes with some of the purple varieties, say a zig-zag row round the outside, having a suitable object for a centre. Free-growing plants which can be grown from cuttings in a few weeks are those that gardeners can best afford for decorating windows, and if these are sweet-scented they will be more valued than would other plants of much greater intrinsic worth.

— **TURKESTAN PLANTS.**—Dr. REGEL has published a series of descriptions of plants found in Turkestan and Kokan by FEJESCHENKO. Nearly 200 species are described in Latin, with annotations in Russian. An index is given.

— **ST. VILUS' DANCE AND SENSITIVE PLANTS.**—We have constantly new illustrations of the identity in structure between plants and animals, and the close analogy, sometimes amounting to identity, in the life history of the two. One of the latest attempts in the direction is that of Dr. WARNER, the lecturer on botany at the London Hospital, who essays to show that the movements of Sensitive-plants are analogous to those so-called nervous movements more or less unconsciously and unwittingly made by unhealthy children. In plants the movements are, speaking broadly, the result of the sudden afflux of fluid now to this cell or set of cells, now to that, and the con-

sequent "turgescence" of the cells under certain conditions, some of which are known, while others are still mysterious. Dr. WARNER'S hypothesis is that in these ill-nourished or morbid children certain of the cells of the brain are in a condition analogous to those which are implicated in the movements of plants, and consequently that similar results accrue. It may be so, but the movements in the case of the child are far more complex. In the plant the motor machinery, if we may so call it, is at the spot where motion takes place. In the child the machinery is in the brain or spinal-cord, and its influence has to be conveyed to muscles at a distance, just as the "lead" from a magnetic machine conveys the electric force to a distant point and there bursts into light or heat or motion. Dr. WARNER scarcely more than broaches the subject, but it is evident that, to follow up the matter to any useful end, he must take into consideration movements essentially connected with unequal or intermittent growth; and others, such as those connected with the opening and closing of flowers not directly connected with growth. The turgescence above alluded to is supposed by BERT to be due to the large formation of glucose in the cells under the influence of light. This glucose has great osmotic power—a great tenacity, that is, to mix with water or other fluid thinner than itself, in consequence of which a rush of thin fluid to the cells containing the thicker one occurs, and consequent turgescence. The remarkable movements of the side leaflets of *Desmodium gyrans* might be commended to Dr. WARNER'S notice, as their object is at present quite unknown, while their irregular character, and the fact that they are manifested in organs so little developed that they might be called rudimentary, present at least superficial points of resemblance to choreic movements in a child. The following note, taken from the *British Medical Journal*, showing how the movements of an ordinary Sensitive-plant are influenced by good feeding, and how they are increased by poor living, is a point not only of interest to the physician, but also to the gardener, on which account we cite it:—"Three years ago some seed of the Sensitive-plant (*Mimosa pudica*) was set to grow, and at a moist heat of about 90° Fahr. it soon germinated. Before the compound foliage growth had commenced the seedlings were potted off into different earths and sand. Those planted in a soil of two parts of decayed vegetable mould to one of sand grew more vigorously both in height and foliage than the others; and after two months growth they were much less sensitive than others planted in two-thirds of silver-sand and only one-third of leaf-mould. One or two plants were grown entirely in silver-sand. These showed extreme sensitiveness to the slightest touch; even a breath of air, or the slightest jerk of the pot in which they grew caused all the foliage to shut up. Those plants having no nourishment beyond the gases in the air or sand soon turned yellow and died. The plants in two-thirds sand and one-third decayed vegetable mould were not so robust or strong as those grown in a greater proportion of vegetable mould. They failed to produce any flowers, and died off at the lowest temperature to which all the plants were exposed; while those planted in two-thirds vegetable mould and one-third sand fully matured their growth, flowering in a temperature of 50° or 60°, the foliage being of that full green colour denoting the fact that the spongioles of the roots had necessarily been supplied with the various chemical gases in the soil (set free by a due amount of moisture) requisite for producing the continued support of the plants. Their sensitiveness had at the end of August almost left them; indeed, after a blow on the leaf with a twig the foliage would fall, but almost immediately regain its horizontal position."

— **ANEMONE STELLATA FLORE-PLENO.**—What is found in trade catalogues under the name of *Anemone hortensis flore-pleno* is now to be seen in Covent Garden Market, and in the flower shops. It would appear to be somewhat largely grown for cut flowers, the blooms being double and something like those of a small *Chrysanthemum*, and generally of a scarlet colour—some pale and some deeper in tint. Possibly the flowers are brought on in frames, as it would appear to be in bloom earlier than in the open ground. It may be that the exceptionally mild winter has something to do with its precocity. The fact is, the ordinary forms of *A. coronaria* have never ceased to bloom in the open ground during the

winter, and the plants are now producing their flowers in great abundance. The Anemone represents a group of most useful spring flowering plants, commencing with the scarlet *A. fulgens*, and following on with *Apennina*, the varieties of *Hepatica*, *stellata*, *coronaria*, *sylvestris*, and the varieties of *A. nemorosa*. All of them do well in the open ground, and when they become firmly established flourish with freedom and do a rare service in the garden.

— CLASSIFICATION OF POTATOS.—In the *Revue Horticole* is given an abstract of M. HENRY VILMORIN'S classification of Potatos. The main groups are five—yellow, rose, red, violet, and variegated. Each of these five main groups is subdivided according as the tubers are found, elongated, flattened, smooth, or notched. Further points of distinction are to be sought in the eyes, which are violet, yellow, rose, or white, and in the colour of the flowers—grey, lilac, white.

— CAMELIAS AND HYACINTHS.—On Wednesday Messrs. WILLIAM PAUL & SON, of Waltham Cross, opened an extensive and very interesting exhibition of Camellias and Hyacinths, &c., in the Royal Botanic Society's Garden, Regent's Park. Intending visitors should make a point of going early in the ensuing week.

— SEEDLING POTATOS.—The judging of seedling Potatos by the International Committee at the Exhibition of September 20 and 21 is intended to be as thorough and comprehensive as possible. Raisers of seedlings will find the terms stated in the schedule under classes P, Q, R, S, but it may prevent mistakes and disappointments if we at once endeavour to state the case clearly. An intending exhibitor must at once forward "a sufficient number of tubers of each variety" to Mr. BARRON, Royal Horticultural Gardens, Chiswick, and a memorandum on the subject to the Secretary of the International Potato Exhibition, 23, Upper Thames Street. The judges will require to have before them on September 20 a dish of nine samples of each competing seedling, and an extra parcel of six for cooking, and as a matter of course these should not be exposed to the light in any way. The judges will act on the report as to cropping, on the report as to tasting, and on the appearance of the exhibition samples. The object of all this trouble is, of course, to render the final decisions as much as possible beyond question, and of real public importance.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending March 6, issued by the Meteorological Office, London:—The weather has been very unsettled and dull, with rather heavy rain in the south, and rain, snow, or sleet in the north. The temperature, though lower than during last week, has still been above the mean in England and Ireland, but in Scotland it was slightly below. The thermometer was generally highest on the 5th or 6th, the maxima ranging from 51° in "Scotland, W." to 55° at some of our south-western stations, and 57° at Hereford. The minima were lower than of late, and varied from 27° in the "Midland Counties" to 35° in "Ireland, S." The rainfall has been more than the mean in all districts, the excess in the west and north-west being rather large. Bright sunshine shows a decrease in the extreme north-east but an increase elsewhere. The percentage was greatest (38) in "England, S.," and least (11) in "England, N.W." Depressions observed:—At the commencement of the period the barometer was rising in all parts of our area, with moderate southerly or south-westerly winds; but by 8 A.M. on March 1 the mercury had fallen rapidly, and an irregularly-shaped area of low pressure, around which were steep gradients, was shown over England and Ireland. This disturbance caused at first strong easterly winds or gales in the north, and fresh or strong westerly gales in the south; but as it slowly filled up the force of the wind gradually abated, and by the evening of the 3d had become very light from the east on all our coasts. From the 4th until the close of the period the barometer was highest in the southern part of our area, while depressions travelled in an easterly direction across our northern coasts, giving us south-westerly to north-westerly winds, which occasionally increased to a strong breeze or fresh gale.

HOW TO DISTINGUISH ORCHIDS OUT OF FLOWER.*

In the *Gardener's Chronicle*, n.s., xiv., p. 750, there is a translation of an analytical key to the vegetative characters of various Orchids and groups of Orchids, originally published by Dr. Pfitzer in the *Verhandlungen des Naturhist.-Med. Vereins zu Heilberg*; and in an introductory note thereto most of the technical terms there and here employed are explained. What is there set forth in a tabular form is elaborated and illustrated by additional examples in the book before us. Ignoring altogether the floral characters, Dr. Pfitzer attempts to construct a comparative classification or subordination of Orchids from the characters afforded by their vegetative

characters according to their vegetative characters than does the abstract referred to above. It might have been expected that the author would exhaustively examine the results obtained, and have indicated how far they might be used in conjunction with the characters of the floral organs in a systematic classification of the order; but he has not done so. Neither has he attempted the classification of all the species of a single large genus. What he has done is to study a number of species of various genera—as many, it may be presumed, as offered sufficient materials—and to construct a framework of a classification from their vegetative characters. It is not clear what value the author himself attaches to his work, or how far he anticipates that characters of the vegetative organs can be utilised in a systematic classification. At p. 7



FIG. 51.—AERIDES SCHROEDERI.

An example of a monopodial Orchid, in which the main stem continues to grow at the point, the inflorescence shoots being given off at the nodes from the axils of the leaves.

organs—that is to say, their stems, leaves, and inflorescences; but partly in consequence of the great value of living plants of many species, partly in consequence of many species and genera being only known from portions of plants preserved in herbaria, this classification, as the author acknowledges, though embracing all the tribes of the order, is fragmentary and incomplete. Nevertheless, it may serve as a basis for further researches in the same branch of knowledge, and the author has done well to publish the results of his labours at once, instead of delaying it until he could fill up the gaps. At the same time, it is disappointing to find that this massive quarto volume contains nothing nearer finality in the classi-

fications than Mr. Denthon, in his essay on the tribes of the Orchideæ,* makes no use of the abstract published in this journal and elsewhere, from which it might be inferred that he considers use might have been made of it. At p. 8 he distinctly states that he would not think of classifying Orchids by their habit alone; yet he does not say how far he would go. We are left to determine how far this is feasible as best we may from the body of the work.

With regard to the genera *Bletilla*, *Prepanthe*, and the relationship of *Phaius*, *Calanthe*, and *Limodorum*, alluded to at p. 4 as instances of Orchids closely allied in vegetative characters, and even in their floral characters, except the pollinia, it may be mentioned that *Elime* and *Denthon* have stated that *Bletilla* and *Prepanthe* were separated from *Bletia* and *Calanthe* respectively, owing to a mistaken view as to the nature of their pollen. And Mr. Denthon would

* *Grundzüge einer vergleichenden Morphologie der Orchideen* (Outlines of a Comparative Morphology of the Vegetative Organs of the Orchideæ). Von Dr. Ernst Pfitzer, O. Professor der Botanik an der Universität Heidelberg. 4to, pp. 191, with one coloured and three uncoloured plates and thirty-five woodcuts. Carl Winter's Universitätsbuchhandlung, 1882.

refer *Limatodes rosea* to the genus *Calanthe*, hence, if this view be correct, a hybrid between the former and *C. vestita* is no very extraordinary phenomenon. In these instances it appears to have been proved that the supposed differences in the pollen did not exist, therefore there can be no justification for establishing new genera, and placing them in different places in the system. But now with reference to the value of vegetative characters in classification it seems pretty clear that, although the great divisions of flowering plants (dicotyledons and monocotyledons) are with some few exceptions distinguishable from each other by evident vegetative characters, yet generally speaking vegetative characters cannot be employed in the successive divisions until we come to the subdivision of genera. Judging from Dr. Pfitzer's results this holds good for Orchids, as well as other families of plants. We are not losing sight of the fact that certain orders, sub-orders, and tribes are characterised by habit as well as floral affinities. But very little investigation teaches us that certain vegetative types—physiognomical types, they might be designated—are repeated in numerous natural orders of the most distant affinities, showing that they are the outcomes of external conditions, such as climate, medium, and associations. We must, however, be careful to distinguish between purely physiognomical modifications of vegetative organs, and those that coincide with or accompany the genetic affinities. Dr. Pfitzer recognises the fact that certain vegetative Orchid types are repeated in genera possessing widely different floral structure; but he also states that his primary vegetative characters are genetic rather than physiognomical. He primarily divides Orchids into those which grow continuously in one direction (monopodial), and those in which the growth is arrested at one point and continued from another (sympodial). These definitions, if not absolutely exact, are sufficiently so for all practical purposes. Monopodial Orchids have stems which lengthen indefinitely at the tip, season after season, and bear lateral inflorescences, as in *Acridis Schroderi* (see fig. 51). In sympodial Orchids the growth of the main axis soon ceases, usually at the end of the growing period, and a lateral shoot continues the further development. The first is a comparatively small group, comprising, as far as at present known, most of Bentham's sub-tribe *Sarcanthes*, the American genus *Dichena*, of the sub-tribe *Maxillarieae*, and the widely-spread Neotropical genus *Vanilla*. The genera *Vanda*, *Renanthera*, *Sarcanthus*, *Acridis*, and *Phalenopsis*, belong here, and mostly inhabit Africa and Asia. The sympodial Orchids are again divided into two groups, the *Pleuranthes*, and the *Acranthes*—in other words, into those having lateral inflorescences, as *Dendrobium*, *Oncidium*, and *Angraecum Scottianum* (fig. 52), but not in other *Angraecums*, and those in which the inflorescence terminates the stems, as in *Epidendrum*, *Cypripedium*, and *Cattleya* (fig. 53). For further particulars we must again refer the reader to the abstract, *ante*, vol. xiv., n.s., p. 750. That abstract, or key, has a somewhat formidable appearance, but it is very simple when we know that the plan of its construction is a succession of contrasted characters. Thus, in tracing out the affinity of a plant, supposing it has not the character of I., we pass on to H., and under that, if it has not a lateral inflorescence, as defined under A., we pass to B., and so on. Incomplete as it is, the key contains a vast deal of information respecting the vegetative organs of Orchids in a small space; and, although in no case do the primary and secondary divisions correspond to the whole of a tribe or tribes, yet the ternary division leads us to the *Ophrydeae* and the *Neotieae*, and, what is of more importance, to large genera. But, as we have already stated, we anticipate greater usefulness from the characters afforded by the vegetative organs in the subdivision of genera and in the description of species. Practised nurserymen are able to distinguish species and varieties of shrubs and trees by their vegetative characters to an extent that seems unattainable to the beginner, but such knowledge could never be learnt from a book, even if it could be put into words, and it is not likely that descriptive vegetative characters alone will lead to the identification of Orchids. We have little space left to notice Dr. Pfitzer's concluding chapters on the habitats and mode of life, &c., of Orchids, &c., but it may be mentioned that one of the points upon which he most strongly insists is, that Orchids, with comparatively few exceptions, love the sun, and would

thrive better under cultivation were they not shaded so much. In the circum-scription of the genera Dr. Pfitzer follows Mr. Bentham, but it would have been better in the references to have cited the names employed in the places to which reference is made. Thus at p. 21 we are referred to the *Gard. Chron.*, n.s., 3., p. 478, for the dimensions of a plant of *Stenopis lissochiloides*, Benth., which is very perplexing, if the reader has overlooked the fact, recorded at p. 14, that *Vanda Bateana* (*Plethia lissochiloides*) is a synonym, as that is the name used in the place referred to. In the same way *Vanda Cathcartii* becomes *Arachnanthe Cathcartii*; and in the index Blume's genus *Arachnanthe* is inadvertently attributed to Reichenbach. *Vanda Loweii* (*Renanthera Loweii*) should also have been referred to *Arachnanthe*. One word with regard to the title of the book. As it stands it is misleading, and needs the qualification expressed by the words "of the vegetative organs." The work is copiously illustrated with woodcuts, most of which have appeared in these columns, and of which due acknowledgment is made, *H. E. Hemley*.

have by sending for it and paying the carriage. I finally got it when it had been in her keeping for three days. *C. Wally Dod, Edge Hall, Malpas, March 2.*

Stephanotis in Fruit.—We have a plant of *Stephanotis floribunda* that has been planted out for several years, and has always flowered freely, but never till now has borne fruit. It has one about the size of a turkey's egg, and like a Plum in shape. I shall be glad to know whether any of your correspondents have ever fruited it. [Yes; many of them. Ed.] *J. Baylis, Leiston Old Abbey, Suffolk.*

To Prevent Birds from Eating Fruit-Buds.—Reading Mr. Grieve's excellent article on the Gooseberry in your last issue it occurred to me to make known to you the plan I adopt here to preserve the buds of Gooseberries, Currants, and Plums from the depredations of birds. As soon as the attack on the buds begins the whole of the bushes and trees are at once pruned, and a large quantity of lime wash is prepared sufficiently thin to admit of its passing through a coarse syringe. With this a man follows the pruners, squinting it plentifully over both bushes and trees. If done on a dry day it dries in two hours, and no



FIG. 52.—*ANGRAECUM SCOTTIANUM*.

An example of a sympodial Orchid: the main stem here ends in an inflorescence which bends downwards, and so appears opposite to a lateral foot in the axils, while the originally side-shoot becomes terminal, and continues to grow in the direction of the main stem.

HOME CORRESPONDENCE.

Continental Express Parcel Post.—Some of us have been looking forward to this as likely to give long-desired facilities for getting a rapid delivery of parcels of fresh plants from distant parts of Europe. I may say that it is an arrangement concerted between the chief European Continental states, by which parcels under 10 lb. in weight should be carried at a cheap rate as quickly as letters, and that it came into operation on the first day of this year. But nothing seems to have been done in England to enable us to derive any advantage from the arrangement. A parcel stated on the address to be plants, and requiring immediate delivery, was sent to me from Erfurt last week. It seems that the English agents for the Continental Parcel Post are not, as one would suppose, the Post-office authorities, nor any large railway company, but a firm of private carriers. The parcel was handed over to them fully and very legibly addressed to me; it was then forwarded to the local agent of these private carriers, a woman who keeps a small fancy shop at a country town 9 miles distant from me. She wrote to me by post saying a parcel had arrived for me from Germany which I might

amount of rain will then wash it off, neither will any bird even perch on bush or tree. Four years ago this winter I walked about in hand from morn till eve day after day to keep the butterflies in check, as I had planted a great many young bushes and Plum trees; but the birds, in spite of me, cleared every bush, so that they were only skeletons when spring came. Ever since I have used lime wash, as stated above, and have no trouble in securing immunity from birds. *W. Armstrong, Ford Manor.*

Pendell Court.—Amongst the many novelties in the houses at Pendell Court (Sir G. Macleay's), Eltchingley, worthy of notice now, is a fine specimen of *Cotone arabica*, about 9 feet high and 6 feet through, which is bearing a fine crop of berries, some of the shoots having over fifty berries, which come in threes and fours from the axis of the leaves. Also a grand specimen of the noble *Platyterium grande*, which measures over 5 feet in diameter, and is in splendid condition. The lovely *Cania iridiflora*, var. *Ehmanni*, is still in flower; it is nearly to feet high, and has fine spikes of its bright crimson flowers; it has been in bloom over seven months. The rare and beautiful fine cut-leaved *Anemone nemorosa* is just opening its flowers; a new *Asplenium platyneuron* is very distinct, and will prove to be a lovely greenhouse

Fern; this was recently shown by Mr. Green, and worthily received a certificate; the old *Cineraria cruenta* is also grown, it is seldom seen, but is a gem for cutting from. The houses contain many plants seldom met with, and which, under the care of Mr. Green, are sure to succeed. *A. O.*

Mice in Gardens.—We were sadly pestered with mice in the garden last spring until a friend of mine caught a grey owl, which he gave to me. I got a box made for it, and placed it in one corner of our walled garden, merely clipping one wing before letting it go. Within a month there was not a scratch of a

putted up in the autumn, and put into gentle heat, it will come into bloom early in January. *H. C. O. G.*

Ants in Peach-houses.—Having been troubled with ants very much in one of my former places, a few words respecting the plan we adopted to clear them out may not be out of place. Treacle no doubt is a very good thing to attract them, as Mr. Riddell informs us. But our plan was to plunge saucers in the borders up to the rim, with a piece of sponge dipped in sugar placed in each one, also a piece round the stem of each tree. The ants would gather in hundreds and feed on the sugar, then conceal themselves

believe my eyes, I pulled it up to send to the Editor of the *Gardeners' Chronicle*, which I have done. On examination I think that one of the small root-balls has come up exactly in the hollow centre of the dead stalk, and having grown through the tube has produced the curious appearance described. Is it so? *C. Valley Dot, Edge Hall, Malpas, March 5.* [Yes: the length of the dead hollow stalk through which the young plant has passed being no less than 5 inches. *Ed.*]

Plant Labels.—Having read with interest the discussion about labels, I send you one for your in-



FIG. 53.—*CATILEVA GIGAS.*
An example of a sympodial Orchid with terminal inflorescence

mouse to be seen, and I have not seen the sign of one since. *C. Lucas, The Gardens, Belmont, Taunton.*

White Broom for Forcing.—The White Broom, *Cytisus albidus*, is a great acquisition in conservatory decoration, and requires but little heat and ordinary attention to bring it into bloom at a season when flowers are rather scarce. We have had a large plant of it in splendid flower for the last six weeks, and it looks so fresh at the time of writing that I imagine it will last fully six weeks longer. Others may have forced this Broom successfully for many seasons without thinking it worth while to bring it into prominent notice; but those who have not done so, and who wish to have a good show, would do well to give it a trial. If

in the sponge; then by going round several times during the day with boiling water and shaking the ants into it we soon cleared them out of the houses. *A. M., Dorset.*

Lilium Leichtlini.—As might be inferred from Mr. Elwes' picture of it, this seems to be a very prolific Lily. It was the first to appear above-ground in a cold frame I have had made to grow Lilies in free soil. A bulb which made two flowering stalks last year has already sent up twelve shoots, the strongest being a fortnight old and 6 inches high. The most remarkable circumstance about it was that the old stalk, cut off 4 inches above the ground, seemed to be breaking at the end into new growth. Not being able to

speculation. I use them for my herbaceous plants, and they answer admirably, and are almost indestructible. They have a great many good qualities; snails will not run away with them, and magpies have not as yet taken them to line their nests; they are not likely to be dug up or in, and any one can fit the wire to the label. *Edward Morris, The Nurseries, Epsom.* [The arrangement of stout galvanised wire with a loop at the top, on which hangs a zinc label. *Ed.*]

A Remnant of a Submerged Forest.—On the east coast of Sutherland, at a point about half a mile westward from Golspie, the recent storms have laid bare at low water the edge of a field of peat, from 6 inches to 1 foot in thickness, and extending about

100 yards in length along the shore at the level of low-water mark. Attention was first attracted to it, by large pieces of peat being found thrown up on the beach near high-water mark by the action of the tide after some of the recent storms. Examination of some of the pieces shows the remains of trees and roots of considerable size. The wood is not in any way petrified, but is rather soft when first taken out, and of a reddish colour, and bears evidence of having been at some period or another subjected to considerable pressure. Many of the smaller branches, from 1 to 2 inches in diameter, may be seen as flat as ribbons, nothing of the wood remaining now, but simply ribbon-like pieces of bark. Small seeds have been found in some of the pieces, also Hazel-nuts in fair preservation, and many wing cases of small beetles. Three kinds of trees have been made out by the wood and bark—viz., the Birch, the Alder, and the common Hazel or Filbert. Some of the members of the Sutherland Field Club visited the place, with a view of finding out the overlying strata, and tracing the peat bed, if possible, from the point where exposed for some way inland. The incoming tide and the appearance of water before the peat field was reached prevented anything being done in the way of ascertaining its extent. Some of the first trials, about twenty paces from low-water mark, showed that the peat was overlaid by a deposit of blue clay about 1 foot in thickness, the blue clay being in turn overlaid by about 6 inches of yellowish sandy clay, gravel and sand forming the remainder between the yellow clay and the surface. No shells were found in the yellow clay, but the blue clay was thickly studded with the commoner bivalve shells usually found on the sea coast. One thing is clear, a forest once flourished on this part of the bed of the Dornoch Firth. When and how it came to be submerged is a matter for geologists to crack. *D. McNeill, Dunrobin Castle Gardens.*

A Monster Wistaria.—To all lovers of this beautiful climber there may be seen at the present time, at the seat of W. Young, Esq., Valence, Westerham, Kent, a magnificent old plant covered with pale lilac blossoms. I thought it might be of interest to quote a few of its dimensions. At the base its circumference is exactly 4 feet, and at 6 feet from the base it measures 3 feet in circumference, from which point there extend two immense limbs, travelling to the whole of the conservatory, at a distance of 140 feet, besides its numerous minor branches. The sight presented before the visitor, and the agreeable fragrance with which it fills the whole house, is one never to be forgotten. It is well worthy a visit, and may be viewed on application to the gardener, Mr. Haffenlen. I may mention that the same variety was planted outdoors in the same year, and trained to a wall, but the dimensions are not a quarter of this indoor-cultivated one. I should be glad to hear from your readers if there is another such a fine specimen in the country. *A. O. Watkins, Westerham.*

The Tenby Daffodil.—This Daffodil, which grows wild at Tenby, whence I had it and name it, was the first of the genus to flower in my garden this year, having come into flower on February 25—two days before the first flower of *Narcissus nanus*. The latter, however, came into flower all over the garden at once, whilst the Tenby Daffodil comes in a long succession, each individual flower lasting longer than those of any other variety of *Narcissus*. Mr. Peter Barr told me last year that less is known about the origin and history of this Daffodil than any other. He calls it *N. obvallaris*—for want, as he said, of a better name. In Sowerby's *English Botany* it is called *Broomfieldi*. Mr. Barr also told me that it is unknown in Continental nurseries, and that he went to one at Holland without meeting with it. It may once be distinguished by the shortness and stiffness of the outer segments of the perianth, the tube, which is wide and open, projecting far beyond them. It is the only variety except *nanus* which regularly ripens seed in my garden; and I have this year tried to cross it with *Horsfieldi* and *Empress*, which I have forced for the purpose. With the same treatment these two came into flower on the same day, *Horsfieldi* having, as usual, the larger flowers of the two, but *Empress* being taller; *Horsfieldi* seems to me to produce no pollen. *C. Wolley Dod, Edge Hall, Malpas, March 8.*

United Horticultural Benefit and Provident Society.—In your notice of this Society last week an important feature of the Society is omitted, and that is, what becomes of the members' annual contributions to the benefit fund after the share to the sick pay is deducted. This is placed out at interest by the Society in some safe investment, as allowed by the Friendly Society's Acts of Parliament. I notice the owners of this fund meeting at 10 o'clock. It may be this day received my annual balance-sheet, and by it I see my share towards sick pay for the past year was "fivepence," and the balance due to me in the society's books, £34 17s. 3¼d. I may say that I am the first member on the books, although there are

several others about the same date. This money goes on accumulating year by year, until the member dies or attains the age of seventy years, when if he wishes he can withdraw it or allow it still to accumulate. This will explain why there is no "burial fund." The Secretary will gladly give any further explanation, and send copies of rules of this useful society. Young gardeners especially will find it a good and safe investment. *William H. Heale, 16, Simpson Street, Newcastle-on-Tyne.*

Foreign Correspondence.

HORTICULTURE IN SWITZERLAND.—Our little country is often considered behindhand as regards horticulture. It is true that gardening pursuits do not take so important a place with us as they do in Belgium or Holland, countries in extent as small as Switzerland. We have also few specialities in the way of cultivation. This arises no doubt from the nature and configuration of the soil and its sterility over large areas. In the alpine districts horticulture carried on as it is in the plains is impracticable. Nevertheless, when the necessary allowances are made it will be found that we are in no wise behind our neighbours. It must be borne in mind that there are in Switzerland three distinct stocks or races of people welded into one common country. The cities of Geneva and Basle are cosmopolitan, but German Switzerland, with Zurich at its head, receives its impulse from Germany. Latin (Romande) Switzerland, which borders upon France on one side and Italy on another, adopts the cultivation pursued in France, especially in the matter of fruit tree culture. Attention is here chiefly directed to what may be grown out-of-doors, while in German Switzerland stove plants, window plants, the manufacture of bouquets, &c., attract most attention.

In Italian Switzerland, which is, though politically Swiss, geographically Italian, the customs of Italy prevail. German Switzerland possesses numerous and important commercial horticultural establishments, of which the most notable is that of MM. Froebel, of Zurich. All branches of the nursery trade are carried on there, but special attention is given to the cultivation of plants under glass. With us at Geneva our largest nursery establishment is that of MM. Vaucher & Cardinaut, who have a reputation for hardy trees and shrubs, Conifers, and specially for fruit trees. It is well known that we have at Geneva the two finest Cedars of Lebanon, brought by Jussieu, and planted by him at Beaulieu about the same time as that in the *Jardin des Plantes* at Paris, which, however, is not nearly so fine a specimen as those at Beaulieu. In the neighbourhood of Geneva are several fine old gardens. In the time of Voltaire, who resided in one of the suburbs, there was much taste shown in the laying out of gardens. At Geneva, also, was established the first botanic garden in Switzerland under the auspices of our illustrious fellow-citizen, M. de Candolle. At Geneva, also, under similar auspices, was established the first Swiss horticultural society, in the year 1855. It publishes a journal, which is greatly esteemed by the members and by the fellows of corresponding societies, and by its exhibitions has contributed greatly to the development in this country. It has a rival even in Geneva, which numbers 500—600 members, and the existence of these two societies side by side in our little centre may be taken as an indication of the prosperous state of horticulture. In this respect Geneva surpasses most of the towns of Europe of equal size. There are two horticultural journals in Geneva, the *Revue Horticole* of M. Vaucher, and the *Jardinier Suisse*. In German Switzerland there are only certain horticultural periodicals of minor importance, and exhibitions and horticultural societies are few and far between. The Canton de Vaud has its horticultural society, numbering many members, and publishing a journal which brings up the number of publications in French Switzerland to four—not an insignificant number, all things considered.

The only special characteristic of Swiss horticulture is the cultivation of alpine plants. Throughout Switzerland, whether the people be of Romande or Germanic race, there is a strong taste for mountain excursions. It is, therefore, not to be wondered at that the flora of our mountains is appreciated by a large number of our citizens. For many years the cultivation of alpine plants in the plain has been carried on at Geneva, the city of botanists and of students of alpine natural history; but it is only

within the last ten years that the cultivation of these plants has been taken up as a branch of trade. Messrs. Froebel were the first to undertake this department on a large scale, and many others have since followed suit. With this exception, we have no speciality in Switzerland, and no parks and pleasure-grounds on the scale of those in England; but so far as we can we have imitated the taste and procedures of our masters, and we may safely say that horticulture in Switzerland has already a well-defined position, and a future full of promise. *H. Correvon, Inspector of the Botanic Garden, Geneva.*

CAMBRIDGE, MASS., U.S.A.—The Horticultural Society of Boston, Mass., held an exhibition on February 18 in the Horticultural Hall, a noble stone building, very solid and ornamental from top to base. The library is extensive, and open at all times to all members. Boston, in this respect, puts London to shame. The Society is a sound affair, not in debt, and managed by practical men, who put life into it. The meeting was well attended by about 200 members, though the country was clothed in a sheet of snow about 18 inches deep. Mr. C. M. Hovey had a group of cut Camellias, C. M. Hovey and Mrs. A. M. Hovey being the best; and a similar group came from Mr. F. B. Hayes, Lexington. Two pots of fine Mignonette came from Mr. Atkinson, gr. to Mr. J. L. Gardener, of Brooklyn. Some good Lettuces came from Mr. Waize. From Mr. Ward, of Salem, came the grandest bunch of *Marchal Niel Rose* I ever saw—such, indeed, that Mr. Paul might covet. A paper was then read by Mr. Philbrick on "Garden Vegetables." The paper was good practical matter, and a discussion followed, the leading points brought out being that deep culture, plenty of manure, and good selected seed should be used. English Cauliflower seed was spoken of as not to be depended upon. The Council and the members freely mixed, not as at South Kensington. Such discussions, as you have often urged, would give interest and value to Kensington meetings.

When the ordinary business of the meeting was over, Mr. H. J. Veitch, of Chelsea, London, a well known horticulturist, was elected a corresponding member.

I have seen some of the best gardens in the neighbourhood of New York and Boston. The Americans are coming along, though they have none of the old establishments as in England, yet they like gardens, and are, in my opinion, men of letter taste than most English people. In the windows of New York and New Jersey and Boston you see Agaves, Opuntias, Calas, Crassulas. In all gentlemen's places I have seen, Agaves and Cacti are more numerous than Pelargoniums. Mr. Pelargonium-Society-man would go mad on here. In one of the largest and best kept gardens of New England the gardener, Mr. Harris, said he only wanted about 24 pots for his cuttings, but he had about 100 Agaves. Mr. John Hoey, of Long Branch, N.J., has two houses, 300 feet long, devoted to a splendid collection of Cacti, Agaves, and such things; also Palms, Dracenas, Crotons, Ferns, Orchids, and general stove and greenhouse plants in profusion. Here, as in all gardens I have seen, they grow Roses, and quantities of *Myrsiphyllum asparagoides*, on wire, for decoration. Mr. Rathlun, of South Amboy, N.J., has a fine lot of Orchids, Crotons, Cycads, Cacti, Agaves, &c.

At Messrs. Pratt's, Watertown, Mass., I saw Orchids well done, Crotons, Dracenas, Agaves, &c. Here I saw some splendid canes of Black Hamburg Vines; Grapes grow well here, as do also Violets. The sun is as bright as in England in June, but in one night the thermometer fell 50°; what do you think of that? They don't look at the kitchen garden for about four months. Bays, Rhododendrons, Hollies, Azaleas, &c., are kept in winter in a pit underground, with a wooden floor, and a few lights on the top; they keep well so, and are planted out in spring. Oaks, Abies excelsa, Maples, Juniperus virginiana, Abies canadensis, Larch Firs, are most planted. Abies excelsa is used for making hedges, and good ones they are.

At Mr. Hunnewell's, Wellesley, Mass., I saw a fine lot of *Phalenopsis* in flower as good as in England; *Bougainvillea* does splendidly here. I saw here also a splendid lot of new Dracenas; Aloes, Yuccas, Cacti, Baccararas, and other succulents were plentiful and good; *Calanthes* and cool Orchids are well done, and *Cypripediums*.

At John L. Gardener's, Brooklyn, Mass., I saw

FRUIT.—AVERAGE WHOLESALE PRICES. *s. d. s. d.*

Apples, per 1/2 sieve...	12 0-10	Lemons, per 100	4 0-5 0
Grapes, per lb.	3 6-10 0	Pine-apples, Eng., lb.	1 6-2 0
Kent Cobs, per 100 lb	30 0-65 0	Strawberries, per doz.	1 3-1 10

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES. *s. d. s. d.*

Aralia Schottii, doz 18	0-42 0	Ficus elastica, each	1 6-7 0
Arisea vice (golden), per dozen	6 0-18 0	Foliage Plants, various, each	2 0-10 0
(Common), dozen 6	0-12 0	Hyacinths, per doz.	4 0-6 0
Azalea, per dozen	12 0-24 0	Lily of the Valley, per pot	1 5-2 0
Begonias, per doz.	6 0-12 0	Myrtles, per doz.	6 0-12 0
Bouvardia, per doz.	15 0-24 0	Palms, in variety, each	2 6-21 0
Cyclamen, per doz.	12 0-24 0	Pelargoniums, scarlet, per dozen	6 0-12 0
Cyperus, per dozen	6 0-12 0	Primula (single), per dozen	4 0-6 0
Dianthus terminalis	30 0-60 0	Solanums, per dozen	9 0-12 0
Ericas, per doz.	12 0-24 0	Spirea, per dozen	12 0-18 0
Epiphyllum, per doz.	18 0-30 0	Tulips, per dozen	6 0-8 0
Euonymus, various, per dozen	6 0-18 0		
Evergreens, in var., per dozen	6 0-24 0		
Ferns, in variety, doz.	4 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES. *s. d. s. d.*

Abutilon, 12 blooms	2 0-6 0	Marguerites, 12 bun.	6 0-8 0
Azalea, 12 sprays	0 0-1 0	Mignonette, 12 bun.	6 0-8 0
Bouvardias, per bun.	1 0-1 6	Narcissus, 12 bun.	12 0-18 0
Camellias, 12 blooms	6 0-1 0	Polemoniads, 12 sprays	1 0-1 6
Caranations, 12 blms.	1 0-2 0	— zonal, 12 sprays	1 0-1 3
Cineraria, 12 bunch.	9 0-12 0	— Primrose, 6 0-9 0	
Crocus, 12 bunches.	1 0-2 0	Primula, double, per bunch	1 0-1 6
Cyclamen, 12 blooms	3 0-6 0	— (single), 12 bun.	6 0-9 0
Deutzia, 12 bunches	6 0-12 0	Roses (Andree), doz.	9 0-1 0
Epiphyllum, 12 blms.	9 0-1 0	— Tea French, per dozen	2 0-3 0
Ericas, per doz.	1 0-6 0	Snowdrops, 12 bunch.	1 0-2 0
Gardenias, 12 blms.	12 0-24 0	Tropaeolum, 12 bun.	1 0-3 0
Heliotropes, 12 sp.	0 0-1 0	Tulips, 12 blooms	1 0-1 6
Hyacinths (Roman), 12 sprays	1 6-2 0	Violas, 12 bunches.	9 0-1 0
— (large), 12 spikes	4 0-9 0	— (French Parme), per bunch	4 0-5 0
Lagerania, white, 12 blooms	4 0-6 0	— Crar, Fr., bunch	2 0-3 0
— red, 12 blooms	1 0-3 0		
Lilac (Fr.), p. bunch	1 0-2 0		
Lily of Val., 12 spr.	1 0-2 0		

SEEDS.
LONDON: March 8.—There is now an active consuming demand for farm seeds. Stocks being unprecedentedly light, the tendency of values is upwards. Alsike, white, and French, are dearer. American Clover seed is firm, shipments continuing on a moderate scale. An advance on the price of Sainfoin has been established at 2s. per quarter. More money is also asked for Lucerne. Just now there is a great scarcity of spring Tares. Winter Vetches are still in brisk request. Bird seeds are dull. John Sharp & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.
At Mark Lane on Monday business opened very quiet, but eventually there was rather more doing than on Friday, at about 12, decline for 2000 Wheat; on inferior qualities the decline was greater. Flour was dull, and prices, except for fine qualities, were mostly 1s. per sack lower. Maize was quiet on the spot. Barley was about 3d. lower for grinding sorts; Beans and Peas were quiet and unaltered, and new Oats were the firm lower. On Wednesday Wheat net little inquiry, and the tendency of prices was against sellers. Maize was steady at Monday's rates, and Barley very firm. For Beans and Peas prices were unaltered, and the demand for Oats was very slow.—Average prices of corn for the week ending March 4.—Wheat, 41s. 7d.; Barley, 30s. 8d.; Oats, 21s. 8d. For the corresponding period last year:—Wheat, 41s. 7d.; Barley, 31s. 7d.; Oats, 21s. 2d.

CATTLE.
At Copenhagen Fields on Monday the beast market was fairly supplied, and the trade steady at about the rates of Monday's slaughter. Sheep were very short, and brought in many cases enhanced rates. Prime calves were scarce and dear. Quotations:—Beasts, 4s. 2d. to 5s. 2d., and 5s. 6d. to 6s.; calves, 5s. to 6s. 10d.; sheep, 5s. 6d. to 6s. 5d., and 7s. to 7s. 10d.—Thursday's trade, though not active, was dear. Beasts sold slowly at extreme quotations, and fully late rates were paid for sheep. Calves remained scarce, and pigs were firm.

POTATOS.
The Borough and Spitalfields Markets reports state that there were good supplies and a moderate demand at the following quotations:—Scottish Champions, 50s. to 60s.; ditto Regents, 70s. to 80s.; ditto Marston Boningtons, 10s. to 9s.; flukes, 120s. to 110s.; and Victorias, 110s. to 120s. per ton. German reds, 3s. to 4s. per bag.—The imports into London during the preceding week were 10,583 bags from Hamburg, 1200 cwen, 97 Houghog, 403 Brocous, 105 Harbgen, 66 tons Lauterback, and 123 tons from Rouen.

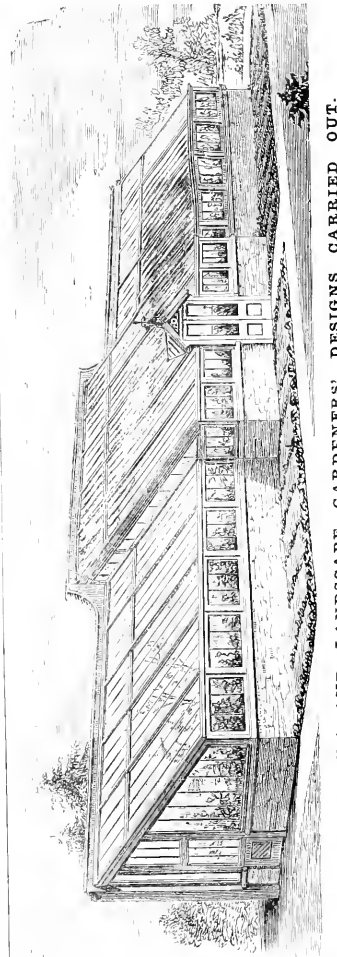
COALS.
The following are the prices current at market during the week:—Walls End—Haswell, 15s.; Hawthorns, 13s. 9d.; Lamiton, 14s. 6d.; Wear, 13s. 6d.; South Hetton, 15s.; Tees, 14s. 6d.; Hetton, 15s.; Hetton Lyons, 13s. 6d.; Tunstall, 13s. 6d.

Government Stock.—Consols closed on Monday at 100 1/2 to 100 1/4 for delivery, and 100 1/2 to 100 1/4 for the account. Monday's figures were, for delivery, 100 1/2 to 100 1/4, and 100 1/2 to 101 for the account. The final quotations for Wednesday were, 100 1/2 to 100 1/4 for delivery, and 101 1/2 to 101 1/4 for the account; whilst on Thursday the former gave way 3/4, and the latter 1/2.

JOHN EDMONDS & CO., HORTICULTURAL BUILDERS, &c.

CONSERVATORIES, GREENHOUSES,
AND EVERY DESCRIPTION OF
HORTICULTURAL BUILDINGS
Manufactured by Steam-Power Machinery, and of the Best Materials and Workmanship.

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Manufacturers of Wrought-Iron, Welded, and Rivetted Boilers of all descriptions.
Patentees of the Cast-Iron Tubular Saddle Boiler.

LILLIE BRIDGE, LONDON, S.W.
Adjoining West Brompton Station, Metropolitan and District Railway.

NOTICE.—SELLING OFF OF NURSERY STOCK.

Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz: 15 per Cent. for Cash with order; 10 per Cent. for Cash within One Month of date of invoice; 5 per Cent. for Cash within Three Months of date of invoice. After Three Months no discount can be allowed.

They hold the following in great quantity and of the finest quality:—

- ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbon, Mosses, &c., to 15s. per dozen, 53s. to 100s. per doz., £28 to £40 per 1000.
- „ Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 1000.
- NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
- „ French Varieties of 1880, 18s. per dozen, 130s. per 1000.
- CURRENTS—Black, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 1000; cheap by the 1000.
- NUTS and FILBERTS—Largest and best Varieties, fine bushy plants, 6s. to 10s. per dozen, 40s. to 60s. per 1000, £18 to £27 each per 1000.
- HERBS of many kinds, 3s. to 6s. per dozen.
- PRUNUS (Prunus)—Variegated, common (P. domestica variegata), a very striking and easily grown variegated tree, 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.
- ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 12s. per 100, 200s. per 1000.
- POPULAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
- WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 35s. per 100; 10 to 12 feet, 6s. per dozen.
- „ Corulan, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
- ASH—(Fraxinus excelsior) arvensis, 3 to 4 feet, 12s. per dozen; „ auriculata, 2 to 6 feet, 12s. per dozen; 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
- „ spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 18s. per dozen.
- BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen; 6 to 8 feet, 24s. per dozen.
- „ Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen; 8 to 10 feet, 36s. per dozen.
- „ Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen.
- „ Purple-leaved, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen; 5s. per 100; 5 to 6 feet, 24s. per dozen, 120s. per 100; 6 to 8 feet, 24s. per dozen.
- „ Weeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
- CHERRY FLUM (Prunus Myrobalana)—Early flowering and very ornamental, fine Standards, 2s. and 2s. 6d. each, 18s. to 24s. per dozen.
- HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 10 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
- „ Scarlet-flowered, 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
- ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
- „ Giant or Huntingdon (macrophyllum), 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
- „ Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
- „ Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per dozen; 12 to 15 feet, 36s. per dozen.
- MAPLE—Norway (Acer platanoides), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen.
- WILLOW—Scotch (Salix), a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 18s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
- EUONYMUS—radicans argenteus variegatus, a very useful plant for hedges and walks, 3 to 4 feet, 2s. per dozen, 12s. per 100; 4 to 6 ft. 3s. per doz., 15s. per 100.
- ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
- „ cut-leaved—a handsome lacinated form, and like other Elders, extremely useful for ornamental planting close to the sea. 6s. per dozen, 40s. per 100.

A slight extra charge must in most cases be made for packing. Where cash in payment of goods is sent with the order, the amount for package may be forwarded in stamps after despatch of goods. All the above prices are subject to the discounts named at head.

THE GENERAL AUTUMN LIST will be forwarded Gratis and Post-free to all applicants.

N.B. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.

CARTERS' GRASS SEEDS FOR LAWNS AND CRICKET GROUNDS.

AWARDED
THE ONLY PRIZE MEDAL,
Sydney, 1879.



AWARDED
THE ONLY GOLD MEDAL, PARIS, 1878.
Beating Thirteen Competitors.

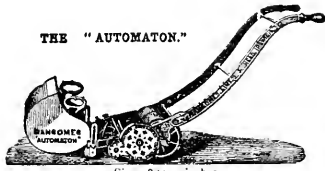


AWARDED
THE GOLD MEDAL.
Melbourne, 1880.

CARTERS' INVICTA LAWN SEEDS, in Sealed Packets	per Packet—1s. 1s. 6d., and 2s. 6d.	Per Bushel. 30s.
ORDINARY LAWN GRASS, per bushel, 20s.; per pound, 1s. (A 1s. 6d. packet will sow a rod of ground).		
CARTERS' GRASS SEEDS for Renovating Old Lawns	1s., 1s. 6d., and 2s. 6d.	25s.
CARTERS' GRASS SEEDS for Sowing under Trees on Lawns	1s., 1s. 6d., and 2s. 6d.	25s.
CARTERS' GRASS SEEDS for Cricket Grounds (as used exclusively at Lord's)	per Pound, 1s.; per Bushel, 20s.	Carriage Free.

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By Royal Command To Her Majesty The Queen.
 To H.R.H the Prince of Wales. *Carters*
 237 and 238, HIGH HOLBORN, LONDON, W.C.



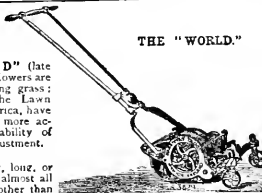
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THE BEST GENERAL PURPOSE MACHINE.

The "AUTOMATON" Lawn Mowers are thoroughly strong, well-made, and durable machines, and the best suited for general work and *Gardener's* use. They cut the grass perfectly, leave no ruts, but produce a smooth velvety surface on the Lawn, and are light in draught.

The "AUTOMATONS" have front rollers for general work, and side rollers for cutting long grass, or when it is unnecessary to roll the grass in front of the cutters. They have the best machine made gearing, the best self-sharpening knives of steel and iron rolled together, and automatic silent drivers.

RANSOMES' LAWN MOWERS
 ARE THE BEST.
 MELBOURNE EXHIBITION, 1880. THE HIGHEST AWARD.
 COMPLETE PRICE LISTS FREE BY POST.
 STOCK KEPT IN LONDON at Arch 92, Spitalfields Station, Bethnal Green, E., and Machines may be ordered from any respectable Ironmonger.
 Ransomes, Head & Jefferies, ORWELL WORKS, IPSWICH.



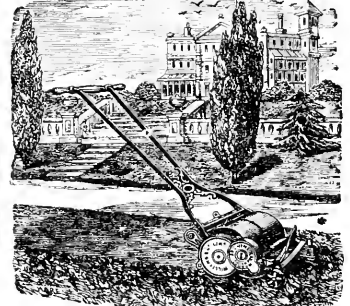
THE "WORLD."

The "GLOBE" (late "GLOBE") Lawn Mowers are intended for cutting long grass; and, whilst similar to the Lawn Mowers imported from America, have the special advantages of the more accurate fitting and general durability of English manufacture and perfect adjustment.

The "WORLDS" will cut wet, dry, long, or short grass without clogging, and cut off almost all the "beats." They leave the surface smoother than similar machines, and are well adapted for getting over a large amount of work with little labour.

FOR CUTTING LONG GRASS.

"ARCHIMEDEAN" AMERICAN LAWN MOWERS.



HIGHEST PRIZE

At the PARIS EXHIBITION, 1878:
 And the Jury, in their Report say—"The 'ARCHIMEDEAN' did the BEST WORK of any Lawn Mower exhibited."

ALSO
 At SYDNEY EXHIBITION, 1879-80,
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OPINIONS OF THE PRESS.
 "Far superior to any of ours."—*Vide The Field*.
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Prices from Twenty-five Shillings.
 Delivered Carriage Free to all Railway Stations in Great Britain.

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 Manufacturers and Patentees,
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 LA BELLE SAUVAGE YARD, LUDGATE HILL,
 LONDON; and BACHELOR'S WALK, DUBLIN.

HYBRID GREEN HOLLY, "Pyramid."

6 to 7 feet, 6s. each; 60s. per dozen.
 7 to 8 feet, 7s. each; 72s. per dozen.
 The above are vastly superior to the ordinary Green Holly, and will remove with safety.
 RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SEED POTATOS.—A quantity of School-master for sale, guaranteed true, grown on red land from seed purchased of Messrs. Webb & Sons. Price 7s. per Bushel of 80 lb. Half a ton and upwards considerably less by special arrangement.
 R. ROBBINS, The Hollies, Kenilworth.

LIST OF EVERGREEN AND DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., with general remarks, free for a penny stamp.
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B. S. WILLIAMS

Begs to invite Orchid Growers and all who may be interested in this popular class of Plants to an Inspection of his Large Collection of

ORCHIDS.

There are now in bloom many hundreds of ODONTOGLOSSUMS and other Cool ORCHIDS, including ODONTOGLOSSUM ALEXANDRE, many fine varieties; also the lovely O. PESCATOREI, in large plants; the rare O. PARDINUM, with its golden-yellow flowers; also the rare O. HORSMANII, O. POLYXANTHUM, very distinct; O. TRIUMPHANS, O. CIRROSUM, O. VENILLARIUM, O. ROEZH ALBUM, O. ROSSII MAJUS, and many other kinds, such as ADA AURANTIACA in specimens, with many spikes of its orange-scarlet flowers; SOPHRONITES GRANDIFLORA, COELOGYNE CRISTATA, and the rare variety, LEMONIANA, in large specimens; also a large variety of LYCASTE SKINNERI, in large well-grown Plants.

The SHOW HOUSES are also gay with PRIMULAS and CYCLAMEN, AMARYLLIS in great variety, coming into bloom; also fine specimens of IMATOPHYLLUM MINIATUM SPLENDENS, &c., in full beauty.

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NOVELTY. THE GOVERNOR, WHITE CLOVE CARNATION.

Fine Plants now ready, in 4 inch pots, for planting. Splendid flower for cutting; excellent Market Flower. 7s. 6d. per pair; usual discount to the Trade.

W. J. CROSS & STEER, NURSERYMEN and SEEDSMEN, SALISBURY.

SIXTY THOUSAND SHOW AND FANCY PANSIES.

Strong healthy, clean Plants, in 4 of the finest and most approved varieties in cultivation, my selection, from 25s. per 1000. Also the most superior and carefully selected collections extant, of PHLOXES, PENTSTEMONS, ANTIRRHINUMS, MIMULUS, Single and Double; DAHLIAS, VIOLAS, VERBENAS, STICKS, and the exquisite HOUSE PLANTS, &c. Descriptive Priced CATALOGUE for 1882, free on application.

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To the Trade.

R. AND A. MORRISON, The Nurseries, Elgin, beg to offer the following Seedling and Transplanted Forest Trees:—

- LARCH, true native. Price on application.
1/2 Fir-tree, 12 to 18 inches, 12s. 6d. per 1000; 18 to 24 inches, 15s. per 1000; 24 to 30 inches, 17s. 6d. per 1000.
SCOTCH FIR, true native Highland Pine, 3 yr. Seedlings, £1. 10s. per 1000; 15 yr. Transplanted, 7s. 6d. per 1000; 18 to 24 inches, 10s. 6d. per 1000.
MONTANA, 15 yr. Seedlings, 2s. 6d. per 1000; 2 yr. Transplanted, 10s. 6d. per 1000.
OAKS, English, 1 yr., 2s. 6d. per 1000.
Trade CATALOGUE may be had on application.

WHOLESALE OFFERS OF DAISIES, in nice plants, full of buds, of the Sweet, Snowflake, and Pink Gem, at 20s. per 1000. SCHIZOSYLIS COCCINEA, 50s. per 1000. SEDUM ACRE, GLAUCUA and AUREA, 10s. per 1000. AUREA, very large, 5 inches cut back, transplanted last autumn, 24s. per 1000. T. L. MAYOS, Highfield Nursery, Hereford.

SINGLE DAHLIAS. SINGULAR DWARF, 1s. 6d. each, 15s. per dozen. SCARLET GEM, 1s. 6d. each, 15s. per dozen. COCCINEA, 1s. 6d. each, 15s. per dozen.

A pot-rod of each of these splendid kinds, post-free, 4s. 6d. We have the most complete collection of doubles, and always grow not less than 10,000 pot-ros, and can therefore offer best in cultivation. H. CANNELL and SONS, The Home for Flowers, Swanley, Kent.

SPARGANUS.—The finest roots that money can procure, 2s. 6d. per 100. This delicious vegetable does not require any special treatment. For directions for planting, see SEED LIST, free on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Special Offer at Reduced Prices. SEED POTATOS.

SEED POTATOS of Superior Bedfordshire growth (from new light and heavy Land) Highly recommended to those who require a choice of seed.

F. GEE can supply fine samples of the above as follows, for cash with order:—

Table with 5 columns: Variety, Peck, 14lb. Bush, 12. d., 10. d., 8. d., 7. d., 6. d., 5. d., 4. d., 3. d., 2. d., 1. d. Rows include Early Ashleaf Kidney, Early Golden Shaw, Beauty of Hebron, Myatt's Profic Kidney, Excelsior, Fen's Model, Magnum Bonus, New Reading Hero, Trophy, and Scotch Champion.

Many other kinds, see LIST. New small canvas Bags charged, 3s. each; 4s. each; 5s. each; 6s. each; 7s. each; 8s. each; 9s. each; 10s. each; 11s. each; 12s. each; 13s. each; 14s. each; 15s. each; 16s. each; 17s. each; 18s. each; 19s. each; 20s. each; 21s. each; 22s. each; 23s. each; 24s. each; 25s. each; 26s. each; 27s. each; 28s. each; 29s. each; 30s. each; 31s. each; 32s. each; 33s. each; 34s. each; 35s. each; 36s. each; 37s. each; 38s. each; 39s. each; 40s. each; 41s. each; 42s. each; 43s. each; 44s. each; 45s. each; 46s. each; 47s. each; 48s. each; 49s. each; 50s. each; 51s. each; 52s. each; 53s. each; 54s. each; 55s. each; 56s. each; 57s. each; 58s. each; 59s. each; 60s. each; 61s. each; 62s. each; 63s. each; 64s. each; 65s. each; 66s. each; 67s. each; 68s. each; 69s. each; 70s. each; 71s. each; 72s. each; 73s. each; 74s. each; 75s. each; 76s. each; 77s. each; 78s. each; 79s. each; 80s. each; 81s. each; 82s. each; 83s. each; 84s. each; 85s. each; 86s. each; 87s. each; 88s. each; 89s. each; 90s. each; 91s. each; 92s. each; 93s. each; 94s. each; 95s. each; 96s. each; 97s. each; 98s. each; 99s. each; 100s. each.

READING ABBEY POTATOS for Sale.—A few sacks of well-grown and pure Seed, had direct from Sutton & Sons. Price 2s. per bushel, 20s. per sack. J. GUS. WHITEHEAD, Esq., Woodfalls, Yalding, Kent.

ORMISTON and RENWICK offer, at specially low prices, superior lots of the following:—SCOTCH FIR, 2 yr., 2 yr. transplanted. LARCH FIR, 2 yr., 2 yr. transplanted. SILVER FIR, 2 yr., 2 yr. transplanted. SPRUCE FIR, 2 yr., 2 yr. transplanted. THORN, Strong, 2 yr., 2 yr. transplanted. A quantity of SCOTCH FIR SEED (true Native), at 4s. 6d. per pound. TYROLESE LARCH SEED, at 16s. per cwt. Samples and prices on application. The Nurseries, Melrose, N.B.

GAME COVER.—AMERICAN ARBOR-VITAE, 18 to 24 inches, 30s. per 1000; transplanted and well rooted. PINUS MONTANA, 1 yr., 2 yr., 3 yr., 6d. per 1000. ENGLISH YEW, 18 to 18 inches, 12s. per 1000. COTONEASTER SIMONS, 12 to 18 inches, 6s. per 1000. COMMON YUCCA, 10 to 15 inches, 5s. per 1000. R. HEBERRY, 2 to 3 feet, 10s. per 1000. R. AND A. MORRISON, The Nurseries, Elgin, N.B.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

LAPAGERIA ALBA, well-rooted plants, 12 to 18 in., 15s. and 21s. A few extra specimens, size and price on application. LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application. W. HOWARD, Southgate, N.

A PERFECT HOLLY HEDGE can be eventually be formed by planting two Hollies and six Quicks in every yard. HOLLY, strong, 12 to 15 inches high, 21s. per 100. QUICK, strong Hawthorn, 30s. to 50s. per 100. RICHARD SMITH AND CO., Nurserymen and Seed Merchant, Worcester.

Panicles and Violas. DOWNIE and LAIRD, Royal Winter Garden, Edinburgh, are sending out the finest Show and Fancy PANSIES and VIOLAS that money can buy, at from 4s. to 50s. per dozen. The above have taken First Prizes wherever shown last season. FLORISTS' FLOWERS LIST free on application.

CHRYSANTHEMUMS.—Speciality — 300 best sorts, Good rooted Cuttings, fit for Exhibition purposes. Purchasers' selections, 6d. per doz., 10s. per 100. W. E.'s selection, 2s. per doz., 10s. per 100. Cuttings cheaper. LIST, one stamp. W. ETHERINGTON, Manor House, Swancombe, Kent.

Verbenas, Pelargoniums.—Special Offer. WILLIAM BADMAN offers the following named plants, of which he has a large healthy stock:—VERBENAS, Port White, Scarlet, Crimson and Rose, only best bedding sorts. Well rooted cuttings, 6s. per 100, 50s. per 1000. Show varieties, 100 in 12 very best, 8s.; in 24 sorts, 10s. PELARGONIUMS, Vestivius, 8s. per 100 or 75s. per 1000; Jean Siskie, 10s. per 100; Madame Vaucor and Virgo Marie, best white, 10s. per 100, or 50s. per 1000; Master Christine, fine pink, and Mrs. W. Paul, 10s. per 100; Mrs. G. Smith, salmon, and Waltham Seedling, crimson, 10s. per 100; White Vestivius, Dr. Deeny, 10s. 6d. Entrie, The Shah, and many others, 12s. per 100.

TRICOLORS, Mrs. Pollock, 12s. per 100; Sophie Dunmure, 12s. per 100; Sir John Napier, 10s. per 100; BRONZE, McMan and Black Douglas, the best bedders, 18s. per 100, or in 12 choice sorts, 25s. per 100; SILVER VARIETIES, May Queen, 12s. per 100; Princess Alexandra, Prince Silverwings, Little Trot, Flower of Spring, all at 12s. per 100. GOLD-LEAF, Crystal Palace Gem, 10s. per 100; Happy Thought, 12s. per 100; DROUPEL, Madame Amelia Ballet, finest white, 15s. per 100; Madame Thibaut, market pink, 12s. per 100; TROPICOLM Vestivius and cocinea elegans, good bedders, 12s. per 100. IRESINE Lindenii, 6s. per 100. ACEBATUM, best dwarf blue, 5s. per 100, 40s. per 1000. LOBELIA Bluestone (true) and pumila magnifica, the best of all, from cuttings, 2s. 6d. per 100, 20s. per 1000. HELIOTROPE, dark and light, 6s. per 100, 50s. per 1000. CENTAUREA candidissima compacta, 18s. per 100. FUCHSIA, in 25 choicest sorts, rooted cuttings, 6s. per 100, 50s. per 1000. CHRYSANTHEMUMS, best sorts only, 10 in 25 varieties, 10s. Packing included. Terms cash. Cemetery Nursery, Gravesend.

A Special Offer of Superior Nursery Stock B. M. LEITCH, Nurseries, Ash Lane, Nurseries, L.E.F., begs to offer the following:—Extra fine fruiting Pyramid and Standard PEARS. Dwarf-trained PEACHES, NECTARINES, and APPLES. Black Italian, Balsam, Lombardy, and Abide POPLAR, in various sizes, from 10 to 25 feet. Fruiting STRAWBERRIES, in 45 pots. Price on application.

SPANISH CHESTNUT, 5 to 6 feet; SCOTCH, 12 to 18 inches, 48 inches to 4 feet; HAZEL, 2 feet; ASH, 3 to 4 and 5 feet; THORN QUICK, 18 to 18 inches. Stout, well rooted, transplanted. GEO. CHORLEY, Coaster's Nursery, Midhurst.

CAULIFLOWER PLANTS for SALE.—Early London, Dwarf Erfurt, Walcheren, &c., at 2s. 6d. per 100, or 4s. per 1000. BROWN COLE LETTUCE, at 1s. per 100. Remittance or reference with order. Mr. PECKHAM, Manager, West End Gardens, Thorpe, near Chertsey.

EDWIN FIFTY Roses for a Guinea. EDWIN HULLER offers FIFTY DWARF H.P. ROSES, strong, bushy plants of best varieties, and being well low are suitable either for potting or bedding, for 21s., cash with orders. Trade price on application. The Nurseries, Winchester.

SEED POTATOS for SALE as under, viz.:—MYATT'S KIDNEY, 2s. 4d. per ton. LATE ROSE, 1s. 6d. per ton. MAGNUM BONUM, 2s. 4d. per ton. SCHOOMLANDER, 2s. 4d. per ton. Terms nett cash, free on rail at Aylesbury. Bags extra. F. STEVENS, Gardener, Bucks County Asylum, Stone, near Aylesbury.

Mangel Seed—Mangel Seed—of Superior Quality. SPECIAL OFFER at REDUCED PRICES.

F. GEE is prepared to supply the above, splendid samples, all from new-home-grown Seed from the finest selected stocks, as follows, for cash with orders:—PRIZE YELLOW GLOBE, a magnificent stock, handsome shapely bulb, small tap-root, and very heavy cropper, at 48s. per cwt. GOOD YELLOW GLOBE, ordinary stock, 25s. per cwt. SPECIAL TRADE Offer, or GENERAL KETAIL CATALOGUE of TURNIP, RHOD. RAB, and all other superior Bedfordshire-grown seeds, Plants, Potatoes, &c., at low prices, on application to FREDK. GEE, Seed and Plant Grower, K.C., Biggleswade, Beds.

The Planting Season.

THE LARGEST, FINEST STOCKS of the following:—ABIES DOUGLASHI, 2 yr., 6 to 8 inches, 30s. per 1000; 15 to 2 feet, 25s. per 100; 2 to 3 feet, 35s. per 100; 2 1/2 feet, 70s. per 100. CHESTNUTS, Spanish, 1 yr., £5. 10s. per 20,000; 2 to 2 1/2 feet, 20s. per 1000. LARCH, 1 yr., 2s. per 10,000; 15 to 24 inches, 15s. per 1000; 2 to 2 1/2 feet, 20s. per 1000. SPRUCE FIR, 2 yr., £7. 10s. per 10,000; 10 to 15 inches, 8s. per 1000; 1 to 1 1/2 feet, 10s. per 1000. SCOTCH FIR, 1 yr., 2s. per 10,000; 2 yr., 4s. per 10,000; 2 1/2 feet, 15s. per 1000; 2 to 3 feet, 18s. per 1000. HAZEL, 5 feet, 18s. per 1000. OAKS, English, 1 yr., £14. per 10,000; 15 to 24 inches, 18s. per 1000. LARICI, 1 yr., £6. per 10,000; 2 yr., £12. per 10,000. LARICIO, or CORSIAN, 1 yr., £12. per 10,000; 2 yr., £24. per 10,000; 3 yr., transplanted, 10 to 16 inches, 25s. per 1000. THORN, 1 1/2 to 2 feet, 10s. 6d. per 1000; 2 to 2 1/2 feet, 12s. per 1000; special by 1000.

CATALOGUES on application to GARLIES MITCHELL, Nurseryman, Stranraer.

FOR SALE, Sixty-five strong, healthy PINE PLANTS, including Dunham Seedling, Montserrat, Smooth Cayenne, Queen, Black Jamaica, for Fruiting this season; and forty healthy Succession Plant, L.S., BROOKS, The Gardens, Mortfield, Bolton, Lancashire.

Rhododendrons, Forest Trees, &c. FARNSWORTH has to offer quantities of the following, at very low prices:—ALDER, 6 to 8 feet; CHESTNUT, Horse, 10 to 12 feet; COTONEASTER MICROPHYLLA, 3 yr. Cuttings, and 1/2 to 2 feet; LAUREL, Common, 12 to 18 inches; PORTUL, 3 to 4 feet; LIMES, from layers, ex. trans., 6 to 8 and 8 to 10 feet; LARCH, 15 inches to 2 feet, and 1/2 to 2 1/2 feet; OAK, English, 1 to 2 feet; PRIVET, 1/2 to 2 1/2 feet; Oval-leaved, 1/2 to 2 1/2 feet; POPLAR, Balsam, 1/2 to 3 feet; Black Italian, 1 to 2, 6 to 8, and 8 to 10 feet; QUICK, strong; RHODODENDRONS, named kinds, 1/2 to 2 feet; FIR, Scotch, 9 to 10, 18 to 24, and 25 to 30 feet; SPRUCE, 10 to 15 inches, and 1 1/2 to 2 feet; THORN, Double Crimson and Double Pink, 5 to 7 and 6 to 8 feet; YEW, English and Irish, various sizes. Prices and samples on application at the Nurseries, Matlock.

SELECT STOCKS OF MANGEL WURZEL.

CHARLES SHARPE & CO., SEED GROWERS, SLEAFORD.

Will be glad to send Special Quotations of their Superior Stocks of

MANGEL SEED

SHARPE'S SELECTED YELLOW GLOBE. SELECTED GIANT LONG RED. SELECTED LONG YELLOW. SELECTED GOLDEN TANKARD. SELECTED YELLOW INTER-MEDIATE. And other Varieties.

These Seeds are the produce of CHARLES SHARPE and CO.'S own Seed Ground, and every attention has been paid to this growth. Sleaford, March, 1882.

THE GARDENERS' CHRONICLE BENEFICIAL INSTITUTION

PENSION AUGMENTATION FUND, JULY 30, 1881: LIST OF COLLECTORS.

Table listing donors and their contributions to the Pension Augmentation Fund. Columns include names, addresses, and amounts. Donors listed include Atkinson, Jay, Belmont Castle, Crays; Allyn, J. C., 5, Clarendon Place; Andrews, J., Astley Lodge, Fitching; and many others.

BALANCE SHEET

Of the disbursements collected in aid of the Pension Augmentation Fund, July 29, 1881.

Table showing financial details: To amount collected, 443 cards; £561 13 4; By printing cards, circulars, envelopes, &c.; £28 15 1; By postages, addressing cards and envelopes; £7 12 10; By honorarium to the Secretary; 21 0 0.

Audited, January 9, 1882.

JOHN N. LEE, Secretary. J. CUTLER, Secretary. 14, Tavistock Row, W.C.

To the Country Trade.
JAMES CARTER, DUNNETT, AND BEALE, have a surplus stock to offer of the following, so far as unsold. Prices on application.—

- PEAS.**
 Alliance
 Bishop's Longpod
 Champion of England
 Dr. McLean
 Excelsior
 Fortyfold
 King of the Marrows
- PARSNIP.**
 H-flow Crown
- REDISIL.**
 Long Scarlet
 Red Tunip
- 217 and 218, High Holborn, London, W.C.

Onion Seed—Onion Seed of Superior Quality. SPECIAL OFFER at REDUCED PRICES.

F. GLE is prepared to supply the above superior Bedfordshire-grown seed as follows, for cash with orders:—

- Finest **WHITE SPANISH**, 3s. per lb.
 Finest **NINEHAM PARK**, 4s. per lb.
BEDFORDSHIRE CHAMPION, very fine, 5s. per lb.
WHITE GLOBE, very fine, 5s. very lb.
 New Sacks charged 12 each; Bags, 4s. 6d. and 9d. each.
 Special **TRADE LIST**, or **GENERAL RETAIL CATALOGUE** of superior Bedfordshire-grown Seeds, Plants, Quicks, Potatoes, &c., on application to
FREDK. GILL, Seed and Plant Grower, &c., Biggleswade, Beds.

QUICKS, extra fine transplanted, at 15s., 20s., 25s., 30s., 40s., and 50s. per sack.
FIRs, fine transplanted Scotch, 1½ to 2 and 2 to 3 feet.
ASH, fine Mountain, 8 to 10 feet.
POPLARS, fine Black Italian, 10 to 15 feet.
ASH, transplanted, 2 to 3½ feet, at reduced price.
 Price on application. Address
WM. WOOD AND SON, The Nurseries, Maresfield, Uckfield, Sussex.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolse LARCH, &c., of which we have without doubt the finest lot in Scotland. True Highland Scotch Firs, also Austrian, Lario, and Mountain PINES, SPRUCE, ELDER, BEECH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HOLLY, WHIN, &c. Also a very large stock of nearly kind of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

APPLE TREES with MISTLETOE growing on them. Price from 6d. to 1s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

6000 Grape Vines.
THE LIVERPOOL CULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES, grown from eyes, and this year, suitable for present planting. CATALOGUES free. Trade supplied.

SPECIAL OFFER.—Strong Standard SCERRIES and GREEN GAGES; also LIMES, SCAMORE, Silver BIRCH, ELM, CHESTNUT, and ACQUA, very cheap.
T. EVES, Greensted Nurseries. Established 1810.

Offer of Surplus Stock of POTATOES and WINDSOR BEANS.—**MYATT'S**, 45s. per ton; **MAGNUM BONUM**, 43s. per ton; **READING BEANS**, 75s. per ton. **TAYLOR'S BROAD WINDSOR BEANS**, 5s. per bushel. Bags 3d. per cwt. Cash with orders, only.
RICH. CRUST AND SON, Nurserymen, Spalding.

LARCH, and true Native **SCOTCH FIR**, 12, 18, to 24 inches, hardy well grown plants, will be sold very cheap. Prices and samples on application.
M. LENNAN AND FLEMING, Nurserymen, Forbes, N.E.

STRONG QUICK, for Hedging.
 Prices on application to
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ZONAL GERANIUM CUTTINGS, extra strong.—Many thousands to dispose of. For price per 100 or 1000 apply to
A. A. JAMES, F.R.H.S., Tivoli Nursery, Lower Norwood, S.E.

CABBAGE PLANTS.—Fine strong and healthy Autumn sown plants, English Market and Drumhead, 2s. 6d. per doz. to 45s. per doz. 20000.
 Extra plants for carriage, package free. Cash.
H. L. HARBY, Stout Valley Seed Grounds, Bures, Suffolk.

CABBAGE PLANTS.—Enfield Market, Early Rainham, Robinson's Champion Drumhead, and Red Pickling, may be had in any quantity, however large. Prices moderate.
Mr. T. DAVIES, Tanglely, Guildford, Surrey.

FOR SALE, a quantity of Double White **CAMELLIAS** and others, including some very fine large Specimen Double Whites, from 3 to 12 feet; also some fine Specimen White AZALEAS, prepared for forcing, from 3 to 6 feet, all in 2nd health and condition; also 16000 Green EOINYMUS, 1 and 2-yr. old. Price and particulars on application.
R. OBERIDGE, Church Walk Nursery, Stoke Newington, London, N.

CUCUMBER PLANTS,
 Strong and Healthy.
 In 4-inch pots, 9s. per dozen (package extra).

THOMAS PERKINS & SONS,
 34, DRAPEY, NORTHAMPTON.

LOAM, splendid Yellow Fibrous, 15s. 6d. per ton. Good useful brown PEAT, 22s. 6d. per ton, free to Bricklayers' Arms, S. S. K. K. Conditions only, or 2 tons of each in one truck. — **A. FOULON**, 32, St. Mary Axe, E.C.

WHITE ELEPHANT POTATO.

THE MOST WONDERFUL CROPPING POTATO IN THE WORLD.

The True Stock 6d. per pound; 7 lb., 3s.; 14 lb., 6s.; 56 lb. 18s.; 112 lb., 34s.

TESTIMONIALS:

From Mr. E. CLARK, King's Langley, Herts, October 29, 1881.
 "The one pound of WHITE ELEPHANT POTATO I have lifted 205 lb. weight."

From Mr. KERRY, Halton Holegate, Spilby, October 27, 1881.
 "The one pound of WHITE ELEPHANT has turned out very fine. I have lifted 205 lb. from it."

DANIELS BROS., ROYAL NORFOLK SEED ESTABLISHMENT, NORWICH.

IMPORTANT.
 To the NURSERY and SEED TRADE, AMATEURS, and GARDENERS.

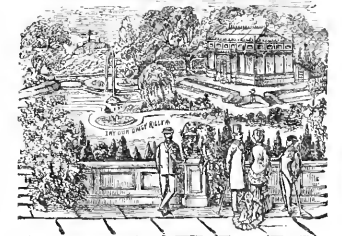
"THE ELECTRIC"
PLANT MANURE,
 (BASKERVILLE'S),
The finest Stimulant for all Plants.

Circulars of Advantages, Analysis, and Testimonials, post-free.
 Can be obtained of all Nurserymen and Seedsmen in the Kingdom.

WHOLESALE AGENTS:
CORRY, SOPER, FOWLER & CO.,
 18, FINLSURY STREET, LONDON, E.C. 1;
 And of the MANUFACTURER,
FRANCIS BASKERVILLE,
 10, QUEEN'S ROAD, BRISTOL.

"FLOREIN"

THE TRUE FOOD OF PLANTS
 FOR THE



Garden, Greenhouse & Lawn.
 MANUFACTURED SOLELY BY
MORRIS AND GRIFFIN,
 CERES WORKS, WOLVERHAMPTON.
 In Canners, from 6d. to 10s. 6d., through any Nurseryman or Seedman. (ESTABLISHED 1824.)

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE.
 3d. per bushel; 100 for 20s.; truck (loose, about 6 tons), 20s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 2 sacks, 12s. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 2 sacks, 12s. each.
COARSE SILVER SAND, 1s. 6d. per bushel; 15s. per half ton, 26s. per ton; in 2 bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
SPHAGNUM-MOSS, 8s. 6d. per sack.
 Manures, Garden Sticks, Virgin Cloth, Tobacco Cloth, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
 17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCOA-NUT FIBRE REFUSE, best and pure only, 4 bushel bag, 1s.; 15 bags, 10s.; 30 bags, 18s. sent to all parts. Truckloads 21s., free to rail.
A. FOULON, 32, St. Mary Axe, London, E.C.

IT IS A FACT
 THAT
BRINKWORTH'S
 SPECIAL
POTATO
MANURE
 Will Produce Double the Crop of
SOUND POTATOS
 Than any other Manure yet introduced.
 ALL
POTATO GROWERS,
 LARGE OR SMALL,
 SHOULD TRY IT.

LORD DIGBY'S HEAD GARDENER
 says:—
 "Its result upon the growth of our Potatoes was wonderful, and there was no disease whatever where it was used."

Thousands of similar reports from all parts.

PRICE, 10s.	CHEAPER By the Ton, CARRIAGE PAID.	PRICE, 5s. 6d.
per 112 lb. Bag		per 56 lb. Bag

SEND FOR CATALOGUE, POST-FREE.

BRINKWORTH & SONS,
 ROYAL
 BERKSHIRE POTATO ESTABLISHMENT,
 READING.

Peat Soil.
PEAT SOIL.—Black Peat, for Rhododendrons and Outdoor Use, 15s. per ton. Truck, 6 tons, 4s. **Brown Fibrous Peat**, for Orchids, Ferns, Stove Plants, &c., 4s. 6d. per truck, 4 tons, on rail, Camberley, L. & S.W. R., or Blackwater, S. R. Sample bags on rail at Reading Station, 5s. per bag. Cash with order.
JAS. HOLDER AND SON, Crown Nurseries, Reading.

COCOA-NUT FIBRE REFUSE.
 By Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 12 each; 12 Sacks, 12s.; 20 Sacks, 20s. (all Sacks included). Truck-load, free on rail, 25s. Limited quantities of P.M. Special Quality, granulated, in sacks only, 1s. 6d. each (2 price media), valuable for potting and use in conservatory. Terms cash with order.—To obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND AND CO.**, Fibre Works, West Ferry Road, Millwall, London, E.

Awarded 1st Prize at the Sydney Exhibition, 1880. Awarded 1st Prize at the Melbourne Exhibition, 1881. Also awarded Silver Medal at the Royal Horticultural Society, June, 1881, for collection of Garden Implements, Tools, &c., &c.

"THE COVENTRY."

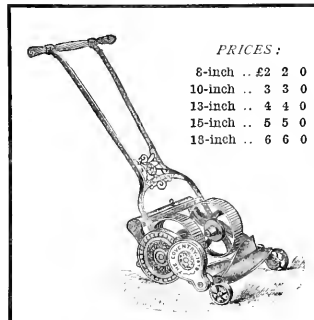
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NETTLEFOLD & SONS desire to call especial attention to their "COVENTRY" LAWN MOWER, which they can confidently recommend as the best and cheapest in the Market.
It has all the improvements which have of late been introduced into this class of Machine, either in England or America; and for the manner in which it does its work, its lightness, and its ease with which it can be used, cannot be surpassed.
Its cheapness brings it within the reach of every one, and in this respect it defies competition with any American machine before the public. It is made, as it name implies, at Coventry, by skilled English workmen, and of best English Steel and Iron.
These Machines can also be supplied with **ROLLERS AT SAME PRICE, and GRASS BOXES** at a small extra cost.

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NETTLEFOLD & SONS,

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PRICES:

- 8-inch .. £2 2 0
- 10-inch .. 3 3 0
- 13-inch .. 4 4 0
- 15-inch .. 5 5 0
- 18-inch .. 6 6 0

EPPS'S SELECTED PEAT,
on rail, Ringwood, Hants. Private Trade, Growers.
30 Sacks, 4 bushels each, no less quantity .. 28. per sack
Truckloads not less than 14 yds. For Rhododendrons and camomile purposes .. 14s. per ton
Selected Orchid Peat in Casks .. 6s. per cask
Casks charged 1s. 6d. each
Bags, 6d. each; not returnable.
Carriage paid to London, and at Depot, Vauxhall Station.
Trucks not less than 14 yards 12s per yard .. 12s. per yard.
Special offer, 30 Sacks, no less quantity .. 3s. each
Selected for Orchids, in Casks 8s. each .. 8s. each
Exceeding 5 Casks .. 7s. each .. 8s. each

List of smaller quantities on application.
LOAM, Crystal, Coarse and Fine SAND, CHARCOAL, &c.
CHIEF OFFICE AND DEPOT, Ringwood.

COCO-NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and Nurserymen in England. In 4-bushel bags at 12; 15 bags, 12s.; 30 bags, 24s. Bags included; 15 bags or more free on rail; truckload of about 250 bushels, 41s. truckload free on rail—J. STEVENS AND CO., Greybound Yard, and 134, High Street, Battersea, S.W.

12-oz. Sample Packets, free by post, 12 stamps.
FIBROUS PEAT for ORCHIDS, &c.—
BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., 6s. 6d. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per truck. Sample bags, 5s. 6d. per 250 lbs., 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per load.
WALKER SAND, Coarse or Fine, 2s. per truck of 4 tons. Red Sandstone ROCKWORK, 15s. per truck of 4 tons. GRAYVEL, good colour, 25s. per truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

Thomson's Vine and Plant Manure.
Manufactured and Sold by
THE LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED.

This is the Manure used to produce the splendid Grapes grown at the Tweed Vineyard, Clovenfords.

Full particulars on application. The Trade supplied.

All Letters to be addressed to THE MANAGER, The Vineyard and Nursery, Garston, near Liverpool.

GISHURST COMPOUND—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew,rips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 2 to 15 oz. as a winter dressing for Vines and Fruit Trees. Has obtained many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing wet hard Pasteurized Gishurst Compound, and working the latter into the infected part.

GISHURSTINE keeps feet dry, softens hard hoofs, preserves leather, tacks a polish. In Boxes, 6d. and 1s. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedmen and Oilmen.

REIGATE SILVER SAND—Coarse and fine, on rail at 2s. 6d. per ton—less than 4-ton trucks. Terms cash—Apply to H. SMIS, The Provoy, Reigate.

SILVER SAND, PEAT, and LOAM—The best in England, at moderate prices, by Truckloads, Bags, and Casks, as follows:—
Silver Sand, in Rail, Steamer, and Sailing Vessel to all parts. Descriptive List post-free. Established 1862.
WILLIAM SHORT, Horticultural Depot, Red Hill, Surrey.

VIRGIN CORKWOOD, for Ferneries, Rockeries, and Ornamental Work in Gardens supplied at wholesale rates to Nurserymen and Seedmen by WM. RANKIN AND SONS, 10, Carlton Place, Glasgow, and Lisbon, Portugal.
Shipments direct from Lisbon at special quotations.

Protect your Glass from Frost and Cold Winds, by using a Strong Woollen Material, called

FRIGI DOMO, which can be obtained from all Nurserymen and Florists, or from BENJAMIN EDGINGTON, 2, Duke Street, London Bridge, S.E. FRIGI Domo is a registered article, with all Trade Marks and rights.

DENYN'S Unrivalled ROLL PAPER and CLOTH, as supplied to over 3000 Nurserymen, 14 lb. 9s.; 25 lb., 12s.; cut, 7s.—J. DENYN, Manufacturer, 73, Kenilworth Road, Clapton, London, E.

Medicated Tobacco paper—Improved and only genuine make. The most effective and safest Fungicide should be used with the Improved Fumigating Pan (used Circulars and all Fumigating Pan).
James Dickson & Sons
of Newton Nurseries and 108 Eastgate Street, Chester.

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Vegetable & Flower Seeds
Seed-Potatoes Tools &c.

Best quality. Carriage free
Priced Catalogue—post free

James Dickson & Sons
Seed Growers &c.
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HORTICULTURAL SHEET GLASS.

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths quantities always kept in stock—

14 X 12	20 X 12	20 X 14	20 X 16	20 X 18
16 X 12	16 X 14	20 X 15	22 X 16	22 X 18
18 X 12	18 X 14	18 X 16	24 X 16	24 X 18

Stock Lists and Prices on application.
All descriptions of British and Foreign Glass can be obtained from

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
34, St. John's Street, West Smithfield, London, E.C.

T. MILLINGTON AND CO.,
43, Commercial Street, E.

PLATE, SHEET, & CRISTAL GLASS.
Horticultural and all kinds of Glass having to come advanced, we are compelled to withdraw our prices, but on receipt of application the prices will be forwarded, but will be only from day to day until the market is more settled state. We have some bargains in 21-ounce, from 9x7 to 14x10 and upwards; sizes set it required. Propagating Glasses, Hand Ferns, Cucumber and Horticultural Glass, genuine White Lead, best Lined Oil-Pan, Paints, Oils, and Colours.

HORTICULTURAL WINDOW GLASS,
15-ounce and 21-ounce, in Boxes containing 200 feet.
Carriage Paid to any Railway Station in England.
Price Lists on application.

ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 3, Pentonville Road, London, N.

BELGIAN GLASS for GREENHOUSES, &c.
Can be obtained in all sizes and qualities of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.
B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200 ft. and 300 ft. cases.

PROTECT YOUR PLANTS.
"FRIGI DOMO."
Registered Trade Mark.

"Horticultural Society's Garden, Farnham Green."
"FRIGI Domo" is now largely employed here as a protecting material instead of mats. All houses and pits to which it can be usefully applied are covered with it at night, and it is found to give entire satisfaction. It lasts longer than mats, is cheaper, and keeps out frost equally well.

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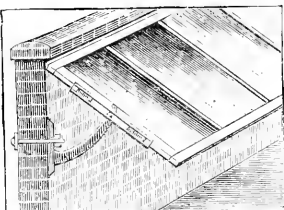
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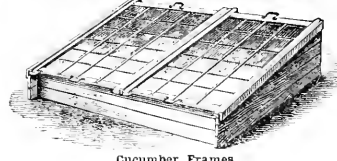


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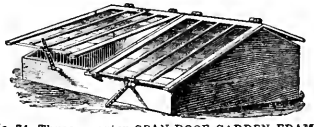
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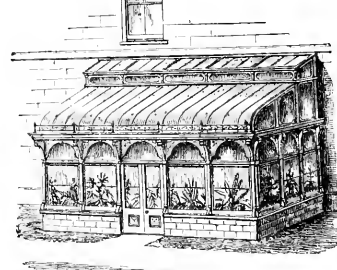
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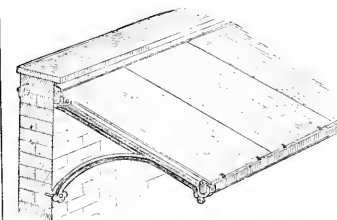
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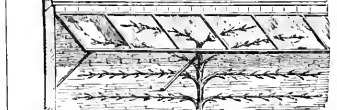
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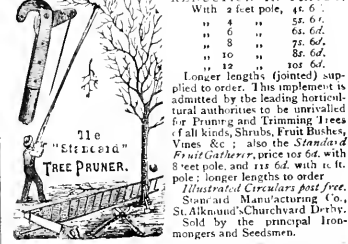
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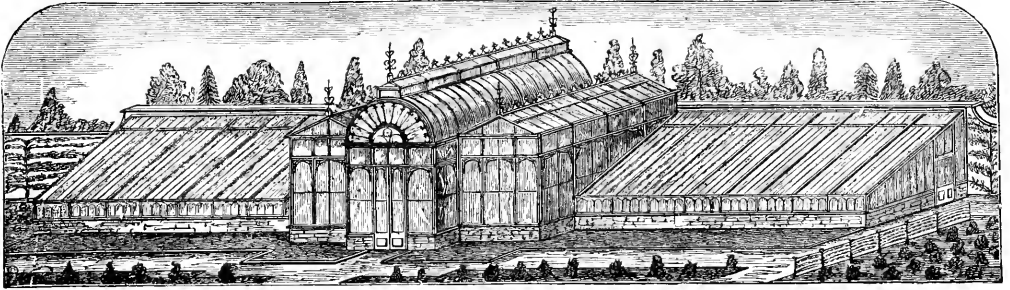
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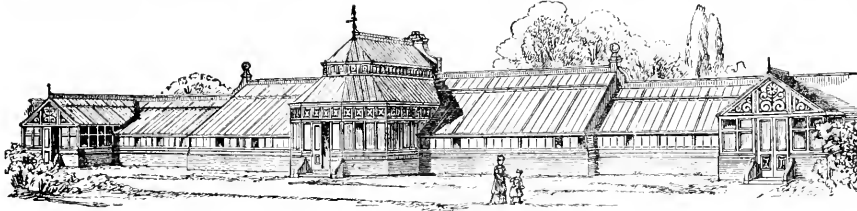
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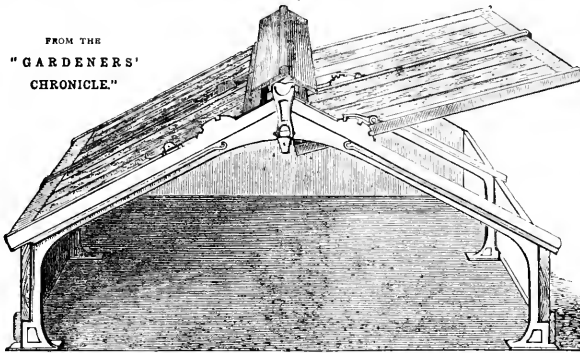


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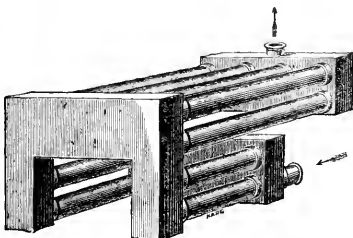
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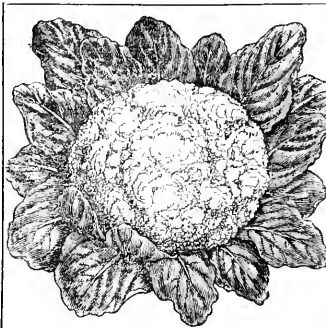
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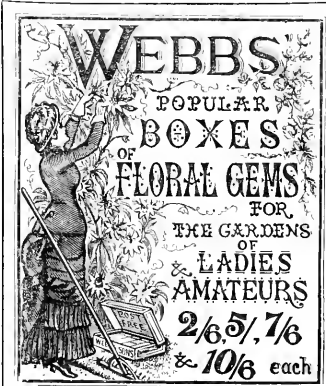
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CAULIFLOWER LONDON EARLY.—Very fine plants, procut and wintered at the foot of a wall. Price, which is very moderate, on application.
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To Nurserymen and Seed Merchants.
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EDWIN HILLIER offers **Fifty Dwarf H.P. ROSES**, strong, bushy plants, of best varieties, and being worked are suitable either for potting or bedding, for 21s. each with order. Terms and application to the Nurseries, Winchester.

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YELLOW DWARF, 1s. 6d. each, 15s. per dozen.
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 A pair of each of these flowers, 2s. 6d. per pair, 4s. 6d. We have the most complete collection of doubles, and always grow 100 less than 10,000 pot-roots, and can therefore offer best in cultivation.
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WILLIAM BADMAN offers the below-named Plants, of which he has a large healthy stock:—**VERBENAS**, Purple, White, Scarlet, Crimson and Rose, only best bedding sorts. Well rooted cuttings, 6s. per 1000, 5s. per 1000. Show varieties, 10s. in a very best, 5s. or in 25 sorts, 10s.

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 Packing included. Terms cash. Cemetery Nursery, Gravesend.

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DOWNIE AND LAIRD, Royal Winter Garden, Edinburgh, are sending out the finest Show and Fancy **PANSIES** and **VIOLAS** that money can buy, at from 4s. to 50s. per dozen.
 The above have taken First Prizes wherever shown last season.

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A PERFECT HOLLY HEDGE may eventually be formed by planting two Hollies and six Quicks in every yard.

HOLLY, **SMITH**, 12 to 15 inches high, 21s. per 300.
QUICK, strong, **Hawson**, 20s. to 50s. per 1000.
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 Finest WHITE SPANISH, 3s. per lb.
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Early Ashleaf Kidney, improved stock.	Each 14lb. tub.	Each 5lb. tub.	Cwt.	Ton.
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Will be glad to send Special Quotations of their Superior Stocks of

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And other Varieties.

These Seeds are the produce of **CHARLES SHARPE AND CO.'S** own Seed Ground, and every attention has been paid to this growth.

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Strong healthy, clear plants, 40 of the finest and most approved varieties in cultivation, my selection, from 20s. per 100. Also the most superb and carefully selected collections extant, of **PHLOXES**, **PENTSTEMONS**, **ANTIRRHINUMS**, **MIMULUS**, Single and Double; **DAHLIAS**, **VIOLAS**, **VERBENAS**, **STOVE** and **GREENHOUSE PLANTS**, &c. Descriptive **Price List CATALOGUE** for 1882 free on application.

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CABBAGE PLANTS.—Fine strong and healthy Autumn sown plants, Enfield Market and Drumhead, 2s. 6d. per 1000, 15s. per 50,000.
 Extra plants for carriage, package free. Cash.
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THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of **VINES** grown from eyes this year, suitable for present planting. **CATALOGUES** free. Trade supplied.

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PRIZE YELLOW GLOBE, a magnificent stock, handsome shaped bulb, small tap-root, and very heavy cropper, at **GOOD YELLOW GLOBE**, ordinary stock, 30s. per cwt.

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LIST OF EVERGREEN AND DECIDUOUS SHRUBS, RHODOENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING AND TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., with general remarks, will be for a penny stamp sent to **RICHARD SMITH AND CO.**, Nurserymen and Seed Merchants, Worcester.

HYBRID GREEN HOLLY, 6 to 9 feet, 6s. each; 60s. per dozen. 7 to 8 feet, 7s. each; 72s. per dozen.

The above are vastly superior to the ordinary Green Holly, and will remove with safety.
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JOSIAH H. BATH offers the following varieties of **POTATOS** for seed:—
 Myatt's Ashleaf Early Dove
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 Early Rose
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 and other leading varieties.

Also 100 bushels of **JERUSALEM ARTICHOKE**, 1 and 3, York Street, Borough Market, S.E.

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DAHLIAS—Pot-roots, 300 sorts. **CATALOGUES** to be had free of **KELWAY AND SON**, Langport, Somerset.

FLOWERING SHRUBS, in great variety, such as **Hydrangeas**, **Lilacs**, **Deutzias**, **Spiræas**, **Cytisus**, **Broom**, **Pyrus**, **Berberis**, **Double Cherry**, **Scarlet Hawthorns**, **Richards Rose**, &c., 8s. per dozen; 50s. per 100.

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S. BIDE can offer good strong Drumhead or Imperial, and Nonpareil, at 3s. per 1000 for Cash with Order. Packages free.

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 Double **LILAC**, per 100, 12s. 6d.
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 All fine plants, coming into bloom.

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THURSDAY NEXT, MARCH 23.

MASDEVALLIA CHIMÆRA, RCHB. F.

DISCOVERED BY M. ROEHL.

The true species, with its flowers 2 feet in diameter. Much has been written about this species, and various kinds have been sold for it, but excepting the few plants sold by us in 1880, none have been imported. M. Roehl discovered it in 1871, and he tried for years to get it home alive, but without success. His nephews also failed, although for some eight years they sent it home, or came home with it, almost annually. We are extremely pleased at being able to offer now a very splendid lot brought home by Mr. Chesterton, and the importation is in splendid health, the majority of the plants being very grand. The flower-spike is from 1 to 2 feet long, and the immense flowers are produced in succession, as many as seven and eight open one after the other, the diameter between the tail ends being 2 feet, each sepal being 1 foot long. The marking of the flowers varies from rose to crimson, on a yellow hairy ground. Several of our 1880 importation have flowered, and proved this to be the finest of the section. It was figured in the *Gardeners' Chronicle*, July 23, 1881. The plants have the upright spikes on them.

MASDEVALLIA REICHENBACHIANA, ENDRES.

We are extremely pleased at being able to offer, for the first time, this truly superb new species. It is, without doubt exceedingly lovely. Professor Dr. Reichenbach says:—"The beautiful plant was discovered in Costa Rica, by my late friend Endres, and was named by him." The flowers are large, fully 2 inches in diameter, the tails very short, and the colour of the flower is white, the inner half blood-red, in some varieties crimson. The distinct two colours (white and red), the striking flowers, and its fine, full, open shape, make it one of the showiest of Masdevallias, and we most earnestly commend it to the special notice of growers. We may also mention that only a few plants of it existed in Costa Rica, and that Mr. F. C. Lehmann has sent home to us every plant that could be found. The consignment is in really grand condition.

ODONTOGLOSSUM VEXILLARIUM | **DENDROBIUM WARDIANUM.**

Klaboch's autumn-flowering variety.

A specially large and fine consignment.

CATTLEYA DAVIANA.

CATTLEYA CITRINA.

AND OTHER ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 23, at half-past 12 o'Clock precisely, by order of Mr. F. SANDER,

THE ABOVE VALUABLE IMPORTATIONS.

May be viewed morning of Sale, and Catalogues had.

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SEEDS.—SEEDS.

CHARLES TURNER'S

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SEVENTY-FOUR ACRES OF FRUIT TREES.—Apples, Pears, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standard, Dwarf, Pyramid, Bushes, Cordun and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1d. stamp.

TWELVE ACRES OF ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 30,000 choice Tea-scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing. Descriptive Price LIST, free for 1d. stamp.

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IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

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120, 121, and 122, Market Hall, and 3, Great Western Arcade, Birmingham; and The Nurseries, King's Norton.

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See our Wholesale Seed Catalogue, free by post on application

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Choice and Popular Vegetable Seeds and New Potatos for 1882,

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CABBAGE PLANTS.—Red Pickling CABBAGE PLANTS, Bath Cos, and Lee's Immense Hardy Green CABBAGE LETTUCE PLANTS, &c.

N.B.—All above Plants warranted autumn sown and strong, from the open ground (not raised in frames). No charge for package. EDWARD LEIGH, Wretham Farm, Dunsfold, Galsham.

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PLANTS, 2-yr., 3s. per 100.
JERUSALEM ARTICHOKES, 2s. per bushel.
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168 lb., Sacks included.
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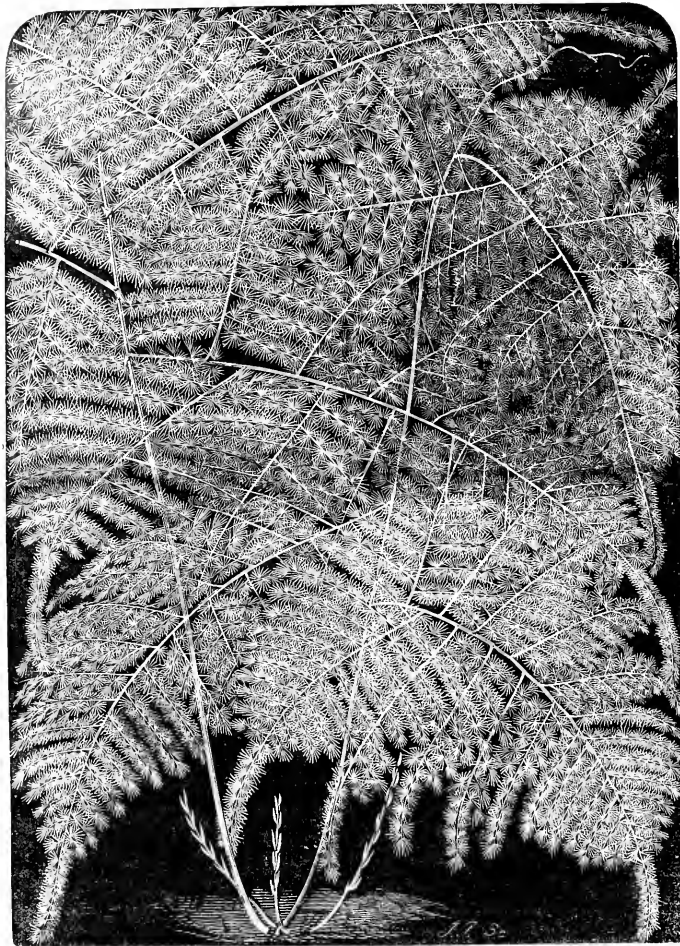
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October 29, 1881.

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 - .. INSIGNIS.
 - .. LINEARIS.
 - .. RUBESCENS.
 - .. SPECTABILIS.
 - .. TRICOLOR.
 - CURCUMA LUTEO-VIRIDIS.
 - CYCLANTHUS DISCOLOR.
 - DAVALLIA FIJENSIS PLUMOSA.
 - DIEFFENBACHIA MAJESTICA.
 - .. PRINCEPS.
 - DIOSCOREA SPECIOSA.
 - HYMONIA MARMORATA.
 - EPIPHEMUM MIRABILE.
 - EUADEIA LINDENSIS.
 - EUCALYPTUS FICIFOLIA.
 - HELICONIA METALLICA.
 - HIBISCUS ROBINSONIENSIS MAGNIFICUS.
 - IXORA CONGINNA.
 - .. DECORA.
 - .. VENUSTA.
 - KEMPERFERIA GILBERTII.
 - MARANTA ASYMMETRICA.
 - MONOLOPHUS SECUNDA.
 - NEPHEPHYLIS LIBERICA.
 - NERINE EXCELENS.
 - ODONTOGLOSSUM VEXILLARIUM VARIEGATUM.
 - PANAX DISSECTUM.
 - PHALENOPSIS TETRASPIS.
 - PITTOSPORIUM EUCENOIDEIS VARIEGATUM.
 - PLEOPILOTIS XIPHIAS.
 - RHODODENDRON PINK BEAUTY.
 - .. ROSEY GEM.
 - SAMBAJUA LASCEOLATA.
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 - THRINSPERMUM MURICULATUM.
- NEW HYBRID FUCHSIA, FORMOSA.
- SIX NEW ZONAL PELARGONIUMS, of sorts.
- EIGHT NEW FANCY PELARGONIUMS, of sorts.
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- NEW VARIEGATED-LEAVED PELARGONIUM, with double flowers, Chelsea Gem.

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- EXPANSION—A very distinct and pretty variety; tube and sepals bright rose, the sepals completely reflexed; light bluish-purple corolla so widely expanded as to become almost flat; quite unique in form. *ros. 6d.*
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| <ul style="list-style-type: none"> ADIANTHUM ANETHENSE AN THURMUM INSIGNE SCHIEZERIANUM MAXIMUM ANTHRAMMA BRASILIENSIS APHELANORA PUNCTATA ARTUNDINARIA KHASIANA CARLUDOVICA WALLERII CHAMÆCLADON RUBENSIS CELOGYNE CRISTATA ALEA CROTON BROOMFIELDII .. EUBERNUS .. ELGANTISSIMUS .. FORMOSUS .. KINGIANUS .. ORNATUS .. VITATUS | <ul style="list-style-type: none"> DAVALLIA FIJENSIS DIEFFENBACHIA COSTATA .. INSIGNIS .. NIPIHA .. RUMPHANS DIPLODENTIA CARISSIMA .. DELICTA DIADREIA DRACÆNA HINDENI ERANTHEMUM EBORACENSE HELICONIA AEREO-OSTRIATA ISOLOMA HIRSUTA IXORA BELLA .. EXIMIA .. ILLUSTRIS .. ORNATA | <ul style="list-style-type: none"> IXORA PICTURATA .. SPLENDIDA LATHYRUS SPLENDENS MICROSTYLIS CHLOROPHYRUS .. METALLICA MUSA URANOSCOFAS PITCAIRNIA ALTA POTHOS AUREA RHODODENDRON ASSAMICUM SCHISMATOGLOTTIS LONGI- .. SPATHA SPARMANNIA AFRICANA FLORE- .. PLENO TECOMA ROSEA ZAMIA FRASINA |
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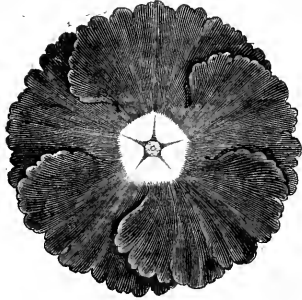
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MELBOURNE, 1880-81.

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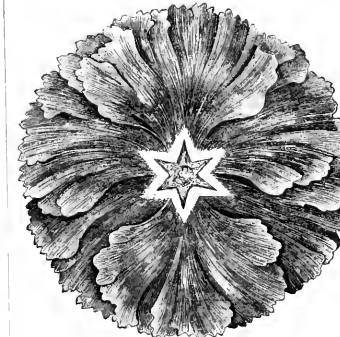
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Have been used with the greatest success in the grounds of
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"Sir,—By direction of the Commissioners for the Melbourne International Exhibition I have to request that you will be so good as to convey their best thanks to Messrs. Sutton & Sons of Reading, for their valuable Lawn Grass Seeds planted in the grounds of the Exhibition during the late winter. The seeds have germinated freely, and the lawns are now in splendid condition. Messrs. Sutton & Sons may accept my assurance that the introduction of their Lawn Grass Seeds into this country has been attended with very great success.—I have the honour to be, Sir, your most obedient servant,
(Signed) "GEORGE C. LEVEY, Secretary,
To the CHIEF CLERK, Melbourne International Exhibition Office, London."

PRICES:—
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SUTTONS' NEW PRIMULA—"RUBY KING."
"Deep blood red; perfectly distinct."
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Price, 5s. per Packet, post-free.
Full particulars may be had, gratis and post-free, on application.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN,
READING, BERKS.



THE Gardeners' Chronicle.

SATURDAY, MARCH 18, 1882.

TRAVELS OF PLANTS.

SO far as the plant world is concerned man inherited a defective world, which in many regions was a desert ill provided with useful plants. The indigenous fruits of Australia were small, and its earliest population fed on Fern and other roots. The fruits of Europe before the period of the Romans were inferior Apples, Pears, Plums, and Raspberries, with Blackberries, Beech-mast, and Hazel-nuts. The ancient Britons must have fared much like the people of Arcadia—

"Acorn-meals chaff called they from the sheds
Of forest Oaks; and in their wintry month
The wild wood-whorle with its purple fruit
Fed them, larger then, and more amply poured.
And many a boon beside, now long extinct,
The fresh formed earth her hapless offspring dealt."

The existing vegetation of Europe appears to have been derived from the North by means of natural migration, or the scattering of seeds each year further afield. Wide gaps may now divide the sites of the original vegetation. There is an Oak (*Quercus cerris*), growing generally in Asia Minor, which is found in Europe only in a few widely separated stations, such as the Apennines, parts of Sicily, and on the banks of the Loire. The Pinus excelsa is another tree without a link between its stations, which are now as wide apart as the Himalayas and the mountains of Roumelia.

The continuity of the ancient forests has been destroyed by changes in the surface. There is a shallow sea now between the forests of Scotland and those of Norway, and between the Oak and Beech woods of Denmark and those of our shores; and the sunken forests round our coast, especially on the coast of Norfolk, are the remains of the chain of vegetation which at one time was stretched between England and the Continent. At the dawn of the present stage of creation Northern Europe appears to have been denuded of its vegetation by glaciers. Earlier floras had been already buried beneath many and many a layer; a more recent one was now destroyed or driven into alpine heights.

In consequence of such catastrophes as that of the Ice Period Europe became bare of plants at a time when Asia was a garden, and accordingly we may believe that long before the dawn of history plants were moving westward and southward to occupy Europe, just as population did at a later period. The origin of the most useful plants is legendary, as might have been expected. The Vine, a migratory twiner—which has run round the globe, climbed high in man's affections, and made surprising inroads on his pocket—has several disputed birthplaces. According to the legends, Africa owed it to Osiris, and Europe to Bacchus. The Jews claimed it for the slopes of Hebron. Its real birthplace was, perhaps, that same Persian paradise which produced the Fig, Peach, and Apricot. The Orange, which was unknown to the ancients, was not the "golden fruit" planted by the poets in the garden of the Hesperides, but a Chinese fruit, introduced into the West by the Arabians.

The "golden fruit" referred to is believed to have been the Citron.

These are a few of the most essential or interesting plants which several of the leading nations possessed in a period too dim to admit of its obscurity being penetrated. Barley has been traced to Tartary, and Wheat to the banks of the Indus; and here the learned have lost sight of these important cereals, and have taken up their pens for discussion with such rage as detectives feel when baffled. The Greeks were by no means incunous about plants, and in hunting down the Olive to its original site they came to the conclusion that it must have been created by Minerva and brought to Greece by Hercules. But for the destruction of the Alexandrian Library we might know more of the origin of useful plants: we must be content to utilise such knowledge as we do possess. The Crocus first sprung amid the grass on Mount Ida at the instant of an embrace between Juno and her wandering husband, greeting her there unexpectedly. As a very widespread plant it must have afterwards sprung up in many other places—perhaps on similar occasions.

Having lingered rather long in the fields of conjecture let us now push on into those of history. The most useful plants were distributed by colonists and conquerors. Tyre was an emporium from which the Apples which the Romans found in Britain may have been introduced by the Phœnicians, who came to Cornwall for tin, and who carried the Mulberry to the western shores of the Mediterranean, and planted Carthage, a city famed for farming beyond all other places of antiquity.

After the destruction of Tyre by Alexander plants continued to be distributed chiefly by the hands of soldiers. Rice accompanied Alexander from Persia, and followed the Moors to Spain, *en route*, it may be said, for America.

Cotton has a long history, and has travelled far. Alexander the Great observed it in the Punjab previous to its cultivation in Egypt, where Herodotus found linen cloth in universal use; but in the time of Pliny, Egypt, like India, was clad in cotton. This "tree wool," as the astonished Germans named it, found a congenial home afterwards in America, whence it revisits its native country in the form of fabrics from the mills of Lancashire. Rome in her day became the rendezvous of plants, which she collected with great assiduity. Italy had been bare of native fruits; Rome made her rich in subtropical productions suited to her climate, and filled her gardens with nearly all the culinary vegetables which are now in use, including that curious Cabbage, the Cauliflower, which appears to have been developed by successive steps from the cliff Cabbage, in the luxurious island of Cyprus. A Cherry tree in full fruit from Pontus entered Rome at the triumph of Lucullus. All the fruits of Persian paradises which had not been already introduced into the basin of the Mediterranean by the Greeks, reached Rome direct from their native places. The Fig, it will be remembered, had sheltered the wolf which suckled the founder of the city. It is a fruit which is said to have rendered Bacchus copulent, and which reached the neighbourhood of Olympus early.

The vegetable acquisitions of the Romans were distributed among her colonies. The Plane reached the tomb of Diomedes in Apulia "to the East," according to Pliny and thence spread over Greece and Italy, arrived in Sicily, and was in Gaul A.D. 70, the people being taxed at that time for planting it. The Cherry was in England within five years of the annexation. The Box, the Peach, the Walnut, the Vine, and the Poplar followed, as did the Pear, Mulberry, Fig, Damson, and Medlar. The Roman generals and governors in England were both anxious and able to surround their handsome villas with the trees and shrubs of Italy. The Bay or

Laurel of the ancients came with other sweet-smelling plants, which the Romans held in great favour. Our common Laurel is a *Cerasus* or Cherry, a native of Trebizond and the shores of the Black Sea, and was introduced from Civita Vecchia A.D. 1614, or about 1600 years later than the nobler shrub. The old English Elm is not a native, like the Wych Elm, and in all probability we owe it to the Romans.

It has been said that Barley was introduced into Germany and Britain by Cæsar; but in that case those countries were far behind their neighbours who possessed Barley as early as the Stone Age. *Beer*, the Saxon name for Barley, is the root of the word beer, a beverage, and here, a coarse kind of Barley grown in Scotland. The hardier kinds of this hardy cereal have reached nearer the poles, and have ascended higher up the sides of mountains than any of the other grain-bearing grasses, succeeding wherever there is a mean temperature of 48° during ninety days of the year. In Lapland, at 66° N. lat., where it cannot be sown until June, it has just sun and time enough for ripening, and none to spare; while in England our two-rowed Barley—the parent of the Barley family—enjoys a career of five or six months from the day of sowing to the day of ripening, and, having acquired a certain habit as to the pace at which it proceeds between seed-time and harvest, it suffers a good deal in hot summers, when hurried by the effects of the unusual warmth.

The Moors succeeded the Romans as carriers of plants westwards, and Spain owes them that very useful Persian forage plant, *Alfafa* or Lucern. The Olive, which yields the cream and butter of Spain, had arrived previously. At the commencement of the Dark Ages, when the North enchained Southern Europe, plants ceased to travel. Afterwards we hear of Charlemagne's garden on the banks of the Rhine, and a little later the monks became cultivators and the Crusader's brought agricultural information from the East. But the circumstances of the age were against the travels of plants until the close of the Middle Ages and the epoch of Elizabeth. Then the Rose beds which the wars of the rival houses had trampled under foot were replanted. As early, however, as 1453, when the Eastern Roman Empire fell, "Dutch bulbs" were first grown in Holland. The Ranunculus, Anemone, Tulip, Hyacinth, and Narcissus, were all originally oriental, and were first brought from Persia to the west shores of Europe in the bales of Dutch traders. Dutch gardening was afterwards introduced here and Dutch bulbs brightened English parterres at Nonsuch, Hampton Court, Hatfield, and other places. There is a long list of ornamental trees and other plants which arrived here at the commencement of the age of industry after the close of the Middle Ages. Hops at length (A.D. 1523) followed Barley, which in the light and bitter beer of Burton they have now almost superseded. Fulham became famous for its foreign foliage, as it is still, under the auspices of Bishop Grindal. Cecil, Bacon, Gerard the herbalist, and Raleigh, all aided the travels of plants, and the latter, imitating Hercules, brought home some exceedingly useful seeds, or tubers, in his pocket, on returning from his travels. *H. E.*

(To be continued.)

LACHENALIA NELSON.—It will be in the remembrance of many that this new variety received a First-class Certificate from the Royal Horticultural Society two years or so ago; it is now in nice bloom at Chiswick, and is remarkable for the prevailing hue of orange in the flowers; it at once strikes the eye among other plants, and is a set-off against the gaudy hues of Tulips, Hyacinths, Cinerarias, &c. It is not at all unusual to meet with *Lachenalia* in pots in gardens, showing that gardeners are fully alive to their value as easily cultivated winter and spring flowering plants, and they possess a decorative value that makes them doubly useful.



BULBOPHYLLUM MANDIBULARE, n. sp.*

This is a very curious plant, quite delightful for a real orchidist. For those who prefer that name, it may be called *Sarcopodium*. If we search for affinities it might rank best near to *Bulbophyllum lasianthum* of Lindley, though it has decidedly *Sarcopodium*-like flowers, and such peculiar arms to the column, that thirty years ago one would have regarded it as the type of a glorious new genus. It was discovered in Northern Borneo by Mr. Burbidge, and has now flowered, the specimen at hand being kindly sent by Mr. Harry Veitch.

It has a glaucous bulb, over 2 inches long, much compressed, pear-shaped. The large leaf is cuneate oblong acute, a span high, 3–4 inches broad. The fine slender-stalked raceme surpasses a little the leaf; the bracts are concave, triangular, not quite equalling the ovary. The flowers are a little longer, though not so wide as those of *Lycaste tetragona*. The sepals and petals are brown, washed with light green. There is a white area at the base. The lip is straw-coloured, with purple, and with purple prickles. The column is whitish, purple at the base, and with similar spots above. It is a very curious thing, though nothing in the eyes of lovers of grand beauties. *H. G. Rehb. f.*

DENDROBIUM NOBILE (Lindl.) VAR. NOBILIUS, n. var.

A grand variety! The sepals and petals of these giant flowers are of the most resplendent purple, and the lip is darker and finer in its mottlings than any I have ever seen before. It came from Sir Trevor Lawrence, who fully appreciates his curiosity, and who kindly states that the bulbs are exactly those of the common *Dendrobium nobile*. What a pity!

Something nearly like it, but much smaller in dimensions, was sent me by Mr. William Lee, of Leatherhead, but I had no indication about the appearance of the bulbs, hence I do not feel quite sure about it. *H. G. Rehb. f.*

[This most lovely *Dendrobium* came originally from Rollisson's, at whose sale it was bought by Mr. James, of Lower Norwood, an ardent and intelligent lover of Orchids. He has with long care and persistence (for the plant was nearly dead when sold), raised a small stock, of which he lately had only one left. The variety leaves all *D. nobile*, even the darkest, far behind. *T. L.*]

MASDEVALLIA SHUTTEWORTHII XANTHOCORYS, n. var.

A lovely variety of this well-known species, with a nearly yellow odd sepal, finely striped with brown lines. The spots on the side sepals are flat, less numerous, and the whole flower is thinner. I have to thank for this Sir Trevor Lawrence, M.P., Bart., who is always bringing out some curious novelty. *H. G. Rehb. f.*

THE DATE PALM.

In my garden at Mentone I have planted many Date Palms (*Phoenix dactylifera*) which flourish all along the Genoese Riviera in the more sheltered regions. They are thriving but developing slowly, except in two instances, which throw a light on the peculiarities of the tree. On one terrace there is a row of Palms planted twelve years ago, all healthy, but small. One of these Palms is an exception to the rule. It is six times larger than the others—2 metres

* *Bulbophyllum mandibulare*, n. sp.—Pseudobulbo compresso pyriformi plano; folio cuneato oblongo acuto stipitato; racemo foliis subseguente gracili paucifloro, glanduloso; bracteis concavis ovatis acutis ovum pedicellatum non omnino sequantibus; floribus magnis illis *Lycaste* tetragone æqualibus, minus albis, carnosulis; meo obtuso; sepalis ligulatis acutis dorso carinatis; tepalis subrotundis acutis breviter lobatis; labello carnoso cordato triangulo medio late impresso sulcato; extrorsum utrinque hispido muculato muculis brevibus; columna prorsum brachium anclitibus ligulatis curvatis supreme muculatis.—In Borneo insula detex. cl. Burbidge. Col. cl. Veitch. *H. G. Rehb. f.*

25 centimetres (7 feet) in circumference, whilst the rest, planted at the same time, are only 75 centimetres 1 foot from the ground. It is quite a tree, and bears yearly fruit that ripens, some of the other Palms being male plants and flowering at the same time. I was long unable to explain why this one Palm should have developed in so rapid and extraordinary a manner as compared with its companions, but one fine day the mystery was solved. Twelve feet below the terrace on which the Palm grows, on the other side of a thick masonry wall, is a conservatory in which there is a water-tank. On cleaning it out a mass of Palm roots were found at the bottom. They had descended to the bottom of the terrace, passed underneath the masonry wall, and had reached the water. Thus the axiom of the Arabs was literally accomplished—for a Palm to flourish, its roots must be in the water and its head in the flames.

In another part of the garden the same lesson is taught in another manner. One of my neighbours had a right of way through my property, and the water passed over a terrace which had been carefully trenched to the rock to a depth of about 5 feet. On this terrace are planted various Palms, and the water passed once a week during the summer in the immediate vicinity of a *Livistona australis*, a *Chamærops australis*, a *Latania borbonica*, and a *Cycas revoluta*. The recently trenched ground let the water soak in like a sponge, and the four plants named have grown so rapidly that they are now five times the size of all the others in the terrace. My neighbour came to me a year or two ago, and with tears in his eyes accused my plants of drinking up half his water on its weekly passage. In the face of their preposterously rapid growth I could not deny the imputation, so I made him a channel outside the property into which the water was diverted. I thus also got rid of his right of presence on his water days.

The entire mountain district in which my property is situated owes its vegetation to a spring that rises in a neighbouring ravine about as thick as one's arm. In winter, by immemorial prescription, this spring belongs to three mills for crushing Olives. From June 1 until September 15 it is owned in hours each week by the peasant proprietors; each property, or proprietor, has so many hours a week, which he can, if he wishes, sell independently of the land, or retain, selling the land. This water is valued at 1000 fr. (£40) the hour. I have bought four hours and a-half for 4500 fr. (£180), which enables me to cultivate and water my garden in summer. Without it I should be all but reduced to Cactaceæ. We build reservoirs in which to store this water, and what rain-water we can divert or seize hold of. I have a dozen, large and small. These reservoirs we can generally fill in spring with the rain-water, thus preparing for the season of drought. My reservoirs hold about 300 cubic metres of water. My water rights bring in about the same quantity, so that I have in all 600 cubic metres or yards of water wherewith to irrigate during the usual four or five months' drought, viz., from May to October. Thus, we have to husband the water most carefully, and principally succeed with plants that grow naturally in regions where there are long droughts, such as Mexico, Peru, Chili, the Cape of Good Hope, Australia, &c.

To return to the Date Palms. They do not thrive in regions where they cannot reach water by means of their long strong roots, or where they cannot be watered. The largest Palm forest I have ever seen is at Elche, in the province of Murcia, in Spain. It is many miles in circumference, in a moist arid, burnt up spot, but then a small river runs through it; round every tree there is a large saucer or depression, and at intervals throughout the summer the river is turned into these saucers by irrigation canals throughout its entire extent. The trees are grown for profit. They produce ripe edible fruit, which are sold in all the markets of this part of Spain as an important article of food. The Dates, however, are not the saccharine Dates we see and eat in the North as a sweetmeat, but a farinaceous dry Date which grinds into flour, and is consumed as such. I was told in Algiers that they cultivate in the desert oases sixty different kinds of Date. I saw very few Date trees in the vicinity of Algiers and along the coast. They are principally cultivated on the southern side of the Mount Atlas, in the numerous oases that are found in the desert within a short distance from the southern basis of the Atlas range.

The existence of these desert oases is easily accounted for. An immense quantity of rain falls in

Algeria every winter on the Atlas Mountains, the prevalent winds being north-east or north-west, that is, moist sea winds. Immense masses of water thus fall down the southern slopes of the Atlas, mostly calcareous, and reach the sandy desert at their base. Sinking into the sand they form regular rivers underground, running along the base of the mountains from west to east, or east to west, at a variable depth, according to the amount of earth or of granitic sand that covers the calcareous rocks. Every now and then these subterranean streams come near the surface, forming a marsh or "shott," as it is called, or a fertile oasis if a spring rises to the surface, or even if the water can be tapped by wells. It is in these regions that the Date Palm grows and flourishes by tens of thousands, forming the principal food staple. If the roots reach the water all is well, as with my Palms; if not, and water can be got from deep wells, the Arabs accept the necessary labour and water them.

It is a remarkable fact that most of these marshes and oases springs are strongly impregnated with salt, which seems to suit the tree. The native Arabs get accustomed to these salt waters and thrive on them, but it is a great difficulty with Europeans, and is one of the greatest drawbacks the French troops have to encounter in their campaigns in and occupation of the desert oases. The young Date trees can be planted in soil the water of which is so greatly impregnated with salt as to be undrinkable even by the natives, and that without suffering in the least. They can, it is said, flourish in water containing as much salt as a drachm to a pint. These deep waters are easily reached by artesian wells, which the French are introducing all over the region of the oases at the base of the Mount Atlas range or within moderate proximity.

No other fruit tree thrives, nor do vegetables thrive, in these saline soils, and the wanted fertility of the oases, except in the case of the Date Palm, is a fable; moreover, in Southern regions, singularly enough, deep shade, such as that given by groves of Palm trees, all but destroys vegetation underneath. Light does not seem to penetrate under shade as in the North, deep shade all but killing ground vegetation: I see this exemplified in my garden. To give partial shade to a patch of artificial grass on a terrace I formed a canopy with a very vigorous *Buddleia madagascariensis*.

I have been obliged to thin it out, for the grass would not grow underneath as it would have done in England. This fact is general, I believe, in the South of France and in all countries where the sun is ardent and the air dry. Light is broken and more diffused in northern regions with a cloudy sky.

Date Palms seem to thrive best in sandy, granitic, schistic soils, but in the proximity of calcareous rocks or disintegrated calcareous soils, at least it has so seemed to me. The sands of the oases of Sahara lie on calcareous rocks, and are watered by rain falling on calcareous mountains. At Bordighera, on the Riviera coast, where these Palms grow in great luxuriance, the soil is principally sand, brought down by the Roya river from granitic mountains, but this sand lies on calcareous rock. In my garden the soil is entirely calcareous, but with plenty of water, as I have said, Palms grow rapidly. The deduction from the above facts is that lime and salt might be advantageously introduced in the artificial cultivation of the Date Palm, and perhaps of other Palms, and that in their period of summer growth they cannot have too much water.

In conclusion, I would add that I have at home at Weybridge a dozen Palms—*Phoenix dactylifera*, *Phoenix palmato*, *Chamærops humilis*, and *Livistona australis*—which I imported from Algerian years ago, and which have ever since then passed the four summer months in the garden, plunged in the soil. They are planted in the long cylindrical pots I introduced some years ago (30 inches deep), now known as Palm-pots. They are at present fine large plants, and pass the winter in an unused washhouse through which passes a brick flue from a stove. The temperature has generally been between 40° and 50° Fahr. In summer we water them freely, and they are very ornamental in my garden. I put them out June 1, and take them in October 1. My gardener generally gets the prize for Palms when he exhibits in the local flower shows in competition with regularly stove-grown Palms, and my example proves that the hardy Palms might be much more utilised out-of-doors in summer than they usually are. The position of my Weybridge garden is by no means exceptional. We

are very liable to late frosts in spring and to early frosts in winter. But a few degrees of frost does not inconvenience the Date Palm in the least. He has to bear it wherever he grows. According to Canon Tristram (*The Sahara*) hoar frosts are frequently seen at sunrise in the oases of the desert during the winter. *Henry Bennet, M.P., Mentone, March 7.*

COOMBE BANK, SEVENOAKS.

THIS charming country seat, the residence of V. Spottiswoode, Esq., President of the Royal Society, is situated about half way between Westerham and Sevenoaks, Kent, in a district which for picturesque-ness is not surpassed in the whole county. There are five entrances to the estate, all of which intersect the grounds at different parts where the park scenery is most beautiful, but the drive from Sevenoaks is the principal one and brings the visitor to the east or carriage front, from which there is a magnificent prospect. The mansion stands on a commanding site and is a substantial oblong block in the Elizabethan style with four towers projecting slightly from two sides of the building. Early Roses and other flowering and ornamental creepers are successfully grown upon the walls. The house and grounds are lighted with the electric light, which has a grand effect, especially in the vicinity of the lake on the north side of the mansion and upon the south side upon the margin of a steep slope clad with various kinds of trees and underwood overlooking the Warren Park, a sweeping valley surrounded by wooded elevations of considerable height. At night the beauty of the scene is very great, but only those who have been through the grounds and understand their formation can form any idea of the rich diversities which they present of rocks and rugged slopes, of fine trees, of masses of low evergreens, of velvet lawns, of valleys fertile and verdant, watered by the river Darent, which flows along the Westerham valley and through the south side of the park. Within the mansion the electric wires appear to the naked eye no larger than threads. They are run round the principal rooms under the ceiling, and the little Swan lamps are suspended from them by other wires of the same thickness about 2 feet in length. The lamps can, of course, be increased or diminished at pleasure. The small wires are also conveyed to the chandeliers and the lamps fixed to them in any numbers that may be desired. Outside the mansion a large electric lamp is fixed to each corner of the building, the whole arrangement giving the most complete satisfaction.

The terrace walk upon the south side is over a quarter of a mile in length, having fine rows of Beech upon either side, and the slope facing the park thickly planted with evergreens, among which there is a splendid row of evergreen Oaks peeping above them. The villages of Chislehurst and Ide Hill are noticeable objects from here, and the north park is rendered interesting by its view of Knockholt Beeches and the rising hills beyond. There are two noble Celars at the north-west corner of the mansion. The west front is strikingly attractive, being bounded with fine trees, including handsome specimens of English Yews upon the south, which convey the eye westward to Brasted church—a conspicuous object from the steps of this side of the mansion. The spire of Sunridge church towering above the adjacent woods is also visible from the south-east corner. A large Cedar of Lebanon at the west-end of the terrace is said to be the largest in England, and is surrounded by a distant ring of large Beeches beautifully feathered to the ground.

Upon the south-west side of the terrace are the sandstone rocks, one of the greatest attractions of the place. These caves, which are scooped out of the greensand rock, are said to have been a hiding place for smugglers in days gone by, but whether this be so or not certain it is that they are none the less interesting to the visitor. Hardy Ferns and other suitable plants are grouped in front of the caves, and there are also one or two mineral springs oozing from the rocks, which is a further attraction. The gardens are upon the east side of the house, and the woodland walks are very prettily laid out, and bordered in many cases with *St. John's Wort*. Perhaps the most charming spot is that in front of the Fern and Camellia house, where there are several beds of a rustic character, and the Warren Park, previously alluded to, sweeping away to the river Darent. There are fine specimens

of Ferns and Camellias in the fernery, comprising Cibotium regale, Dicksonia antarctica and squarrosa, and Alsophila excelsa. The plants are well grown specimens of their respective kinds. Before reaching the walled-in garden I noticed a good orchard of healthy young fruit trees, which bear good crops of fruit.

The kitchen garden, a rhomboid or square slightly squeezed out of shape, is in three divisions, enclosed within brick walls. The walls of the first division are stocked with an assortment of choice hardy fruits, and the second division is arranged in the same way, except the south wall, which is covered in with glass. A new range for growing a succession of Peaches, Strawberries, and other fruits, as well as plants for various purposes, either for the flower-garden or for producing cut flowers, of which large quantities are required at all seasons. The south wall of the third division is covered with two ranges of vinerias and a plant-house. The show-house is gay with splendidly grown specimens of Azaleas, and several fine Orchids, including Dendrobium Wardianum, Statiche profusa, and flowering Begonias in variety. The Vines are worthy of the fine houses in which they are grown and of the grower, upon whom their condition reflects the utmost credit. They are fruitful and vigorous, and promise to bear heavy crops as they annually do.

There is a range of small forcing-houses in four divisions, well appointed in every respect, in which Cucumbers, Melons, Strawberries, and plants are forced with success—early Strawberries being a grand crop. Flowering plants of Azaleas, Hyacinths, Deutzias, Eriostemons, Kennedys, &c., are kept in a cool-house, and specimen stove and greenhouse plants are grown in several other structures of the usual type, such as Allamandas, Clerodendrons, Stephanotis floribunda, Pancratium caribæum, Ficusæ, Ixoras, Dipladenias, Anthuriums, and many others. Mr. Bolton is a successful plant and fruit exhibitor, and an enthusiast as well. Every department of the garden is in high cultural order, giving evidence of a liberal employer and discreet management upon the part of those who are responsible for results.

Reporter.

NOTES FROM DUBLIN.

GLASNEVIN.—Few gardens can compare favourably with this: the advantages of its natural formation, with its gently undulating surface, its river alongside and its great wealth of fine old trees, renders it at all seasons an interesting and beautiful place; its natural advantages are also much aided by the care and skill which Mr. Moore bestows on it: everything is neat and tidy, the subjects well arranged and properly labelled with the least obtrusive label. In the houses the different varieties of Hakea, Grevillea and Banksia are so very beautiful and attractive as to cause one to regret the decline of these always lovely plants in public estimation—several fine specimens, particularly of Hakea Victoriae and Banksia speciosa with its singular bottle-brush-like formations scattered among the branches, being quite studies, an immense plant of that most beautiful of all weeping plants, Grevillea Manglesi being equally lovely. The next great feature in the great tropical houses are Brownea grandiceps (20 feet), covered with bloom; and an equally large specimen of Brownea ariza, more beautiful still, and bearing innumerable large heads of orange-scarlet flowers. It is pleasant to note that here the Bromeliaceous plants are being worked up; even now a large collection is classified, and at some future time an immense and full collection may be expected. The class sadly wants taking up. The immense plants of Palms and Tree Ferns, frequently noted before, are clean and vigorous as usual. The house containing the species of Rhododendron and the immense collection of Ericas and New Holland plants is a sight to remember. The Filmy Fern-house is at present a wilderness of fresh green seaweed-like foliage. These things are grown quite without heat, as they always must be to keep them good. The numerous collections of Orchids contain many rare plants, all in good condition, and a fair percentage in flower—among an immense bank of them arranged with pretty foliage plants we may enumerate a few of the more striking:—Cymbidium Lowianum, Cypripedium Dayanum, C. Veitchii, C. Hookeri, C. Argus, C. Lawrenceanum, Uropidium Lindleyi, Lycaste fulvescens, L. Skinneri, L. Lawrenceana, L. cruenta; Vandas, many, including Vanda gigantea; Cattleya

Trianae, Dendrochilum glumaceum, D. filiforme, Dendrobium Wardianum, D. leucoleum, Phalenopsis Schillerianum (a fine variety), Oncidium leucochilum, Angreum eburneum, and many more. The Sarracenia, Nepenthes, Droseras, Disas, are fine as ever, and the immense plant of Darlingtonia bears pitchers over 2 feet in height. The whole of the garden is interesting, and when viewed as I saw it under a bright sun and with a healthy breeze it is a treat indeed.

TRINITY COLLEGE BOTANICAL GARDENS.—The whole of the outdoor part of these gardens is devoted to hardy herbaceous, alpine and bulbous plants and shrubs, and nothing could exceed their beauty at this season. Here for the first time in my life did I fully realise the meaning of a permanent hardy plant garden. No other class of plants could possibly give such brilliant flushes of colour in the present, nor promise a greater display for the future than these. Let us note a few of the objects which form the most telling points. Here and there great patches of Anemones many feet across, bright and clean, gracefully nodding their heads in the gentle breeze, the most brilliant and precocious of them being *A. fulgens*, which here bears flowers often 4 inches across, and of an intense glowing scarlet unknown in any other flower. Then great patches of all the varieties of *Aubrietia* placed side by side for comparison, for Mr. Burbidge, although a true artist in the arrangement of his plants never loses sight of the botanical requirements of the place.

Frequently on rock and in border we come across great patches of the varieties of *Saxifraga oppositifolia* generally planted together, the light and dark rose varieties being prettily intermingled with the pure white one, each clump bearing thousands of flowers. These masses while growing in a natural manner beat any outrageous carpet bed for neatness, and their untrained beauty even when not in flower far exceeds anything that the toilsome labour of the shearing gardener can produce. *Orobus verna* is lovely here, and *Rhododendrons præcox* and *barbatum* very showy, particularly in the distance when the eye has to range over huge masses of *Aralias* white as snow, various coloured *Crocuses*, and large patches of the different *Scillas*. *Anemone penina* is pretty everywhere, but it appears to greatest advantage growing naturally on the turf. This arrangement of plants is much studied here and its effect is exceedingly good, everywhere in the grassy glades a few artistically placed flowers greatly enhance the beauty of the scene.

But amid the maze of beauties one gets lost; let us therefore only just notice the wonderful collection of *Narcissi*. All the sorts in cultivation are here, and many of them by the thousand. *Daffodils* everywhere—in the grass, in the wild garden, and properly classified, in the trim, but to me melancholy-looking botanical ground. The *Hellebores* are also here represented by a full collection. They are now in great beauty, and are in themselves well worth going to see. I thought I knew *Helleborus foetidus*, but when I saw it with over 400 flowers I doubted it. The *Hollies* and weird-looking *Arbutus* are wonderful, many of the specimens being 30 feet high, and nearly as much across, fresh and shining. We must not omit to notice the edgings of the borders and the cappings of the walls, which are being made very neat by using up spare stonework to form seats and low rock for the reception of suitable close-growing plants. In this way the only really pretty edging I have ever seen is produced, and in several places the irregular, verdure-clad tops of the walls altogether changes and extends the scene, forcibly reminding me that Mr. Burbidge, the designer, is an artist as well as a plantsman.

Hastening by the rockery and pond let us notice a few of the good things under glass here; in spite of the old-fashioned and often inconvenient construction of the houses, everything seems flourishing and going on instead of back. Among the Orchids at present here are in bloom or bud a fine plant of the true old *Cattleya Warscewiczii* delicata, *Cattleya labiata*, several fine plants; *Dendrochilum glumaceum* and *D. filiforme*, every one's pet; *Cypripedium Dominianum*, C. Boxalli, C. villosum, C. javanicum, C. niveum, C. Harrisianum, C. pardinum, several *Lycaste* Skinneri, *Cymbidium Lowianum*, *Odontoglossum* and *Masdevallias*, some fine varieties of *Coleogyne cristata*, *Angreum eburneum*, several *Dendrobes*, the most noticeable of which was a grand variety of *D. primulinum giganteum*. Here also in the warmer house we find the rare *Phalenopsis*

violacea and an immense plant of the old form of *Phalenopsis grandiflora*, with leaves over a foot in length, and large many-branched spikes. As a single specimen this now rare variety is far superior to those of recent importation; it grows three times the size of the other, and is easily distinguished by its long unequally lobed pointed leaves.

In the greenhouses, among a number of wonderful things we find fine plants of the rare *Nantheorhiza hastilis* and *quadrangularis*. The warm houses are skilfully arranged with Fitcher-plants, Ferns, Palms, and other fine-foliage plants, the edges of many of the stages having *Panicum*, *Tradescantia*, *Fitonias*, and mosses creeping over them, while the walls are mostly covered naturally with *Maidenhair*, which greatly improves the appearance of the houses, and helps to keep a healthy moisture in them. The filmy Ferns here are grand—as in most places in Ireland—and the *Droseras* and *Disas* equally good. Altogether Mr. Burbidge must be complimented on the success which has attended his efforts to produce lovely hardy flowers, effectively arranged without their botanical interest or use being in the least interfered with, and finely-grown plants in houses of that comfortable temperature which makes a visit to them so pleasant.

MOUNT MERRION.—Always fresh and fair with great beauty of its own, and a grand panorama of beautiful views of sea, mountains, and city, is now in fine order. I found Mr. Welch with his children, the Orchids, and very pleasantly they seemed to be looking at him too. The whole collection is in fine condition, some few things being extraordinarily fine—*one plant of Lælia superbiens* with a spike to feet long, bearing thirteen large flowers, being worth a long journey to see. *Cypripedium villosum aurum* is also very distinct, and quite the best variety of C. villosum; C. Boxalli, a grand variety, with fine black-spotted dorsal sepal. *Mesospindium sanguineum* is here represented by a splendid variety, which makes it a very desirable plant. The air of Dublin seems to be very beneficial to Orchids; wherever you see them they are healthy and without disease.

MOUNT ANNVILLE.—Here the principal features are the wonderful natural fernery, rockery, and cascade under glass (in this place any lover of Ferns could spend a whole day), the Orchids, and the immense collection of fine-foliage plants and Ferns. In the extensive houses here it would not be difficult to pick out enough large specimens to furnish forth the whole display at a large flower show; how such an immense collection gets the care and attention it most certainly must have with an ordinary garden staff is beyond my comprehension. The only thing that will account for it is that Mr. Fisher must be a clever organiser of the labour at his command. Amongst a general collection of well grown Orchids a good feature is a houseful of fine plants of *Vandas*, most of them in flower—their beauty must surely pointing to the fact that their star will again be in the ascendant shortly. The conservatory is the gayest I have ever seen at this season, flowers being exhibited as thickly as possible in cleverly arranged groups among Ferns and fine foliage plants. *James O'Brien*.

SPRING FLOWERING DECIDUOUS TREES.—Of all the useful subjects that are either in flower or coming into bloom just now, two stand out distinctly as having conspicuous merits. These are the Cherry Plum, known as the *Pyrus myrobalana*, and the well known Almond. Both are most profuse of bloom this season, and this is their general characteristic. The former is found here and there only, possibly because its fruit is of inferior quality, though useful for tart making and other purposes. At Chiswick and other places, good sized standard trees are in full bloom, a considerable way ahead of other Plums in this respect. The branches are literally sheets of white blossom for their full length. It deserves a prominent place in every shrubby border, though it is seldom met with. Being of vigorous growth, it should, when planted, be allowed ample space in which to develop itself. The Almond tree is more generally grown, and it is this season most prodigal of its blossoms. Whenever it is to be met with, thick clusters of its pretty pink flowers, that cover the branches from base to tip, give it an appearance most welcome at this season of the year. The colour of the flowers is in marked contrast to the snowy whiteness of the Cherry Plum, but both are extremely attractive.

Orchid Notes and Gleanings.

CELOGYNE MASSANGANA.—The illustration of this fine plant, which accompanies the present number, was taken recently in Mr. B. S. Williams' nursery at Holloway. The colour of the flowers varies under different conditions—the specimen figured and described in the *Orchid Album*, t. 29, having a deeper yellow tint in the flower-segments than others that we have seen, and in which the colour was creamy-yellow, with the lip light brown or ash coloured, with yellow stripes, and edged with white. The plant is a native of Assam, and was named in honour of Mons. D. Massange, of Baillonville, in whose collection it first flowered (see *Gard. Chron.* 1878, x. 684). It is a free-growing plant, of

to those in his own establishment; he is, in consequence, able to select for illustration the finest and most distinct varieties, and those most remarkable for rarity or other characteristics. The technical descriptions by Mr. Moore are in English, Mr. Williams himself supplying the cultural notes. Incidental notes relating to remarkable Orchids, or to noteworthy collections, are also given, which add to the interest of the book. The particular plants illustrated will be catalogued under the head of Plant Portraits.

DENDROBIUMS ON BARE BLOCKS.—There are some very fine plants of *D. Pierardi* growing in Messrs. Veitch's nursery on this system, and a wonderfully fine plant of *D. noble* hangs in a pan, from which the roots cannot now derive any sustenance, so that it also may be practically termed a block plant. There is also an immense specimen of *Ceologyne cristata* at present in flower at Messrs. Veitch's, but what is most remarkable in this plant is that one bulb

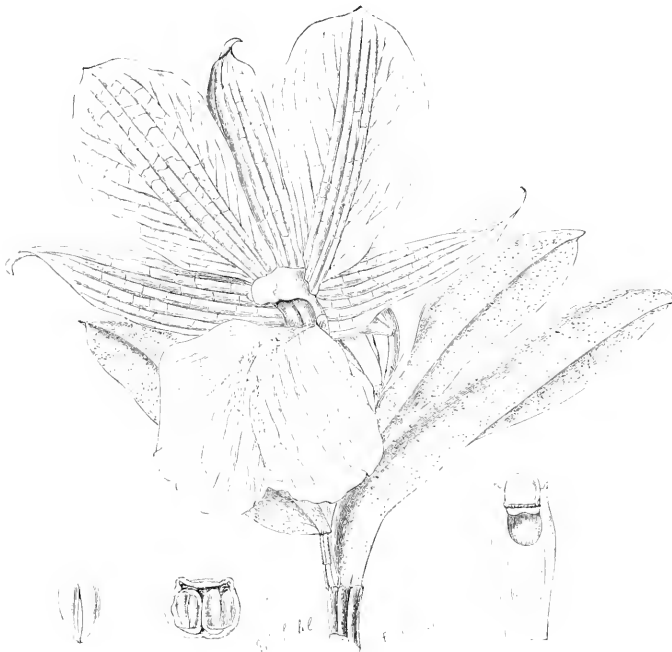


FIG. 54.—DENDROBIUM FORMOSUM GIGANTEUM.

easy cultivation, requiring plenty of light, shading from the burning sun, and plenty of moisture, especially in the growing season.

PHAIUS GRANDIFOLIUS.—I saw a fine specimen of this lovely old Orchid in bloom the other day at Nonsuch Park, Cheam. It had five spikes produced from one bulb, the tallest measuring about 5 feet, and the others nearly so. Standing as it did on a centre stage reaching the roof, it looked grand indeed. G. K.

THE "ORCHID ALBUM."—We have several numbers of Mr. B. S. Williams' *Orchid Album* now before us. The illustrations are noteworthy, not only for their faithfulness, but from the care which has been taken to select fine varieties, such as Mr. Williams' variety of *Laelia purpurata*, Mr. Day's *Phalenopsis amabilis*, *Cattleya guttata* Leopoldi, *Dendrobium Ainsworthii roseum*, *Laelia xanthina*, *Cattleya velutina*, and many others. Mr. Williams has access to many of the finest collections in the country in addition

has thrown up two fine spikes. Has this occurred before?

DENDROBIUM FORMOSUM GIGANTEUM.—Orchid growers who have once seen this fine variety are sure to wish to add it to their collections. It is a variety of *D. formosum*, and like it, has pendulous spindle-shaped pseudobulbs, with racemes of very large white flowers, with the lip blotched with orange-yellow. The plant flowers in early summer, and lasts several weeks in flower, having, in addition to its beauty, the additional charm of sweet fragrance. The plant is a native of the eastern Himalayas.

CATTELYA TRIANE YAKS.—Amongst numerous fine forms of *Cattleya Triane* in the Messrs. Veitch's nursery, *C. Triane formosa* may be described as the finest. The sepals and petals are pure white, with just the faintest suffusion of pink. The centre of the lip is yellow, the margin broad and well defined, of a pale lilacy-purple colour.

COLONIAL NOTES.

A COCOA-NUT GROVE IN QUEENSLAND.—On the Pioneer River, exactly opposite to the town of Mackay, is to be seen one of the most remarkable sights in all Australia, the Cocoa-nut groves of Mr. Barnes. It is some sixteen years since Mr. Barnes conceived the idea of growing Cocoa-nuts, and he selected his present homestead with that particular view, and it appears to be eminently suitable for the purpose. The land is a low-lying sandy and vegetable deposit, at one time covered with Mangrove trees, and just about on a level with high spring-tide mark. In fact, dams are made in places in order to keep back these tide waters.

Mr. Barnes has a grove of 1200 of these beautiful trees now healthily growing upon 10 acres of land. The oldest planted are perhaps some 20 feet in height, but the majority are not yet up to that. The age at which these trees commence to bear fruit varies much, some beginning at four years old, and some not for some eight years later. When once they commence fruiting they continue without intermission—that is, a flower-stem shoots out from the base of every leaf as it is formed, so that fruit in all stages, from the flower to ripeness, will be upon the one tree at the same time. The fruit of the Cocoa-nut improves with the age of the tree, and these at Mackay are not yet up to their best, therefore Mr. Barnes has not as yet troubled about looking for an export market. The Kanakas on the various plantations buy a large number, so that it pays the proprietor better to sell, say, one-half the produce at a retail price, and let the other half waste, than to hunt for a distant wholesale buyer. For the same reason he has not commenced to dry the fruit, or express the oil, or utilise the fibre. Thus any selector thinking to go in for Cocoa-nut growing will see that it is entirely owing to the circumstance of Mr. Barnes being so close to a large town that the industry has been made to pay.

In these gardens there are many other trees as well, the most noticeable being Date Palms, of which there are 300 planted. These grow quite as well as the Cocoa-nuts, and are equally handsome. Between 300 and 400 Orange trees also are planted cut, most of which are in full bearing; some of these were evidently suffering from dryness or poverty of the soil, and a great many were injured from having been planted too near the Date trees, which rival the Bamboo in the way in which their roots ramify and rob the moisture from every neighbouring plant or tree. Many Bananas and Pine-apples are grown, and Mr. Barnes adopts the safe plan of frequently changing the ground upon which he grows these, and also plants them wide distances apart. Melons in great quantities are also grown, and are ripe in early September. As this is a full month sooner than they appear in the Brisbane market, doubtless a trade will some day be carried on in the way of the North exporting them to the South. *Queenslander.*

ADELPHI. *January 19.*—We have to contend with a very dry summer. Since the beginning of October only about 1 inch of rain has fallen. Yesterday (January 18) the heat rose to 112° in the shade, and 180° in the sun. The latter is the highest without exception hitherto recorded, and exceeded anything yet experienced. During the previous winter, in August, the thermometer registered between 2° and 3° below freezing point, which sufficed to kill or injure many of our tropical plants out-of-doors. The garden is now suffering much, and the effects of the heat, especially on European forest trees, alpine and other tender plants, is disheartening. The leaves of the Poplars, Ash, Willows, &c., are burnt as if a fire had run over them. *R. Schomburgk, Botanic Garden, Adelaide.*

FRUIT NOTES.

Apple Sturmer Pippin.—Now, when dessert fruits are scarce, I find this Apple most acceptable at the table, for it is a great favourite with every one who tastes it. The Ribston Pippin is its parent, so that one is not surprised at its excellent flavour. There are two great mistakes often made respecting it—first, the fruit should never be gathered till the middle or end of October, and it ought to be stored away in a very cool and somewhat damp place, where it will keep fresh and plump till May, or even June. The tree is hardy, and a good bearer. *J. East, Eridge Castle.*

Florists' Flowers.

NEW ABUTILONS.—The group of new varieties from Mr. J. George, which was exhibited at the meeting of the Royal Horticultural Society on Tuesday last, marks a decided advance in point of colour. The hue of fiery orange, which has been deepening towards red of late, has now assumed that colour in the later productions; and the Floral Committee wisely ratified the advance by giving to the best of the reds—*La Grande*—a First-class Certificate of Merit. This has very large and well formed flowers of a decided pale-red tint, is good in habit and bloom, and remarkably free. Whether this result came from starving the plant or not remains to be seen, but it was a great point in its favour. It did appear as vigorous as any of the others, but it was characterised by a more marked freedom of bloom. The deepest coloured red was *Dazzle*, of a very bright dark red, the flowers of fine form; *Lustrous*, bright red, the flowers of good globular shape; and *Splendour*, bright red, also of good shape. These red-flowered varieties are scarcely distinct enough to be included in one batch, though they do differ in small degrees in shape and colour. Criterion, maroon-red, deep in colour, is quite distinct and good, but inferior to *Emperor*, which is in the same way, but deeper in colour, and very large and striking. *Cloth of Gold*, also awarded a First-class Certificate of Merit, is the best yellow yet seen, the colour clear pale gold, and the flowers of fine form. The colour appears at its best and in its most striking aspect when the flowers are sufficiently raised to admit of the eye fastening on the interior of the blossoms. *Orange Gem* is of a decided orange-red hue, but with the blossoms expanding too much to give them a symmetrical appearance. Of pink shades, *Enchantress*, pale rose-pink, is very attractive in colour; and *Mrs. Garfield*, silvery-pink, has very large expanding flowers, not unlike the shape taken by some of the *Fuchsias* with large mauve corollas. The *Bride* has pretty blush-pink flowers, of a very pleasing character.

It is as summer bedding and as autumn and winter flowering plants for a warm greenhouse, that the *Abutilon* is most useful. Young plants grown on during the summer months answer best for the latter purpose. They want to be on a raised stage, near the glass, in a warm and slightly moist house. This is how Mr. Barron treats his plants at Chiswick, and with so much success. Mr. George appears to have hit upon a compact-growing section of *Abutilons*, and quite miniature plants bore several flowers. Whether this strain will prove useful or not remains to be seen, but a compact habit of growth is not always an improvement, unless the plants are required to fulfil some special purpose.

CYCLAMENS.—Never before perhaps has such a fine batch of *Cyclamen persicum* been submitted to public view as that Mr. Henry Little staged at the Royal Horticultural Society's meeting on the 14th inst. There were about 200 plants, generally of large size, finely grown, splendidly flowered, and with scarcely an inferior form among them. They were all selected seedling plants, blooming the second year, and not only was there a decided preponderance of crimson and purple shades, but the blossoms of these were very fine, indeed they rivalled in size and symmetry the finest of the large-flowered section. No doubt it is comparatively easy—given the necessary skill and knowledge of the plant to grow them in a satisfactory manner—to bloom a batch of seedling plants, but the skill of the cultivator is brought into play when the bulbs or corms have to break into growth for the second year's flowering. It is then that great care is required, and success is to a large extent a matter of care and attention. Mr. Little's plants had all the vigour of seedlings combined with the highest quality of flower. *Crimson Gem*, awarded a First-class Certificate of Merit, has very large and handsome clear crimson flowers, of great size and fine form. This bids fair to make a rare parent for crossing and seedling purposes. *White Gem* is unquestionably the finest white yet raised; the flowers of great size and of singular purity, as well as being very symmetrical. This also was awarded a First-class Certificate of Merit. *Pink Queen*, like the two foregoing, belongs

to the large-flowered section, but obtained a Second-class Certificate only—an award which is of very questionable value. The flowers are of a pretty pale rose colour, and they are produced with great freedom. A variety named *Striata* is of a very novel character, the flowers having a pale rose-lilac ground distinctly striped with white. This variety may, perhaps, be made the progenitor of a distinctly striped section, but it will need to be isolated, the *Cyclamen* being so prolific of pollen that a slight shaking will distribute it. It is of a versatile character in consequence; and though a variety may be carefully fertilised with its own pollen, it will in many instances produce a varied progeny. The *Cyclamen* is being improved with such great rapidity that it is hazardous to predict its future, or limit the extent of its improvement.

CINERARIAS AT REDDEES.—Mr. James' superb strain of *Cinerarias* at Isleworth is now making a brave show, and tells far more forcibly than words can how truly strains can differ. At one time a private grower writes in ecstatic language of the grand lot of flowers he has from seed, and then another writes deploring the loose-petalled starchy flowers which it is his misfortune to possess, and protests that only named flowers are worth growing. Now the remarkable feature of the *Reddees* flowers is the very fine quality seen throughout; there is not a thin flower amongst them, but in every case the petals are stout and broad, overlapping each other, and with that singular regularity which marks now any first-class strain. A box of gathered blooms all showing this notable peculiarity naturally leads to the suspicion that they have been specially dressed for the occasion. A single glance at the fine heads of bloom in the houses at *Reddees* will suffice to show that, so far from being an artificially produced feature, it is but the product of good culture applied to a fine strain. In all directions we see flowers that are absolutely perfection in form and in colour showing some novel and most brilliant hues. Self largely predominate, the most striking perhaps being a rich mazarine-blue, with a red tinge at the base of each petal—really a grand trust of bloom. Other striking hues allied to superb quality are crimson-maroon, crimson-magenta, bright magenta, rosy-cerise, violet-blue, deep purple, and many other tints, whilst there are numerous bicolors, of which fine forms are found in *Sarah Winter* and *Master Colvin*, both very large flowered kinds, having broad belts of heavy red hues. None of the plants are now grown as specimens, but all are in 48's, thus giving room for a large variety. If all *Cineraria* strains were as fine as Mr. James' there would be no room for complaint, but probably it is because this one and some few others stand out so markedly in their quality that private growers of inferior strains find cause for dissatisfaction.

ANEMONES.—The double form of *Anemone stellata* is a poor thing compared with the broad-petalled and large-flowered single and semi-double forms of *fulgens*. I have them all here in a lump, and they are doubtless the produce of a batch of seedlings, the variations in form and shade of colour being considerable. Growing here on a warm south border that is fully exposed to the sun now, and in a hot position during the summer, the plants began to throw up bloom early in November, have continued blooming all through the winter, and for the past month have been glorious. A lady who called in the other day exclaimed, "Oh, dear, this reminds me of Nice!" and doubtless it did. But I think position has much to do with this early and abundant bloom, for I have heard complaints from several amateur gardeners, whose roots had been planted in cooler or moister situations, that they could not get bloom, or but very little. Perhaps enough account has not been made of the fact that this *Anemone* is a native of a very warm clime, and strong sunshine is necessary to ripen the roots, and fully mature them for free blooming. I know that last summer mine, in the long spell of heat and drought we then experienced, were nearly roasted, but they have never bloomed so superbly as this season. Exposure to really strong sunshine for several hours, however, has its disadvantages when the blooms are at their best, as it causes them to expand to an extent that is almost ungainly. The richest tints are seen in flowers that are about half open, and always on broad-petalled ones. The more the petals are narrowed and increased the paler the colour. No doubt the diurnal opening and closing of the blooms has much to do with their comparative endurance; but once the blooms are cut the motion ceases,

and the flowers remain expanded. In vases mixed with other white flowers and green foliage the scarlet *Anemone* is singularly attractive; but, praise and extol *Anemone fulgens* as much as you may, literally the queen of the *Anemone* family is found in the beautiful garden varieties of *Anemone coronaria*, for not only are these more enduring, often from established clumps blooming for six months, and even longer, but the deep hues and many varied colours found in a good strain allied to the stout massive petals and good form renders these *Anemones* immensely attractive. I have a scarlet so brilliant that before it fulgens literally pales its inefficent fires; and blues, purples, reds, whites, and mottled flowers in great variety give in a mass a brilliant display such as may well rival the *Tulip*. Then all the *coronaria* family are hardy and not difficult to please in the matter of culture, though well repaying for extra care and attention. But they are any one's flower to raise from seed and increase enormously. Last spring I saved seed from a few good coloured blooms, and as soon as I had got all that was wanted, and it was thoroughly ripened, I sowed in a broad shallow box in fine sandy soil, and stood the box in a frame, shading somewhat till the seed had fully germinated, which it did in a week or two. In the month of August these seedlings were dibbled out singly into a bed to the number of nearly 2000, and I believe the major portion of them will bloom at once. Next year, given double the room they now have, they will make a mass of bloom that will be really magnificent. No other hardy plant can give such good results in such a short time, for these *Anemones* are not only for to-day, but literally for years hence. I fear we have not made much progress in the production of the single and semi-double forms for forty years, since they were grown to a degree of excellence not since seen. The really double forms of *coronaria*, of which there are many named sorts, are indeed beautiful; literally the colours are gorgeous. I am growing some of these in pots this year for the first time, and hope to get a superb show of flowers presently. If some few enthusiastic florists would but take up the culture, improvement, and exhibition of the *Anemone* they would soon work wonders in helping to beautify our gardens.

A. D.

PLANT PORTRAITS.

CANNA IRIDIIFLORA EHEMANNI, *Garden*, January 21.—A noble variety, with groups of pendulous crimson flowers, each 3 inches or more in length.

CATTLEYA ATKEA, *Garden*, Feb. 4, 1882.—A very beautiful *Cattleya*, nearly allied to *C. Dowiana*, a native of Costa Rica, while this is from New Grenada.

DRACENA FRAGRANS VAR. MASSANGANA, *Bot.*, Hort. 1881, t. xvii.—Leaves elliptical, acute, shortly stalked, shining green, with a yellow centre. MM. Jacob-Makoy, Liege.

LONICERA ALBERTI, Regel, *Gartenflora*, t. 1065.—A very pretty dwarf glabrous shrub, with spreading branches and small, nearly sessile, linear oblong, sparingly toothed leaves. Flowers rosy, in pairs, with long slender corolla-tubes and spreading 5-lobed limb nearly an inch across. Native of Eastern Turkey. It is likely to make an attractive hardy shrub.

LYCOPodium DICHTOMIUM, Swarz, *Gartenflora*, t. 1067.—A species with rather thick, fleshy, forking stems; leaves in many rows, linear, spreading. West Indies.

MAXILLARIA HYACINTHINA, Kchb. fil, *Gartenflora*, t. 1066.—A native of Caracacs, with sulcate pseudobulbs, ovate-oblong leaves tapering at the base, and spikes of medium-sized white flowers springing from the base, of no special value as an ornamental plant.

MODIOLA GERANIODES, *Garden*, January 28.—A pretty *Malvaceae* annual, with deeply-cut palmate leaves, with linear toothed segments and rosy-lilac flowers nearly 2 inches across.

PARNASSIA NUBICOLA, Wallich, *Bot. Mag.*, t. 6009.—Leaves spatulate, stalked; flowers on long stalks, greenish-white, with the structure of the European Grass of Parnassus. Himalaya. Hort. Kew.

PITCAIRNIA ALTA, Hasskarl, *Bot. Mag.*, t. 6066.—A handsome West Indian Bromeliad, with loose tufted strap-shaped recurved leaves, glabrous above, white-keeled beneath; flowers elongated, scarlet, in loose panicles. Hort. Pall. It is the *P. ramosa* of Koch, but not of Jacquin. Hort. Kew.



The Kitchen Garden.

As a consequence of the unusually mild winter—if the term be applicable to the weather which we have experienced during the last three or four months—the supply of Broccoli is good and plentiful—especially good at the present time being Cooling's Matchless, Backhouse's Winter White, and Dilcock's Bride. Following these are Richmond Late White, Frogmore Protecting, Chappell's Cream, Carter's Champion, and Cattell's Eclipse—all sterling varieties. Seeds of Conner's Colossal Asparagus should now be sown in drills 2 inches deep and 12 inches apart, in a border where the soil is of a light, rich, and sandy nature, for transplanting the following year. Seakale seeds should also be sown, either in a nursery bed, in drills 2 inches deep and 1 foot between, in patches (about three seeds in each patch, which subsequently should be thinned out to one), 6 inches apart in the row, or else in the situation in which the plants are ultimately to be forced, in rows 2 feet apart and 18 inches in the rows, in light rich soil, from 2 to 3 feet deep. Plantations may also be made from cuttings of the roots, which if cut into lengths of about 4 inches and placed in a box, intermixed with sand, as recommended in our Calendar for October 29, last volume, should be dibbled in from 10 to 12 inches apart and 18 inches between the rows. These thongs, or root cuttings, will furnish plants to be taken up for forcing next November; but if they are intended to be forced in their permanent situation by the aid of pots, dung, and leaves, then the distance should be as recommended above—2 feet between the rows and 18 inches from plant to plant, and the thongs should be set about an inch under the surface of the soil. A sowing of Chervil should now be made in shallow drills; also another breadth of Turnips, Radishes, and All the Year Round Cabbage, and Victoria Cabbage Lettuce; also of the Paris Green Cos, and Paris White Cos varieties. A small sowing of each should be made at short intervals, so as always to have a good supply of young plants wherewith to make frequent plantings in order to maintain a good succession. Make another sowing of Peas every fortnight for the next three or four months of such varieties as Carter's Stratagem, Carter's Telephone, Culverwell's Telegraph and Ne Plus Ultra; also Seville Longpod and Taylor's Broad Windsor Beans; and Spinach in sufficient quantity to meet the demand for the same at the proper time.

FORCING DEPARTMENT: TOMATO PLANTS.—These, whether they are growing in pots, or planted out and trained like Melons to a trellis under the roof of the structure which they occupy, will now—especially in the latter case—require frequent attention in the way of pinching out lateral growths and thinning the leaves, as anything like over-crowding of the shoots and leaves would be prejudicial to success in Tomato culture. The application of water to the roots must be guided by the space allotted to the latter, together with the condition of the plants and the weather; and no stimulants should be applied until the plants have set their fruit, when they should be thinned out—leaving, of course, all the best-shaped and most even-sized fruits. When the plants are in flower a drier and more airy atmosphere should be maintained. Plants which are intended for fruit in pots, and to yield a supply of ripe fruit by the middle of May, should now be ready for shifting into 12-inch pots, which should be amply drained by placing a large piece of crock over the hole in the bottom of the pots, then a couple of inches deep of three smaller-sized ones, filling in the chinks on the top with the smallest, and over them a few handfuls of half-rotted leaves. Thus drained there need be no apprehension of the pots getting water-logged, or the plants when established suffering from being over-watered. The plants should be thoroughly watered the evening before being shifted into the larger pots, after which they will not require being watered until the roots have pushed into the new soil; the latter should on this occasion consist of three parts of good loam and lime-rubble (about one-third of the latter

and one of well-rotted manure. A stiff stick, between 5 and 6 feet long, should then be put to each plant, and the latter secured to it; and if the plants are stood together in single rows, on raised stages, in the forcing-houses to fruit, as is the case here, the sticks which are supporting the individual plants should be braced together by tying a few long ones longitudinally to the upright sticks at about 3 feet from the surface of the pots, which will keep the plants in position when laden with fruit. All lateral growths should be pinched back to within one joint of the main stem, and in other respects treated as recommended in the case of those planted out; and as soon as the pots become filled with roots, and the fruit set, liberal and frequent supplies of liquid manure in a diluted state should be given to the roots. Let the temperature at night range from 55° to 60°, and by day 65° to 70°, running up to 80° with sun.

POTATOS.—Successional pits of Potatoes should be earthed up, and with those in a more advanced stage of growth, together with Carrots and Radishes, watered when the soil becomes moderately dry. *H. W. Ward, Longford Castle, Wilts.*

Peaches and Nectarines.

ALTHOUGH we still have very mild weather, we have had but very little sun during the past few weeks—only now and then having a bright sunny day until the last three days, which have been indeed beautiful. Every advantage should be taken of such favourable conditions by closing early, allowing the temperature to run up, according to the directions given in former Calendars, moistening every available surface in order to induce an early and free growth that will get thoroughly ripened early in the season. Final disbudding and heeling down in the early and second house should by this time be pretty well finished except on late varieties in the second house, of which it is desirable to have at least one tree in each house, so as not to have too many fruit ripe at once, and to prolong the season of each house. This is very essential, and doubly so where there are only two or three houses. Give good supplies of tepid water at the roots as the trees require it, never allowing them to get at all approaching dryness. Weak manure-water may be given to any weakly trees, or to any that are carrying a heavy crop of fruit. Stop any strong leaders or gross shoots that are taking the lead, in order to get an equal flow of sap. Keep a sharp look-out for red-spider, which usually makes its appearance in bright sunny weather, especially where there is any foliage near the pipes. Wash at once with a little weak Gishurst Compound, or a little soap and water, before they get thoroughly established. The trees in succession-houses (third and fourth) will now require disbudding, and the most forward shoots may be heeled down. Fly the syringe freely, and fumigate at once, if there are any signs of greenfly, which is almost inevitable where plants such as Strawberries, &c., have been introduced, and a Peach-house is generally a favourite place to bring them on where there are suitable shelves for doing so. Still keep late houses as cool as possible, only just keeping out the frost when the blooms are expanding. *J. Wallis, Keele Gardens.*

Plants and their Culture.

STOVE FINE-FOLIAGED PLANTS.—These are indispensable subjects in every collection of exotic plants; they add greatly to the general effect, the more so when flowers are somewhat scarce. Attend to the young stock now making good growth. Propagate the necessary quantity to keep up the supply required of all kinds that are used for table plants and other decorative purposes in the household. For this purpose select vigorous, clean, and well-coloured growths of Crotons; cuttings of these in themselves large enough for table plants may be struck readily in a brisk heat and close atmosphere. Large-sized cuttings should be steadied with a stick. Of *Dicranas* the tops may be cut off and struck quickly enough; the tap roots of these will also make excellent plants, taking longer of course to develop the character of the respective kinds. The old stems should also be cut in pieces and struck similar to Vine eyes where it

is desired to quickly increase any given kind. Marantas can be readily propagated by division, now being a favourable time for this operation. Do not overlook *M. tubispatha*; being a deciduous kind, it may during its dormant state be forgotten and allowed to become too dry. The *Peperomias* are very effective plants in a stove, thriving well in partial shade; for the outer edges of groups of stove plants they are very distinct. These can also be increased by division during the spring. In many stoves are to be found damp walls; these, in most cases, could be readily covered with *Ficus repens*, thus turning an unsightly object to a good account, growths of this *Ficus* being at all times valuable for decorative purposes. We have the back wall of a low lean-to stove nearly covered with seedling *Adiantums*; these give a good supply of cut fronds of not too vigorous growth.

The blinds that have been taken down during the winter should now be re-fixed. The bright sunshine now to be expected will be trying to some plants, a little shade to which will be beneficial. During the prevalence of a biting easterly wind or a frost they may with advantage be let down at night, saving firing, and aiding in keeping the necessary moisture in the house. Five degrees can often be saved by keeping the blinds down at night. Shut up early during bright sunshine, allowing the thermometer to rise for a few hours to 85° or 90°. Syringe freely, and damp down the walls and paths. The night temperature may be steadily increased.

FERNS.—Any of these not yet potted should be seen to at once, increasing the stock of those most in request either by spores or division. All the old and shabby fronds may be safely thinned to give room for the proper development of the younger ones. Where any brown-scale abounds this operation should be done all the more severely. Keep the young rhizomes of *Gleichenias* pegged closely to the soil, turning the points inwards where possible, and top-dress slightly with a little fresh soil. Some kinds can be increased easily if, instead of pegging the rhizomes into the old plant, they are secured firmly on small pots filled with peat and sand. When these are considered to be rooted into the pots sufficiently, they may be divided from the old stool and then kept in the shade for a little time. Young growths of any *Gleichenias* proceeding from the sides or terminal points of the old fronds should be regulated, to ensure their proper development. Look to all deciduous Ferns, such as *Leucostegia immersa*; several of the *Adiantums*, and some *Davallias* will now be pushing up their first fronds quickly. Do not let these Ferns be kept too much shaded by other plants or the stems of the fronds will become too much elongated, and not so well able to support the weight.

FORCING PLANTS.—Any of these that are gone out of flower should not be overlooked. *Indian Azaleas* should have their seed pods picked off, and then be induced to make an early growth. *Deutzia gracilis* will flower all the better next year, if, after their flowers are faded, they are kept growing for a time, and gradually hardened off. *Azalea mollis* should be treated likewise. Spineas past their best should also be protected for awhile. Many plants grown for forcing purposes are frequently injured for another season by being placed on one side and neglected after they are gone out of flower.

GREENHOUSE.—*Solanums* that can now be dispensed with should be cut back into the hard wood and started into fresh growth to secure an early set of berries for another autumn. Cuttings that have been struck as previously advised should be potted off and kept pinched for a while; these will make better stuff than seedling plants. Winter flowering Heaths and *Epacris* should be cut down and started into growth again in a little heat to ensure an early set for another season. *Tuberous Begonias* should not be hastened in too much heat, a Peach-house at work seems to suit them very well. Another batch of seeds should be sown of such as *Rhodanthus*, *Stocks* (ten weeks), and *Mignonette* to succeed the earlier stock. Some promising young plants of *Heliotropis* should be potted on for conservatory and indoor work. Of sweet-scented flowers this is an accepted favourite. The kind called *White Lady*, I find, is very floriferous and deliciously scented. Cuttings of *Fuchsia* struck now will give useful plants for the late summer and autumn; keep all the stock now in active growth constantly pinched if stocky plants are valued. *James Hudson, Gunnersbury House, Acton.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Mar. 20	{ Sale of <i>Lilium auratum</i> Bulbs, at Stevens' Rooms. Spring Show at Clifton, Bristol. Folwood Horticultural Society's Show.
WEDNESDAY,	Mar. 22	{ Sale of Standard and Dwarf Roses, at Stevens' Rooms. Sale of Imported Orchids, at Stevens' Rooms.
THURSDAY,	Mar. 23	{ Rooms. Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
SAFER AV,	Mar. 25	{ Rooms.

THE magnificent hybrid *Amaryllis* lately exhibited by Messrs. VITCH and others raise some important questions as to what should be considered the typical form for these grand bulbous plants. As to such matters as robust habit, number of flowers and their colour, there is not likely to be any dispute or difference of opinion. Fine foliage, robust habit, free-flowering qualities, substance of petal, variety, richness and distinctness of colouring—these are all points upon which general agreement may be anticipated. Such otherwise grand flowers as *Leopoldi* are deficient in that only two or three flowers are produced in a truss; on the other hand, many of the Continental forms, though robust and free-flowering, are condemned as not being good enough as to form.

The florist's ideal is a six-parted starlike flower with a relatively short, bold, funnel-shaped tube, and broad even segments, all alike in size and form. Some such form as this, it is obvious, is the one most likely to meet with the approval of florists. The leading principle here is easy to be ascertained—it is that which demands an approximation to geometrical regularity of form, and symmetry and equality as regards proportion. Let it be assumed that this is the principle to be acted on, then it follows it should be acted on in all its details, and stamens upturned at their points and of unequal lengths should be eschewed, and any irregularity of disposition in the matter of colour should be equally condemned.

That is one way of looking at things, but there are other things worth consideration. The form of the flower before it was altered to suit the taste of the florist is something very different. In place of symmetry and geometrical regularity, the flower in a natural state spreads horizontally from its stalk, or is even bent down upon it, and is almost two-lipped. Take the old *Amaryllis formosissima*, for instance—the flower is abruptly bent downwards upon its stalk; the three uppermost segments form one lip, as it were, placed almost vertically, the three lower ones form a lower lip placed at a different angle. Kich as the colour is of these flowers no florist would accept it as a type to be followed, neither should we do so. But we think the florist would do well to consider the probable meaning of that form. No one can look at that flower now-a-days and observe its position, the form and arrangement of its segments, the manner in which the lower ones are rolled round into a tube at the base, the varying lengths of the stamens, and their direction downwards, without being convinced that this deviation from the geometric arrangement of a six-parted, regular, star-shaped flower, has a distinct purpose, and that purpose the fertilisation of the flower by insect agency. The bright colour of the flower, and the abundance of nectar, lead to the same conclusion.

Again, the fact that the stigma is protruded beyond the anthers, and so bent away from them that access of pollen from the stamens of the same flower is rendered difficult if not impossible—a difficulty intensified by the fact that the anthers are ripe at one time, the stigma at another—renders cross-fertilisation a necessity. It is clear then that the flower is, so to speak, adapted for special purposes. Fundamentally, it is, as we have said, a geometrically regular 3-parted flower, with an outer row of three segments, and an inner row of similar segments alternat-

ing with the outer, three outer and three inner stamens, and so on. All this is no theory, it is a fact, as any one may prove for himself by examining a flower in its earliest conditions. The irregular arrangement, the unequal lengths, the varied disposition of colour, are all later developments—adaptations adapted for the benefit of the plant and its offspring.

The florist is apt to overlook all this, and to lay down an artificial standard of form to suit his particular purpose. To this proceeding on his part there can be no objection raised—he is free to do what he pleases; but as consistency to a guiding principle is, to say the least, under any circumstances, desirable—is, indeed, what he aims at—then we may point out that in reverting, as he attempts to do, to the original geometric plan upon which the flower is founded, he should endeavour to carry out the process consistently, else he is likely to produce a meaningless, expressionless flower, which is displeasing to the eye even when the spectator fails to see wherein the source of the unpleasant impression lies. To have a perfectly funnel-shaped *Amaryllis* flower, with the colour regularly disposed, in combination with stamens of unequal lengths and bent downwards, is, to our thinking, altogether false taste, for it is suggestive of something false—of something that no longer exists; it tells of an arrangement of parts and of a state of things no longer of any use—their purpose is gone, their presence in such a shape is an anachronism.

If then an *Amaryllis* is to be judged according to the ordinary standard of form regulating florists' flowers, let the thing be done thoroughly, completely, and with intelligence, else you produce a sort of mermaid or centaur, a monstrosity half one thing half another—a thing the history and meaning of which are, if not entirely destroyed, at least perverted and distorted. In illustration of our meaning we may allude to *Vallotta purpurea*, in which the flowers are erect, nearly if not quite regular, with the stamens of equal length and regularly disposed. Some such form as this, subject to any modification which the nature of the case demands, is in our judgment the standard of form in an *Amaryllis*, at least it is a consistent and intelligible one.

—PROLIFEROUS PINE.—Fine growers know the value of gills and suckers in their proper place, but they are not likely to be greatly enamoured of such a specimen as that now figured (fig. 55). Nevertheless, it is interesting as showing the essential identity of the "pips" in the ripe fruit with shoots. For some reason or other, what we know not, the flowers and fruits have not been developed, but in their place an infinitude of shoots or suckers, each one of which would serve to perpetuate the plant, and as each one would in all probability form a "fruiter" under the ordinary treatment, the peculiar appearance of the parent might be condoned. The specimen was sent to us from Arundel Castle Gardens by Mr. WILSON.

—MENTONE.—We are informed that Dr. BENNETT's garden at Mentone has been placed at HER MAJESTY'S disposal during her stay on the Riviera. We have on former occasions given illustrations of this remarkable garden on the hillsides, facing the sea, where from the hard rocky soil and the fall exposure gardening is carried on with difficulties—difficulties, however, which the enthusiasm and physiological knowledge of plants and their requirements possessed by Dr. BENNETT enable him to overcome, as is evidenced indeed in the communication from his pen that appears in the present issue. Dr. BENNETT's letters on gardening in the Riviera, and on the vegetation of that lovely region, will be remembered by many of our readers, and much of them has been incorporated in his well-known work, *Winter and Spring on the Shores of the Mediterranean*, and to which renewed attention will be attracted in consequence of HER MAJESTY'S visit. We hope shortly to publish further illustrations of Dr. BENNETT's garden.

—ACACIA VERTICILLATA.—This species was one of the very first of all the numerous Australian and Tasmanian Acacias to find its way into English gardens. According to PAXTON'S *Botanical Dictionary* it was introduced in 1780. It is a desirable plant for conservatory decoration, has whorls of Gorse-like phyllodia and stalked oblong heads of lemon-yellow flowers. Sir JOSEPH BANKS, in an article "On Inuring Tender Plants to our Climate," in the *Transactions of the Horticultural Society*, instances this as a plant which, if his suggestions were followed, might prove hardy or almost hardy in the country. In the article in question Sir JOSEPH strongly advocates the propagation by means of English-ripened seed of several successive generation of Myrtle, Cherry Laurel, Sweet Bay, and other more or less tender shrubs. In order to point his moral, that a few generations would in all probability mark a decided increase in ability to withstand frost, &c., he mentions that *Zizania aquatica*, the Canada Rice—a grass which of late has begun to attract the attention of paper-makers—after once fairly started, grew larger and stronger each successive generation until some of the plants were 6 feet high, and the whole pond in which they grew was in every part covered with them as thick as Wheat on a well managed field.

—THE ROYAL BOTANICAL SOCIETY OF BELGIUM.—The twentieth volume of the *Proceedings* of this Society contains a full list, with localities, of the plants native to the Canton de Vaud, by MM. PITTIER and DURAND, and a notice on certain old trees in Switzerland.

—DAPHNE BLAGAYANA.—For the rockwork or for pot-culture for cool-house decoration, this pretty *Daphne* (figured at p. 245 of vol. xiii.) is eminently suitable. It is a dwarf grower with large terminal clusters of pleasantly-scented, creamy-white flowers. A recent introduction (from the Carpathian Alps) to British gardens, and perfectly hardy. No plants are now in flower at Kew.

—THE FLORIST AND POMOLOGIST.—The March number contains plates of the double-flowering Wistaria, Bedford Prolific and Bigearau Gros Coeur Cherries. Mr. James continues his articles on *Cine raria* culture, while Mr. BARRON'S very useful descriptive list of Vines is brought to a conclusion; altogether ninety-four varieties are described.

—ANEMONES FROM THE SOUTH OF FRANCE.—Miss CLARA MANGLES sends us from Cannes a bouquet of Anemones, wild varieties of *A. hortensis*, very varied in form and colour, including the forms known as *A. fulgens*, intensely rich in colour, *A. pavonina*, with very double scarlet flowers, the segments linear, the inner ones tipped with white; *A. stellata*, with whitish and rose-coloured and lilac flowers; the whole forming a series ranging from white to crimson and lilac, all very bright and vivid. With them also comes a cut spray of *Bougainvillea speciosa* of a most intense purplish-lilac colour, much finer than anything seen under glass in this country.

—THE BOTANICAL MAGAZINE.—The plants figured in the March number are—t. 6611, *Catalpa Kumpferi*; t. 6612, *Masearenhaisia Curovianii*; t. 6613, *Wahlbergia saxicola*; t. 6614, *Taliuma Candollei* var. *Galeotiana*; and t. 6615, *Scutellaria Hartwegii*. Further details will be given in our Register of Plant Portraits.

—FICARIA GRANDIFLORA.—This is an extremely fine plant of its kind, and it seems to have found happy conditions in the Cambridge Botanic Garden among the bog plants, where it is growing 9 inches above the water. It is so robust as to look almost like a small *Calla*, and the golden flowers are quite 2 inches across.

—PRIMULA CARPATICA.—This rare and interesting species is now blooming in the Cambridge Botanic Garden, where it is much earlier than its immediate allies. It comes near the *Cowslip*, but is quite distinct. The present plant has a scape with ten flowers, eight of which are open. They are nearly an inch across when spread, of pale yellow colour, without an eye, and possess a somewhat remarkable perfume, which may be described as aromatic, and something like that of *Lycaste* are-



FOLIAGE
ONE HALF REAL SIZE

CELOOGYNE MASSANGIANA.

matica, though less intense. The features which now appear the most striking comparatively are the dark, stiff-looking leaves, the thick clothing of soft hairs on the scape, short pedicels, and the peculiar perfume. The first scape was produced a few weeks ago. It was contributed by Dr. KANTZ, of the Klausenburg Botanic Garden. *Primula rosea* is first in blossom in the open where sunk between four bricks to preserve

through is too generous in its profusion to suit the market grower. Abundance may mean plenty to take to market, but then it means plenty everywhere, and as a result the returns are by no means commensurate to the size of the loads sent, or to the labour involved in the gathering. When a big sack of Turnip-tops brings but a miserable sixpence it needs little arithmetical ability to deduct from that sum the cost of

Broccoli, but the heavy losses incidental to this crop during the previous three or four winters have naturally made growers chary of largely planting, so that when once the hardier greens have disappeared—and they cannot last long—we must expect a long interregnum in the spring ere Peas and Broad Beans will be ready to fill the void. Spring Cabbages are not so universally grown as could be desired. They will not thrive

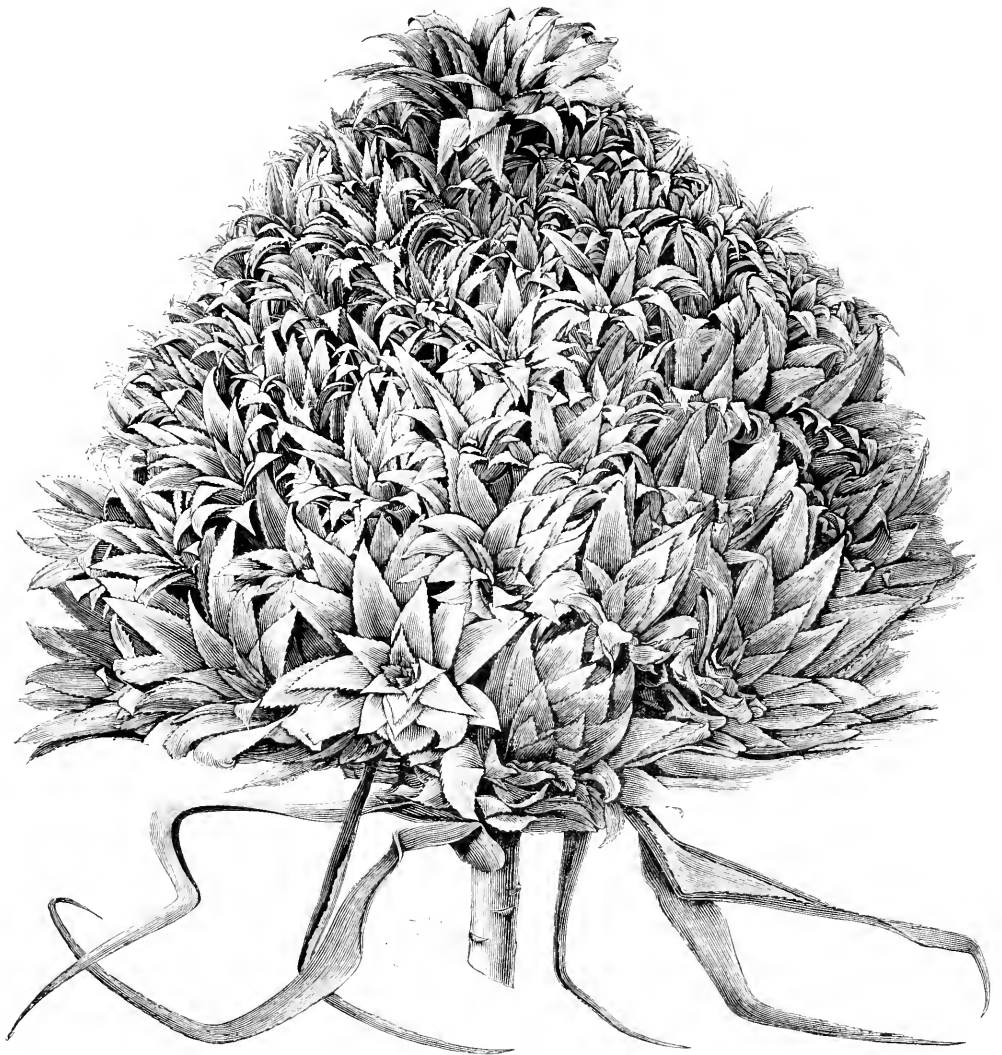


FIG. 55.—A PROLIFEROUS PINE-APPLE. (SEE P. 372.)

moisture, and the protection appears to have forwarded it. In our own garden there are at present no signs of flower in this species.

— MARKET GARDENS.—Market gardeners are so busy getting in their crops, and are working under such exhilarating influences that they worry much less than might otherwise be the case over the very poor prices obtainable for green stuffs of all kinds. In truth, such a winter as that we have just passed

production and marketing, but very much indeed of knowledge to discover the profits. What holds good of Turnip-growing is relatively equally true of the bushels of sprouting Broccoli, of curled Kale, of Brussels heads, and similar members of the Brassicæ family. Not only are all these various field crops turning in all at once, but they are quite a month earlier than usual, and thus the market is being unduly forced and glutted. The most natural succession to these hardier greens would be large breadths of white

well on all soils, and too often for various seasons turn in as "bolters" rather than as good profitable heads. The chief spring green crop will be Spinach, but that, too, cannot long endure, as the advancing season will push it on rapidly also. If, however, market returns are so poor for present crops the splendid weather and the free working conditions of the soil, the enormous abundance of seed Potatoes, and the generally moderate charges for other seeds, all combine to shelter over market gardening a hopeful

aspect. Not only should such a spring-time indicate abundant crops presently, but work everywhere should become plentiful, and buyers richer than they have been of late.

—**PRUNUS DIVARICATA.**—This species, although rarely producing fruit in this country is well worth growing as an ornamental tree. It makes a nice specimen for the lawn, and its numberless snow-white blossoms, so much in advance of those of most of the other species of the genus, render it a welcome inmate of the shrubbery or park. It is a native of Eastern Europe and Western Asia, and in all probability several of our cultivated Plums derive their origin from it. A good sized tree is now in full bloom on a lawn near the Cactus-house at Kew.

—**NEW COMMERCIAL PLANTS.**—Mr. CHRISTY'S publication of this name, just issued, relates to tanning materials, and their respective values and uses, for the guide of colonists and others. Oaks, Mimosa bark, Babool, Mangrove, Quebracho, Divi-divi, Betel-nut, Myrobolans Valonia, and various other substances containing tannin, are mentioned, and the means for ascertaining the percentage of this material described.

—**SPENOGLASTRA CONFINNA.**—This beautiful little plant first flowered in this country rather more than twenty years ago in the establishment of Messrs. VEITCH. At that time it was not known who imported it, or even what country could boast of being the home of such a floral gem. The stalked leaves, borne in little rosettes, are green above, and covered with a network of deep red veins beneath; the Gloxinia-like blossoms are of large size—if one considers the stature of the pigmy plant which produces them—and of a pale lilac colour, deep blue on the upper part of the tube and throat, yellow below, the throat spotted with purple. A native of Tropical America.

—**ACER OBTUSATUM AND A. NEAPOLITANUM.**—Amongst the earliest flowering and most striking of the larger ornamental trees and shrubs are the two above named forms of the rather widely distributed and variable *A. opulifolium*. Some round-headed compact trees of these are now covered with bloom at Kew. The flowers are borne in terminal corymbs, the sepals and petals are yellow slightly tinged with green, the stamens being bright yellow. Some good spring effects could easily be produced by planting this species where it could be made to afford a pleasing contrast with the deep red-flowered *A. rubrum* and the lighter-coloured Silver Maple, *A. dasycarpum*.

—**FORESTRY.**—The College of Agriculture at Downton, near Salisbury, includes this subject in its course of tuition, as will be seen from the following extract from the prospectus:—

"*Forestry.*—The history, propagation, treatment, uses, and value of timber trees. Management and general use of underwood. The planting, thinning, and general management of Fir plantations. Measurement of standing and felled timber, and of converted timber. Use of sliding-scale. Sale of timber and underwood. The economy of woods and forests in the management of estates. The lectures are supplemented by practical classes in the neighbouring woods.

"*Mensuration and Land Surveying.*—Measurement of surfaces. Quantity of land cultivated by various implements. Areas occupied by crops. Mensuration of solids, and estimates of the contents of tanks, ditches, wells, manure-heaps, walls, ricks, stacks, timber, road metal, cuttings, and embankments.—Field and road surveying. Plotting and drawing of plans, and determination of areas surveyed. Levelling, tinning, and details of the use of prismatic compass, quadrant, &c. Details of the chain, theodolite, and levelling staff. Mode of keeping surveying and levelling books. The Ordnance Survey, Ordnance maps, and bench-marks.

—**CASSANDRA CALYCUATA.**—"The calyculated Cassandra," according to LONDON'S *Arboretum*, and "Leather-leaf," according to GRAY'S *Manual*, are the English equivalents of the by no means cumbersome botanical name of this pretty plant. The first-named one is hardly likely to be adopted even by the most rigid advocate for popular names, and the latter, to English ears at least, does not convey or suggest any definite idea of this plant in particular. *C. calyculata* is a neat-habited shrub of easy cultivation, requiring simply the treatment under which Rhodo-

dendrons and a host of other peat-loving plants flourish. Its Mossus-buds are formed during the summer and expand the following spring. At the present time its white flowers are being produced in profusion. According to LONDON this species was introduced in 1748; it is on record, however, that at that period it was cultivated by the Duke of ABERYLL, "the tree-monger," so it does not seem improbable that to that nobleman is due the credit of introducing it to this country. A native of the North Temperate Zone.

—**AMERICAN BLIGHT.**—According to the *Wiener Illustrirte Garten-Zeitung*—the organ of the Vienna Horticultural Society—the "Monatsblatt" of the *Gartenbau-Gesellschaft von Mairisch* recommends an unfailing remedy for this pest. It is simply to grow at the foot of the Apple trees the common Nasturtium or Indian Cress, *Tropaeolum majus*. Probably few cultivators in this country would possess sufficient faith in this so-called unfailing remedy as to give it a trial; still, in the case of newly-planted trees especially, it would be very easy to test its merits or demerits even in a single season. Grow Nasturtiums near one lot of trees, and keep them clear from another similar lot under the same physical conditions, and then report progress at the end of the season. In some nurseries where large numbers of Apples are annually grafted train-oil is applied with a brush to the stems wherever the "blight" puts in an appearance. In other establishments, where an equally clean-stemmed good stock is reared, a dry brush is used, or even simply the hand, to crush the insect. In the *Transactions of the Horticultural Society* Sir JOSEPH BANKS gives a series of "Notes" on the first appearance of the *Aphis lanigera*, together with various experiments on infested Apple trees. Flowers of brimstone, soft soap, &c., seem then to have been not a whit more successful than friction with the hand. A note dated January, 1794, says:—"Mr. JACKSON, who at my desire had seen Mr. DUBHUIS' gardener at Bethnal Green, above mentioned, brings word from him that when the insect first appeared in the autumn of 1789 he thought himself wholly ruined, but that now he receives very little damage by it. . . . Since that time he employs men to rub the insects with their hands between the stocks, and in this manner one man will clean a thousand grafted stocks in a day. He says that care must be taken to tread the ground close to the roots, as the greatest damage is done by these insects when by means of cracks in the earth they are enabled to fix themselves on the tops of the roots, or on the stems, where the roots are inserted."

—**GESNERA ELONGATA.**—If but a single flower or even a cluster of blossoms from this plant be compared with those of a host of others belonging to the same family, and some, indeed, belonging to the same genus, the comparison from such material could not fail to be disadvantageous to the subject of this note. When, however, its habit, and the profusion with which its scarlet flowers are produced are taken into consideration, it will be at once admitted that these characters abundantly make up for the small size of the flowers. The species makes a shrub several feet in height, and the contrast between the green leaves and the long-stalked blossoms, which are generally borne in fours, is most pleasing. A good specimen is now in bloom in No. 8 house at Kew.

—**THE COFFEE LEAF DISEASE.**—A very interesting memoir has lately been published in the *Quarterly Journal of Microscopical Science* by Mr. H. MARSHALL WARD, who was on special duty as cryptogamist to the Ceylon Government. The matter is not only of consequence to the cultivators of Coffee—as in the case of every disease it is of prime importance to ascertain the exact nature of the Cryptogam to which the disease is attributed—but because, in a scientific point of view, it modifies very materially the views which have hitherto been entertained on the subject. The parasite, when first discovered, seemed so abnormal in its structure that MESSRS. BERKELEY and PROOBE, who first described it in this journal, Nov. 6, 1880, were unable to come to any definite opinion as to its affinities; but in their memoir of the Fungi of Ceylon they placed it amongst the Uredines, and when it was stated by THURWELL that the spores when germinating gave rise to a species of *Aspergillus* the matter seemed still more perplexed. Mr. ABEAY, whose observations are pub-

lished in vol. xvii. of the *Journal of the Linnean Society*, found on the germination of the spores that they gave rise to a very remarkable species of *Penicillium*, and considered the so-called spores to be sporangia, which seemed to modify the matter still further, though we did not consider the production of sporidia, if they may be so called, within the sporangia as of material consequence, as similar conditions are sometimes produced in abnormal growths, as in the foot fungus of Madura, and indeed in the yeast fungus. Mr. WARD, however, has shown, by a very careful series of observations, that after the spores are produced another set arises, which are clearly of the same nature as the teleutospores of Uredines; that these germinate and produce conidia; and consequently that the plant really belongs to that tribe of fungi, and that the first spores are Uredo spores. On referring to Mr. ABEAY'S memoir it is clear that he had observed these teleutospores (see tab. 13, figs. 11, 12), but unfortunately he regarded them as "barren cyst-like bodies," and so by the merest chance failed in ascertaining the true affinities. It is to be observed that Mr. WARD did not see anything either of the *Aspergillus* or *Penicillium*. It appears from the account of the disease by Mr. DYER, in the twentieth volume of the same journal, that a second fungus, the *Aspergillus* or *Penicillium*, grows on distinct spots (see tab. 9, fig. 1), and that therefore it might very possibly be mixed with the *Hemelia*, so as to cause some difficulty about ascertaining the real nature of the germination. Mr. DYER, after the observations of Mr. ABEAY and Mr. MORRIS, was led to regard the spores as sporangia. We have now, therefore, at last the true history of the parasite, and are in a position to work out the remedy, or at least to work in the right direction. It is impossible to speak in too high terms of Mr. WARD'S labours. *M. J. E.*

—**COMMON LAURELS AS FLOWERING SHRUBS.**—The value of many of our common shrubs for giving ornamental effects is not so generally known as in the interests of horticulture it should be. What, for instance, can be more despised than the common Laurel? although, of course, its rare habit and rapid growth is fully recognised for various purposes of planting where other things would not survive or grow sufficiently dense and thick to answer certain purposes. But clumps of Laurels in full flower at this season are vastly more used as garden or pleasure-ground ornaments than the majority of people suppose. At Linscombe Castle, South Devon, there are clumps furnished to the ground upon slopes by one of the carriage drives which are aglow with beautiful white flowers, and have been for some weeks past. There is a dense background of green as well as a healthy green carpet beneath the clumps, which enhances their attractions and reminds one that rich effects may be produced by using very ordinary material in the way of plants. Where they are planted *en masse* in other portions of the grounds they bear a different aspect, and although gaily dressed with abundance of flowers there is a monotony about them which wearies rather than charms the eye. This is mentioned because it is the common way of planting, but it does not follow that because a plant is common a position cannot be found for it where it may look a striking ornament. Laurels have been in flower at Linscombe for several weeks past, but it should be stated that the situation is exceptionally well sheltered and the climate all that can be desired.

—**OLIVE OIL IN SICILY.**—It is stated that Olive oil produced in Sicily has very much improved of late years. The mode of preparing it has been hitherto the cause of its not attaining that delicacy of flavour possessed by oils of Italian and French manufacture. Oil in every respect equal to that produced at Lucca may now be obtained at Termini from Olives grown in the vicinity of that town at about 60s. per cwt.

—**BERBERIS DARWINII.**—Large plants from 10 to 15 feet high are now in flower in the grounds at Linscombe Castle, Dawlish, wherethey are in charming contrast to green Hollies, Portugal Laurels, and other evergreen plants. They are chiefly planted by the sides of walks and occupying conspicuous corners, where they have a most pleasing and cheerful effect—such an effect as is difficult to describe, owing to the profusion of orange-coloured flowers with which the bushes are clothed. They seem to

droop so naturally, one branch overlapping another, while in many instances a vigorous branch or two shoots out a couple of feet or more from the rest, as if Dame Nature had taken particular pains in the completion of the floral picture.

— **HYACINTHS IN HOLLAND.**—We learn that owing to the mild winter and spring, the bulbous plants in Holland are much earlier than usual. The early varieties of Hyacinth, such as Homer, Maria Cornelia, Latour d'Auvergne, are already in full bloom. By the end of the month, if the weather continue, the Hyacinths will be in full beauty, and those who defer their visit till the middle of April as usual, will be too late. The most convenient routes from London are *via* Queensborough and Flushing, or Harwich and Rotterdam. The traveller from Leyden to Haarlem may now avail himself of the steam tramway between these two towns, and which passes through the Hyacinth fields, stopping at numerous stations. Passengers by rail between these points see little of the flowers. The Crocuses are already past their best.

— **THE BERNE CONVENTION.**—The Belgian Government has announced its adhesion in principle to the modified Berne Convention of November, 1881, relating to the transit of plants, in countries where, owing to the panic concerning the Phylloxera, severe restrictions are still in force. This will allow the Belgian horticulturists to partake of certain privileges and exemptions relating to the transit of plants, and to have a voice in the matter of framing the regulations that may be necessary in future.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending March 13, issued by the Meteorological Office, London.—The weather though generally dull during the earlier part of the period, with rain in the west and north, became very fine and dry towards its close. The temperature has been above the mean in all districts, the excess ranging from 5° in most of the western districts to as much as 7° over eastern and central England. The highest reading (64°) was registered at Collymore on the 7th, and at Nottingham on the 10th, whilst at most other stations the maxima varied between 55° and 63°. The minima occurred either on the 7th or 13th, and were rather low, ranging from 28° in "Scotland, E.," and the "Midland Counties," to 35° in "Ireland, S." Rainfall has been a little more than the mean over Scotland and in "Ireland, N.," but less elsewhere. Bright sunshine shows a slight increase in most districts the percentages varying from 17 in "England, W.," and 18 in "England, S.," to 41 in "Scotland, E.," and 36 in "Ireland, S." Depressions observed.—The barometer has been highest over France, and the extreme south of England, and lowest over Scotland and Scandinavia. Depressions travelled in a north-easterly direction across our north coasts during the greater part of the week, causing the gradients for south-westerly winds to grow steep, and the wind to increase to a fresh or moderate gale on our western and northern coasts. Towards the close of the period, however, the barometer became more uniform, and the winds light or moderate in all parts of the kingdom.

— **GARDENING APPOINTMENTS.**—Mr. W. CRUMP, for the last six years gardener to the Duke of Marlborough, Blenheim Palace, Woodstock, has sent in his resignation, and is going into business at Leamington as flower and fruit grower for market.—Mr. HENRY HATCH, late Foreman at Stanwick Gardens, near Darlington, has been engaged as Gardener and Bailiff to Colonel HOWARD VISE, The Manor Cottage, Old Windsor.—Mr. ARTHUR HOLLOWAY, late Foreman at Foxbury Gardens, Chislehurst, has been appointed (through Messrs. CHAS. LEE & SON) Gardener to R. REID, Esq., Barra Hall, Hayes, Middlesex.—Mr. R. PAGE, late Foreman to Mr. FRATT, The Gardens, Hawkstone Park, Shrewsbury, has been engaged as Gardener to C. HILL, Esq., Clevedon Hall, Somersetshire.—Mr. H. WARD, late Foreman to Mr. MUSSELL, Cadland Park, Southampton, has been appointed Gardener to Sir PHILIP EGBERTON, Oulton Park, Tarporley, Cheshire.—Mr. R. SAUNDERS, late Foreman at the Marquis of DOWNSHIRE'S, Easthamstead Park, has been engaged as Gardener by the Hon. A. G. J. PONSONEY, Heatherfield, Ascot.

FORESTRY.

HEDGES.—Next to plantations nothing so much beautifies and adorns the landscape and the country in general as hedges, and the more that agricultural improvements are advanced the more will hedges be appreciated both for beauty and utility. Any one who for the first time beholds the garden-like field formation and distribution of Thorn hedges in Roxburghshire, the Lothians, Ross-shire, and some other districts of Scotland, is alike pleased and surprised with their beauty and utility. The first consideration, after determining its purpose, in planting a hedge is what description of plants to plant so as to suit the soil, and effect the purposes of protection and afford shelter to the kind of stock upon the farm. Unless the soil is of sufficient quality to grow a good strong plant, and maintain it in health and vigorous growth in future, it is inadvisable to plant hedges upon it.

After many trials, long practice, and frequent failures, the following among other successful results have been achieved:—In planting common Whitethorn hedges the first thing to do is to trench, lime, and otherwise thoroughly prepare the ground, which should either be of a clayey or strong loamy nature. The plant bed should be about 4 feet wide by at least 2 feet deep, and the ground both underneath and on all sides well broken to a good depth, and thoroughly drained. It is advisable to have the preparation of the ground done in summer or autumn, and the planting done as early the succeeding season as possible. The plants preferred are strong seedlings (two or three years old), and should be put in without any cutting except in extreme cases where the roots are extra long and bare, in which case they should be slightly shortened with the knife. I plant nine or ten plants to the yard, and keep the hedge clean by hoeing and raking for several years thereafter, and never cut over the plants till they have made two years' growth, when, with a sharp hedge-bill, or pruning-knife, they are cut over to within three inches of the ground.

At the end of the second two years' growth they are again cut over at 18 inches from the ground, and again at two years afterwards at 3 feet from the ground; thus, at six years from the time of planting, there is a close and good hedge 3 feet high, and as they seldom require to be more than 4 to 5 feet in height altogether: this height is attained at the end of seven years, after which the hedges may be pruned either once or twice a year as circumstances suggest. One rule ought to be, never to prune the hedges at midsummer till they have attained their full desired height. No young hedges—that is, such as have not attained their full height—should be pruned in the summer season, nor till the young wood is perfectly ripe and matured, otherwise pruning stultifies and throws the hedge into a state of distorted and gnarled growth, from which it never afterwards quite recovers.

Beech hedges should be planted much in the same way as Thorn hedges are, with these differences:—The soil for Beech should be as light and dry as possible, and it thrives well in the remains of an old turf dyke which has been levelled down. It should never be pruned, except the straggling outside lower branches kept within bounds till the hedge is about as high as required, after which the top growth may be stopped and the hedge allowed to thicken at pleasure, and after it has attained its full size may (but not till then) receive a mid-summer pruning, for the sake of beauty and neatness. Beech hedges do well for affording shade and shelter, but are too soft as a protection against animals, unless grown upon the top of, or, rather, behind a wall or face dyke, where they answer remarkably well. As a roadside fence, too, they do good service, and have a nice clothed appearance both in their velvety summer green and russet winter brown.

I prefer planting hedges comparatively thick, and when they require it thin them out with a pruning knife, which is a commendable practice, as thereby the remaining plants derive more room and consequently grow stronger.

Holly hedges are both serviceable and beautiful at all seasons, but specially in winter. The ground, preparatory to planting, should be trenched to a depth of 3 feet, and about 4 feet wide, and the soil should be a sandy loam, neither too light nor too heavy, but rather heavy than light. Like the Beech,

it should not have its top shoots at all interfered with till as high as it is wished to be grown, after which the top of the hedge should be cut level and the hedge ever afterwards cut once or twice a year as taste and other circumstances recommend.

The *Prunus myrobalana* appears also to be (for it has not been long much in use) a very good hedge plant, but requires mixing either with common Thorn, Sweet Brier, or other less rapid growing species to thicken and give compactness to the hedge. This kind of hedge is planted and treated in every way the same as Thorn hedges, but the plant requires a still better soil to grow in, nor is it certain if it will grow to such old age as the Thorn even under the most favoured circumstances.

The Elder makes a useful and suitable shelter hedge for many exposed places when inferior soil and climate are also to contend with. It grows readily from cuttings, and any soil, if at all loose and deep, is suitable to it. It can be trained up to a good height, and affords excellent shelter to animals, which are by no means fond either of eating its leaves or gnawing its bark.

The Willow, of which there are many varieties, grows well almost anywhere, and will either succeed in very light dry soils or in soils of the opposite extremes. In dry soils it survives to old age, but in wet soils it rarely attains middle age. It should be constantly, that is, annually pruned, and, like the Elder, trained to a considerable height, and thereby form one of the very best screens or protection fences for sheltering Hop gardens, young plantations, paddocks for young and tender animals, &c.

The common Buckthorn (*Hippophae*) is an excellent hedge plant, and does well to mix along with Willows on tops of turf dykes, or embankments near the sea, or indeed almost anywhere and in any soil. It requires pruning annually, otherwise it grows stunted and does not spread either root or branch satisfactorily. It grows from seed and from cuttings, but best of all from layers or runners, which are easily obtained from plants growing on light soils anywhere.

Whins or Gorse also make good hedges, which succeed well on turf dykes, but in consequence of their liability to die periodically from the effects of frost and their attraction for rabbits they are less planted now than formerly. The Whin hedge is sown (rarely planted), and the common method is to make a scratch in the ground, as if for sowing Turnips, and from a bottle with a goose-quill fitted into the mouth the seed is sown and covered with a small rake or hoe. The plants come up the same season as sown, and require little further treatment beyond keeping the grass from choking them the first and second season, and annually pruning the hedge after sheeding its flowers.

It is an excellent plan to extend one or two runs of wire in both Whin and other hedges as near the top as possible, to constitute a back-bone to them, which is of the greatest importance wherever cattle are to fence against, for there are few hedges in which there are not some weak parts, and the strength of a hedge, as of a chain, is determined by its weakest part.

Mixing hedges, as Thorn and Beech, though common, is not commendable, because if the soil is adapted to Beech it outgrows and kills the Thorn, and if suitable to Thorn it grows much better without the Beech. In winter, too, a hedge composed of Beech and Thorn always presents a gappy appearance at a distance, for in spite of all efforts the one or other die out. Evergreen hedges for their own sake should be annually pruned in May, when all the old and withered foliage is pruned off, and the young shoots allowed freedom and time for completing their growth before the end of the season. There are, however, opposing considerations which have to be taken into account, such as the flowering of Whins, Rhododendrons, &c., and it is not till these and others have shed their blossoms that pruning is admissible. The beauty and neatness also which a newly pruned hedge presents at midsummer has of itself such attractions that it may be some time before Nature's laws are, in regard to pruning, fully obeyed. *C. Y. Michte, Cullen House, Cullen.*

ROSE FORTUNE'S YELLOW AT WESTONBIRT.—An extraordinary plant of this favourite Rose may now be seen in full flower in a cool-house in the gardens at Westonbirt House, the residence of R. S. Holford, Esq. Mr. Chapman, the gardener, informs me he has cut over 800 blooms this season, and the plant is now entirely covered. The value of such a plant can scarcely be over-estimated. *Tricolor.*



HOME CORRESPONDENCE.

Garden Prospects.—The winter of 1881-82 has been quite to my mind, and I am inclined to pronounce it the perfection of a winter; and if we could but foresee that in future all our winters would be like it, the "agricultural depression" would vanish, the horticultural world rejoice, because there would be no more reductions in gardens, and market growers would leap for joy, in that they were no more to be handicapped in the market by the produce of my lord duke's garden, such produce being required for home consumption. But, alas! my fickle climate has so often jilted us that all confidence that it means to permanently mend its ways is gone, and therefore, whilst hoping for the best it will be wisdom to prepare for the worst. The promise of a more fruitful season could not be possible, and our hopes having attained so high a pitch, a failure would be proportionately heavy, so that to prevent such a disaster it is worth while to take extra precautionary measures to protect tender flowers, vegetables, and especially fruit blossoms. Peaches and Apricots are now with us (Hants) in full flower, and flowers, too, the like of which, for individual vigour and profusion, we have not seen for years; their appearance is sufficient incentive to determine us to spare no pains in warding off "Jack Frost." Pears, too, are marvellously well budded, and unfortunately some are opening; those on walls are easy of protection by boughs, netting, tiffany, &c., but the low standards and pyramids are more difficult to deal with; still we don't mean to be mastered, and some—the choicer kinds, at all events—will be protected by large spray branches of Birch, Laurel, or Spruce Fir, the thick end being fastened into the soil, and the spray amongst the branches, with here and there a tie to prevent wind chafing. Plums and Cherries are also liberally covered with buds, and all that can be done to protect them should be done at once. Coming to vegetables, kitchen gardens have more the appearance they usually present at the end of April than the middle of March. Without any special attention we have never failed of a supply of Cauliflower or Broccoli since we commenced cutting the early Cauliflower at the beginning of June last, and now there is a superabundance which, for the double purpose of prolongation and protection from frost, is being lifted and heeled-in under a north wall. The less advanced is looked over for the purpose of being covered with their own leaves whenever there seems to be any likelihood of frost. The earliest Cauliflowers that are intended to succeed the late Broccoli are already planted out in deep drills; they are thus sheltered from cold winds, and little or no earthing-up is necessary other than levelling in the drills as soon as growth admits of it. Radishes, Early Horn Carrots, and the earliest open-air sowings of Cauliflowers, Broccoli, Savoy, and Cabbage receive partial protection by using the Strawberry nets or two or three ply thick. The earliest Potatoes are already peeping above the soil, and earth is drawn to and over them so long as it is practicable to do so, afterwards they are protected with long litter. Pans sown January 6 are already 4 inches high; earthing and a screen of evergreen boughs on the windward side is the best protection for these, but happy shall we be if none is required. Certainly we are not yet out of the wood, and it may be risky to proceed to get in the general stock of seeds and Potatoes; but the ground works so well, and under all conditions are so very tempting, that, risk or no risk, we mean to get them in, and by way of a change have a leisurely April. //

An Error in Exhibiting.—At the last meeting of the Royal Horticultural Society one exhibitor showed a tray of double *Cinerarias* placed on a background of vivid mauve-coloured paper. The effect on the flowers was ruinous; the blooms, although good in colour themselves, were destroyed by this flaming mauve colour: it made all the blooms look dead and livery by contrast. All brightly-coloured plants should be mounted on dull-coloured backgrounds—a dull even olive green is perhaps the best contrast. A bad fashion seems now very prevalent of dressing little girls in brilliant crimson head-dresses: the effect on the face of the child is that it makes it look like a corpse. The delicate and pure hues of a healthy face require tints of a sober nature to harmonise with them. How would a delicate flesh-coloured Tea-scented Rose look muffled round in a mass of blood-red velvet? *H. G. S.*

The Season at Edinburgh.—As instances of the very exceptional temperature of this season, I send for your use two facts which I believe are unprecedented in Edinburgh horticultural history. In the

middle of February a Carnation in a perfectly open and unprotected border had a flower perfectly expanded, and another is now fully out on the same plant. Again, in the grounds of St. Koop's villa on the south side of the city, a bush of *Camellia Stuyi*, about 4 feet high, which was put out last autumn in a perfectly open and unprotected outside border, had a flower well expanded in the beginning of the last week of February, and two others are now well expanded on the same bush. *T. Ivory, 23, Walker Street, Edinburgh.*

Nicotiana affinis.—I have a great many plants, but I cannot get any of them to bloom during the daytime. They only open in the evening, and close soon after sunrise in the morning. Mr. W. H. Cullingford tells me this is quite his experience with this plant. *T. Christy, Malvern House, Sydenham.*

Heating Experiments.—A little over a year ago, when referring to the then announced great show at Kensington, you suggested there would be a good opportunity for a boiler trial. As, however, there were no preparations made, and if there had been there was no time for it, no trial took place, though the medal awarded was for the best boiler "practically and scientifically considered." There is now a better opportunity in the forthcoming implement show, extending over six weeks, at Kensington, as there are three classes with six medals specially for heating appliances, but the judges—even if the best gardeners in the world and thoroughly competent to decide on the best flowers and fruit and general implements—may not be practically acquainted with the details of hot-water heating, or with what constitutes a perfect apparatus, without something to guide them in the way of a test. The question of glazing and ventilation, too, is one about which there may be, and always is, a great difference of opinion, and yet it is one which could be very simply tried, and observations on different days, with thermometers to show the maximum at night and minimum by day (if in sunshine all the better), so as to show the least variation in temperatures in twenty-four hours. Lawn-mowers are tested, and rightly too, while the other twelve classes are such as may be judged readily. Considering that the erection of glasshouses and the heating thereof are the preliminaries (and most expensive ones too) in our climate to the successful growth of the varied flowers and fruits, it is surprising to me that at all our great exhibitions, it is surprising to me that societies like the Royal Horticultural and other kindred ones do not test annually and publish reports on the various appliances, in the same way that they do with flowers, fruit, vegetables, and small implements, I believe. For instance, there are at Chiswick many houses and several varieties of boilers in use; it would be a simple matter to keep a record of the sizes and shapes of boilers, quantity of piping attached, with description and quantity of fuel burned, and, with either a detailed or averaged daily temperature kept up above the outer atmosphere. One or two houses or ranges, too, could be set apart specially for testing new boilers, a week at a time, during the late spring or summer months, when the pipes were not particularly wanted, so that an inventor might send (if so inclined) and fix one there himself, and by payment of a small fixed sum to cover expenses and the privilege of trial, have an unbiased report on its working and consumption of fuel, &c., which would often prevent a worthless article being offered to the public. Such a set of trial pipes might be permanently fixed at Kensington, either in the arcades or adjoining the conservatory (its pipes even might be divided and used) or near the offices and Council-room, arranged in groups or coils of 300 and 400 feet each, so that any size of boiler, from 600 to 2000 feet power, could be readily tested. Gentlemen about to commit themselves to an expenditure of £1000 or more in new gardens would willingly pay as much as £50 to have a boiler set on a system of glazing tested, and avoid the costly blunders of others they have heard of, believing that amount might often be saved to them afterwards in the cost of fuel alone. If such trials were instituted and properly carried out, we should very soon be able to arrive at some tabulated statement that would rectify the erroneous calculations founded on experiments when hot-water heating was in its infancy, and there would not be any difficulty in such a trial, as the heating power of well known London nurseries (as an instance two years ago, when certain "improved" boilers were put in, which did not heat the pipes with more than double the fuel consumed subsequently in more powerful boilers, which reduced fuel, by-the-by, is more than ought to be burned to heat the quantity of piping. In the face of such corrected tables as might be obtained of the actual working powers of boilers, manufacturers and engineers would not pollute the high heating power of that they now do, which heating engineers, though stated as "approximate," are known to be wrong; but because one or two makers will keep these figures on their lists, all the others must do likewise, or lag behind in the struggle or business; while it cannot be expected that

a gentleman or his gardener can have the special knowledge necessary to calculate for himself in the absence of any reliable rule for doing so. This leads me to the question of the judging of boilers at shows, and without wishing to be unjust in any way, or to appear too critical, I fancy it would be a strange commentary on the judgment given at some of our recent exhibitions, if the successful boilers and some of those left out in the cold could be tried together under the same conditions. Judges are but human, and, as the merits which decide them in cases of fruit and flowers, and in at least half the implement classes, appeal more directly to the eye, it will happen (perhaps unconsciously) that the mere look or finish of a boiler and its accessories, in the absence of any strongly marked points, will go a long way in influencing their awards. The position of a judge is a thankless one at the best, as I know, there being always some disappointed exhibitor who thinks his article the best; but in some classes, and especially those I refer to, the judges' duties would be lessened, and their decisions more understandable, if the points on which they were to adjudicate were made known to all alike beforehand by the committee. If times had been more prosperous, I should, ere this, have started an experimental house or two for the purpose of revising the heating-tables still referred to, the necessity for which revision is evident by a quotation from Mr. Fawkes's new book, in which he gives the formulas of Tredgold and Hood, as well as his own observations. It is necessary, says the one, to have 202 feet of pipe per cubic foot of air to obtain an internal temperature of 45° above the outside; on opposite page it says that 55 to 65 feet only of pipe are required. The two sets of figures are confusing, and on examination, the former is found to be to heat so much air per minute; but whether so much air requires to be heated per minute or per hour is not generally known or ever explained. The same writer's lectures, now publishing in the *Gardener's Magazine*, will be useful in some way, forming impressions as to how to heat, and I was preparing similar by an influential and independent body like the Royal Horticultural Society, and published in all the gardening periodicals, would educate our gardeners on subjects almost as important as the soils to use, and the treatment to be observed in the cultivation of plants. *Engineer.*

The Single Blue Roman Hyacinth.—I agree with the writer of the note at p. 36 of the *Gardener's Chronicle*, that it would be better not to call this Hyacinth Roman, but instead of that Paris or French Hyacinth, which is the true name, although French growers now offer it as Blue Roman. I doubt, however, if the Hyacinths which are said to have been sold twenty years ago in London as Belgian Hyacinths can be considered as identical with this plant, and I suppose this as well as other French Hyacinths (except the earliest white Roman) have not been known long in England. I have seen a few of them, probably the *Scilla variegata*, Hyacinth de Link (not *nutans*, Smith), of which the various forms were called in Dutch and other gardens for a long period, and even now sometimes, *Hyacinthus belgicus*, or Belgian Hyacinth. *J. H. Krelage, Haarlem.*

Cianthus magnificus.—The enclosed truss is sent to show you a rare example of the mild winter in the north of Scotland. The plant from which it is taken had been trained up the rafters of a greenhouse, and was turned out of the pot about the beginning of May last to fill up a vacant space and by the frost on the roof of my house. It has not received any protection of any kind excepting shelter from a plant of *Ceanothus aureus* growing beside it. Some of the branches are heavily loaded with flowering racemes. Previous to 1868 a plant in a similar situation lived through several winters, and flowered freely later on in the spring. It is much harder than *panicus*. *J. Webster, Gordon Castle, Tothabers.*

The Winters of 1760-61 and 1881-82.—The following may prove interesting, as it shows the mildness of the winter of the year 1760-61, which somewhat accords with that of 1881-82. "December, 1760: On the 21st a reaven's nest, with young ones just fledged, was taken from a tree in a ground belonging to Mr. Johnson, of Gedney, in Lincolnshire. "January, 1761: The season is so forward that on the 14th instant there was in Combe Wood, between Wimbledon and Streatham, in Surrey, a thrush's nest with four eggs in it, some of which were fresh. On the 21st a thrush sitting on a nest, very laid ten days before, and the hen sitting on a nest, also ten days before, and at a place near Regyate a plate of great plenty, and of such a size, as I have never seen produced a few days since at a gentleman's table. And from Swansea, in South Wales, we have the following letter, dated the 23d inst. "Last week several flocks of swallows and other summer birds were seen here, occasioned by the mildness of the season; but 'tis thought that the present Aut

(which came pretty sudden and severe) must have destroyed the greatest part of them, as many have been found frozen to death. A few days since there was a Pear tree in full blossom in a gentleman's garden not far from this town; and a Gooseberry bush which stood under a wall and was fenced from the north wind had Gooseberries as large as Cherry-stones; and 'twas thought had the mild weather continued, several sorts of summer fruit would have been ripe before Easter.' We likewise hear from Eshgill, near Alston, in Cumberland, that on Christmas day last a gentleman there had Marigolds and ten other different kinds of flowers in full bloom (the same as in the months of May and June), and all the trees in his garden in bud, owing to the mildness of the season—a circumstance never known before in the memory of man, so far north. *Annual Register*, Harrison Weir.

Primulas.—I have grown most of the leading strains of *Primula sinensis* during the last thirty years, but I consider Mr. B. S. Williams' *Alba magna* the finest white *Primula* I have yet seen. It not only produces beautiful flowers, but the habit of the plant is so good, with its rich beautifully curled foliage, not unlike the curled *Mallow* used for garnishing. Its lovely flowers are carried well up above the foliage—a habit which adds much to its beauty. I have during the present season used a different compost to any I have used previously, and with very good result. It is as follows:—One part of turfy loam, one part of turfy peat, and one part of leaf-mould, with a little charcoal and bone-dust, and a liberal quantity of Bedfordshire coarse sand. With this compost, well-drained pots, and careful watering there is little fear of damping-off at the stem. *H. Ellis, Gr. to W. Agnew, Esq., M.P., Summerhill, Pendleton.*

Tulipa chrysantha.—I have now in bloom a bulb which answers almost precisely to Mr. Baker's description of *Tulipa chrysantha*. The flower is large, pale straw-colour, with a dull orange eye, the back of the petals flushed with pink. It is a very distinct, handsome, and conspicuous species, and when more common will be a great addition to the hardy bulb garden. In habit of growth it resembles *T. altaica* and *Schrenkii*. I received the bulb without a name from my kind friend M. Max Leichlin, who told me it came to him from Bokhara. I have great hopes that it will go to seed. *H. Harpur-Creux, Drayton-Bauchamp Rectory, Tring, March 13.*

Cyclamens from Mr. H. Little and Mr. H. B. Smith, in which brilliancy of colour and general refinement of character are associated with free-flowering tendencies. The *Amaryllis* and *Abutilons*, which contri-



FIG. 56.—DISEASE OF GRASS: ISARIA FULFIFORMIS.



FIG. 57.—LIVING BEE WITH FUNGUS GROWTHS.

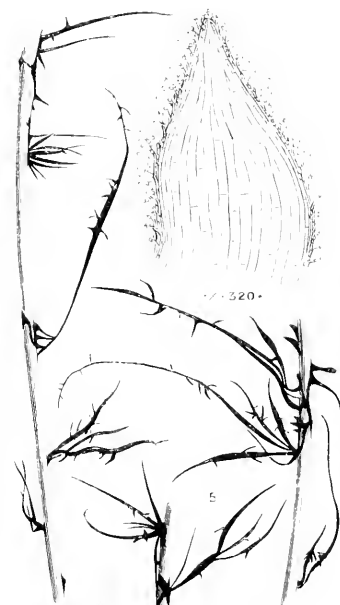


FIG. 58.—DISEASE OF GRASS: ISARIA FULFIFORMIS.

get away from the haphazard system heretofore prevalent. Among the Orchids grand plant of *Cymbidium album*, from Lord Rendlesham's collection, attracted much attention, being in perfect health; and bearing twenty-nine of its ivory-white flowers; and hardly less was bestowed upon Mr. J. C. Bowring's fine plant of *C. Lycaste fulvescens*, with its sheaf of bold leaves overarching a dense tuft of light olive-brown flowers in number no less than 355; and another object of much interest to cultivators was a handsome pan of *Pleione humilis* exhibited by Sir Trevor Lawrence (Mr. Spyer, gr.). Many other plants of interest were shown, of which detailed notice is given further on.

The proceedings of the Fruit Committee call for no special remark. At the Scientific Committee the special feature of interest was Mr. Smith's interesting and suggestive paper on a fungus disease affecting grass, and possibly injurious to animals also. The cut blooms of *Sikkim Rhododendrons*, together with the remarks thereon by Mr. Mangles, were highly appreciated by the members.

SCIENTIFIC COMMITTEE.—Dr. Maxwell T. Masters, F.R.S., in the chair.

Malformed Oaks.—Dr. Masters reported that the specimens sent to the last meeting by Mr. F. Moore from the Isle of Wight probably owed their peculiar appearance to some agency (insects?), which had injured the tip of the fruit-spike and arrested growth, so that the acorns, instead of being separated one from another by marked intervals, were crowded together into one mass, giving the appearance of proliferation.

Disease of Thuysa.—Mr. W. G. Smith exhibited specimens of *T. compacta* attacked by the Australian fungus named *Capnodium australe* by Dr. Montague. *Thuja compacta*, aurea, and elegantissima are sometimes covered by this *Capnodium* in autumn and in the following early spring are found to be quite dead, the roots as well as the tops. The fungus was described by Mr. Berkeley in the *Journal of the Royal Horticultural Society*, vol. iv., p. 253, as surrounding the branches of conifers from the Swan River. An illustration of this fungus is given by Mr. Berkeley at p. 259 of the volume referred to.

Disease of Grass.—During the last two years (said Mr. Smith) the grass of Sussex, and especially that of Kent, has been attacked by a curious and, as regards this country, probably new fungoid disease. The grass attacked by the fungus (*Isaria fulfiformis*, B.) is popularly believed to be capable of causing the death of such animals as feed upon it. As far as is known, the disease has only been known for certain as British for little more than two years; it came into prominent notice in Kent in September, 1880. One person, however, a Kentish gardener, states that he has known the disease for twenty years.

The grasses it chiefly attacks are the *Festucas*, and chiefly perhaps *F. ovina*. The fungus grows most plentifully on sandy soils, it is not uncommon in chalky positions, but it is apparently absent from clay soils. It does not appear on young grass, but on the old. It is first seen about September, and fades away about the following January. In a damp, warm winter like the present, the fungus remains much longer in the fields, so that even now, in the month of March, the fungus can still be found.

The general appearance of the fungus (fig. 56) may be aptly compared with fine short tufts of minute scarlet or crimson seaweed. The tufts spring from an effused, mucous, pinkish mycelium, which has a tendency to glue different parts of the attacked grass together. These fine threads or tufts grow on the leaves and stem, from which they break away and then fall to the ground. The fungus might from the notice have been overlooked had it not been for the brilliant red coloration—in this it resembles pink coral. As with the fungus of the Hollyhock disease and the disease of *Thuysa*, this new pest of grasses appears to be of Australian origin; it is described by the Rev. M. J. Berkeley amongst Australian fungi in the *Journal of the Linnean Society* for 1873, vol. xiii., p. 175, under the appropriate name of *Isaria fulfiformis*. Mr. Berkeley describes it as growing "on some germinating cereal" from Mount Gambier, and states the colour to be pallid. Mr. Berkeley himself, however, identifies the English plant as the same with the Australian one, the only difference apparently being that of the colour. Dr. Cooke in March of last year announced the fungus as British in *Grevillea*, vol. ix., p. 94. Mr. Berkeley's description is "pallid, slender, filiform, sparingly branched, branches acute, spores very minute, globose."

This description, with the exception of the colour, is very precise, and exactly agrees with the *Isaria* plants of our illustration, made from nature (fig. 58), and enlarged five diameters. The solid black parts of the drawing are in Nature crimson: this tint seems to be permanent, at any rate the colour remains perfectly unchanged in dried specimens for several months.

The microscopic structure of the fungus is very simple, it is one compacted mass of cells, the larger

Reports of Societies.

Royal Horticultural. Col. Trevor Clarke in the chair. The Rev. G. Henslow first directed attention to a beautiful series of cut blooms of true Himalayan species of *Rhododendron*, cultivated by Mr. Mangles, and which were exhibited at the meeting of the Scientific Committee. He next called attention to the collections of *Cyclamens* exhibited, and specially to two fine plants, a pure white and a pure crimson, both obtained from "The Gem," which received a Floral Certificate from the Royal Botanic Society in March, 1879, and grown by Mr. Little. The lecturer remarked on the effects of crossing, and alluded to the curious habit of *Cyclamens* in burying their pods to acquire additional nourishment. He then called attention to some remarkable malformations—a *Primrose* with a green corolla, shown by Mr. Draper, of Seaham Hall, and a Chinese *Primrose* with a foliaceous calyx, and he pointed out that a flower is only a metamorphosed group of leaves which in these cases were, so to say, asserting themselves. A curious profliferous form of *Anthurium Scherzerianum album*, with every flower at the base of the spadix replaced by a miniature spadix in a small white spathe of bloom, exhibited by Mr. Child, was next commented on, and its resemblance to a similar process in Egyptian Wheat, which bears several ears on one stalk, was pointed out. Mr. Henslow took the opportunity to correct the popular error that Wheat found in the catcombs of Egypt and called "Mummy Wheat," and probably 3000 to 4000 years old, ever germinated; this being confounded with the former, which is occasionally grown in this country, has led to the mistake. He stated that he had sown Wheat apparently quite sound, but seventeen years old, and not a grain germinated.

At the conclusion of the lecture it was proposed and seconded, and carried unanimously (with three cheers, led off by the Chairman), that an address be sent to the Queen, the Patron of the Society, heartily congratulating Her Majesty on her recent peaceful escape from assassination.

The Council-room well filled with gay and interesting plants, a strong muster of the several committees, and a fair attendance of visitors, augur well for the coming season. The main features which struck the eye on entering were fine collections of

but so much to the general effect, are alluded to elsewhere, as also the collection of pedigree Roses sent by Mr. Bennett. The Tea characteristic was strikingly manifest in the perfume of these Roses. Whatever may be the ultimate verdict of specialists on these plants Mr. Bennett's procedures are methodical and worthy of commendation as an attempt to

cells occupying the centre of the branches, and the smaller ones the outside; as the smaller outside cells gradually reach the tips of the branches they break up into innumerable extremely small globose spores, conidia, or seeds, as shown at the upper part of fig. 58, enlarged 320 diameters.

This *Isaria* disease on grass is supposed by many persons in Kent to be capable of killing cattle. In September, 1880, an instance occurred where two cows died from an affection of the lungs, and when a *post-mortem* examination was made it was found that the lungs were covered with a fungus-like material, not unlike, it is said, the fungus which attacks the throat in diphtheria. The veterinary surgeon who conducted the examination declared his opinion that this fatal ailment had been contracted from the *Isaria*-infected grass. The same doctor is said to have led two rabbits on infected grass only, and that they both died therefrom. It is necessary to say that these two cases are far from proved; at the same time it would not be wise to immediately say that cases of this nature are impossible. In favour of the doctor's view it may be said that some members of the order *Isariaceae* grow upon decaying animal substances, chiefly hymenopterous insects; sometimes these insects are, however, in a living state. *Isaria farinosa* grows on dead pupae, *I. arachnophila* on dead spiders, and *I. sphingum* on dead moths. These creatures are, however, attacked while in a living state. The genus *Isaria* is supposed to be a sort of conidiophorous or larval condition of the genus *Torula* (or *Cordicipes*) amongst fungi; several British species of this genus grow on the pupae and larvae of moths, one grows on an ichneumon, and another (*Cordicipes sphaeroccephala*) upon living wasps (*Glyptus vegetans*) in the West Indies. This fungus seems to have no place at present in lists of British fungi, yet it seems probable that the fungus now exhibited and growing from the body of a bee is no other than that species (fig. 57). The bee was caught in this country as it was inconveniently lying with its fungus burden. An allied fungus, named *Microcera coccophila*, is parasitic on coccæ. These instances were mentioned by Mr. Smith, not with the idea of showing that *Isaria faciciformis* is capable of killing cattle, but to indicate that members of the order really can and do grow upon living animal substances; added to this, it may be stated that *Torula*, which is the same as *Isaria*, is the next genus to *Claviceps* or *Ergot*, and that the genus *Isaria* is at present imperfectly known and understood, so that there is a good opportunity in this case for original observations.

For the specimens of infected grass exhibited and for a considerable part of the information contained in these notes, Mr. Smith acknowledges his indebtedness to the Rev. Chas. W. Shepherd, of Trottscliffe Rectory, Maidstone.

PLANTS EXHIBITED.

Mr. Elwes showed flowers of *Azollaolina Severacovi*, which, in place of the ordinary dark purple colour of the normal flower, were seen to be green with a dark centre only.

Frillillaria obliqua?—A species supposed to be of Russian origin, but concerning which nothing definite is known; it has very dark purple flowers and twisted leaves.

Mucori Elwesii, a species also of uncertain origin, with small compact spikes of deep blue, bell-shaped flowers edged with white.

Leucium strivum var. *pubellum*.—A variety which Mr. Elwes has cultivated for some years, and which constantly blooms much earlier than the type. Mr. Mangles recognised it as having seen it in the South of France.

Chimaphila pallida.—Mr. Elwes showed specimens of this from self-sown seeds, the seedlings having flowered in the second year. "In Asia Minor, the plant," says Mr. Elwes, "comes up with a rush" immediately after the melting of the snow, and is of compact habit, with short pedicels, while in this country, owing to the slower growth, from our variable climatal conditions, the habit is laxer and the pedicels much shorter.

Sativium indicum, from Nepal, is a terrestrial Orchid, with a close spike of pinkish flowers, of which an illustration will shortly be given in the *Botanical Magazine*.

Rhododendron.—Mr. Mangles showed cut flowers of *R. argenteum* (syn. *R. grande*) with noble foliage, the leaves lanceolate, silvery beneath, the flowers white, in fine terminal trusses, each individual flower having the appearance of a *Frostlingian* Lily of the Valley. The species is very variable, and the specimens shown were much superior to those figured in Sir Joseph Hooker's *Rhododendrons of Sikkim Himalaya*. *R. Hookeri* is a species discovered by Doth in Bootan, allied to *R. Thomsoni* in the colour and form of the flowers, but with rows of scales along the nerves on the underside of the leaves. Mr. Mangles obtained his plant from Mr. Anderson-Henry. *R. ciliatum*, showing something of the lilac tint of the one figured in the *Rhododendrons of Sikkim*, but the

uniform lilac coloration of which is now believed to have been a mistake. *R. pendulum*, a dwarf trailing epiphyte with the habit and appearance of *Edgeworthia* on a smaller scale. *R. fulgens*, a species found at great elevations, and hence comparatively hardy; *R. arboreum*, a very variable species; *R. Falconeri*, a species nearly allied to *R. grande* (*argenteum*); and *R. daburicum*, the species figured by us last week. A vote of thanks was unanimously accorded for the splendid exhibit and the interesting account which accompanied them.

Oreocnifera.—Dr. Masters showed specimens of the cones and foliage of several species collected for Messrs. Veitch, and which will be further alluded to in our next issue. The *Fascia* noted on a smaller scale. *R. fulgens*, a species found at great elevations, and hence comparatively hardy; *R. arboreum*, a very variable species; *R. Falconeri*, a species nearly allied to *R. grande* (*argenteum*); and *R. daburicum*, the species figured by us last week. A vote of thanks was unanimously accorded for the splendid exhibit and the interesting account which accompanied them.

Botanical Certificates were awarded to the *Neurothallis glossopogon*, remarkable among its genus for its large flowers, the segments of which are 3 inches in length, the leaves, at first prolonged into a narrow, then slender tail, as in some of the *Masdevallias*. The lip is small, oblong, chocolate-coloured, with a fringe of hairs at the tip. A similar award was made to the beautiful *Spathoglottis Lobbi*, a plant with a very slender, wiry flower-stalk, with a single flower 1½ inch in diameter, clear canary-yellow, with broad ovate segments, and a lip with a narrow stalk and a spoon-shaped blade.

FLORAL COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. The subjects of greatest interest introduced to public notice on this occasion, and which received awards from the committee, were *Amaryllis Duchess of Connaught*, a medium-sized white of beautiful form; *Amaryllis Charles Dickens*, a fine bold flower, with broad smooth overlapping segments, scarlet in colour with a white longitudinal band in the centre of each; *Amaryllis Baron Schroeder*, a flower of excellent shape, and remarkable also for its intense crimson-red colour; *Rhododendron Charles Dickens*, a Princess Alexandra × *Duchess of Edinburgh*, a most pleasing novelty with a large truss of orange-salmon coloured blossoms; *Rhododendron Escobier*, a Princess Royal × *javanicum*, a very fine hybrid, with large flowers of a salmon shaded buff colour with reflexed lobes; and *Oncidium fuscatum album*, a variety with a broad white lip, having a large lilac blotch in the centre, all from the nurseries of Messrs. James Veitch & Sons; *Galeandra nivalis*, a remarkable and rarely seen Orchid, from Sir Trevor Lawrence, with erect slender, spike-shaped, glaucous pseudobulbs and grassy foliage, and flowers in racemes, each flower having narrow, reflexed, rich olive segments and a funnel-shaped lip, the fore part expanded into a broad, flat white lobe, with a large central violet blotch. *Odontoglossum crispum* var. *Stevensi*, from Mr. Stevens, Tientham, a form with flowers measuring 3 inches across; sepals oblong-lanceolate, petals of the same form but waved at the edges, heavily bearded, and spotted with brown; lip oblong-ovate with a clear yellow disc. *Cyclopogon glandulosus* with flowers 1½ inch in diameter, starry in outline, clear white, with the front lobe of the lip ovate acute, and white with yellow lines, from Mr. Parr, gr. to Mrs. Russell Sturgis, Givon's Grove, Leatherhead. *Cyclamen*, *White Gem*, *Crimson Gem*, and *Rosy Morn*, from H. Little, Esq. (see p. 370); *Abutilons* *La Grande* and *Cloth of Gold* from Mr. George (see p. 370); and *Cineraria* Mr. Collingford, a large, handsome, reflexed, and of a rich crimson colour, with a shade of lake round the disc—from Messrs. H. Cannell & Son, Swanley. The Messrs. Veitch also had a flowering plant of the ivory-white *Phalenopsis tetraspis*, mentioned last week; *Dendrobium micans*, said to be a hybrid between *D. lituidorum* and *D. Wardianum*, but presenting only the appearance of a poor *D. Itinulium*; *Loropetalum chinense*, an old but valuable hardy Chinese shrub, allied to *Hamamelis*, but with linear white petals, and leaves like those of *Ficus repens*; *Abelia serrata*, a pretty half-hardy shrub, with slender branches, small ovate leaves, and pale flesh-coloured, funnel-shaped flowers; *Rhododendron Early Gem*, an admirable variety for early forcing; and *Cydonia japonica alba*, a pure white-flowered variety of great beauty and usefulness. Messrs. Paul & Son, Chessington, showed some well-flowered half specimen Roses, nice examples of such well-known sorts as *Anna Alexieff*, from France, *Madame Victor Verrier*, *Madame Lacharme*, *Princess Mary of Cambridge*, *Madame de St. Joseph*; and with these were also some well-flowered small *Giant Azaleas* and a new perpetual *Polyantha* Rose named *Mignonette*, dwarf and neat in habit as a Fairy Rose, with double peach-coloured blossoms. Mr. John Odell, Horist, Gould's Green, Hillingdon, had Mr. Williams' *Primula alba* magni-

fic, and another good white named *Purity*; and Mr. P. S. Williams had a choice group of his fine strain of gigantic *Cyclamens*. The superb *Cineraria* *March Past* and other fine varieties, together with purple and white *Violets*, the latter *Swanley White*, and the finest double white yet introduced; and *Polyanthas* James Douglas, a dark ground, gold-laced flower, with very bright and clearly defined lacing, came from Messrs. Cannell & Son. Mr. Salter, gr. to J. Southgate, Esq., Streatham, had a small flowering plant of *Dendrobium Brymerianum*, the species so remarkable for its clear yellow flowers with deeply ringed and bearded lip. Mr. Bennett, of Shepperton, had a nice lot of cut blooms of some of his pedigree Roses, and flowering plants from the graft of Lady Fitzwilliam and Earl of Embroke, both unmistakably showing the Tea cross, the latter especially both in foliage and scent, and which should, moreover, be welcomed for its fine dark colour. *Narcissus bulbocodium*, a form with paler sulphur-yellow coloured flowers than the ordinary Hoop-pettucoot *Narciss*, came from Mr. Nares, gr. to L. D. Llewellyn, Esq., Atherton Grange, Wembleton. Amongst interesting plants shown in a cut state must be included *Cineraria* *Welbiana*, with narrow violet-pink ray florets, and curious as being found wild in the Canary Islands only; *Anemone capensis* with very deeply cut rigid dark green evergreen Parsley-like foliage, and large lilac flowers; and *Ariscama Sieboldii*, with bold 3-lobed leaves and purple spathes incurved at the tip, all grown and exhibited by Mr. Green, gr. to Sir G. Mackley. Very fine blooms of double-flowered *Cinerarias* of various colours, from Mr. Vertegans, of the Chad Valley Nurseries, Birmingham; those of *Vorigen*, bright rose-purple; *Edgastonia*, dark rose-purple; and *Purple Perfection*, a bunch of *Violets* in miniature, being especially commendable. A pretty rose-coloured variety of *Rhododendron* in the way of *R. Nobleanum*, grown in the open air, from J. J. Whible, Esq., Bulmershe Court, Reading; very beautiful blooms of various varieties of *Rhododendrons*, all from the open air, and sent by Mr. Martin, The Drake, St. Austell, Cornwall; delicately scented blooms of the fine white *Hymenocallis macrostaphana*, from Mr. Woodbridge, Syon House; seedling Tree *Carnations*, of bright colour, good form, and grateful odour, from Mr. Turner, of Slough; and *Violets*, blue and white, the latter *Swanley White*, the finest double white variety yet introduced, from Messrs. Cannell & Son.

First-class Certificates.

To Messrs. Veitch & Sons, for *Amaryllis Duchess of Connaught*.

To Messrs. Veitch & Sons, for *Amaryllis Baron Schroeder*.

To Messrs. Veitch & Sons, for *Amaryllis Charles Dickens*.

To Messrs. Veitch & Sons, for *Rhododendron Escobier*.

To Messrs. Veitch & Sons, for *Rhododendron Monarch*.

To Messrs. Veitch & Sons, for *Oncidium fuscatum album*.

To Mr. Stevens, for *Odontoglossum crispum Stevensi*.

To Sir Trevor Lawrence, Bart., M.P. (Mr. Sperry, gr.), for *Galeandra nivalis*.

To Messrs. Cannell & Son, for *Cineraria* Mr. Collingford.

To Mr. George, for *Abutilon* *La Grande*.

To Mr. George, for *Abutilon* *Cloth of Gold*.

To H. Little, Esq. (Mr. Wiggins, gr.), for *Cyclamen persicum* *Crimson Gem*.

To H. Little, Esq., for *Cyclamen persicum* *White Gem*.

To Mr. Parr, for *Cyclopogon glandulosus*.

Second-class Certificate.

To H. Little, Esq., for *Cyclamen persicum* *Rose Queen*.

Cultural Commendation.

To J. C. Baines, Esq. (Sperry, Cinkabury), for a specimen of *Lycastris tuberosus*, with 225 blooms.

To Sir T. Lawrence (Mr. Gyles, gr.), for handsome pan of *Bleone bunulis*.

Medals.

Silver-gilt Flora to H. Little, Esq., for group of *Cyclamens* and *Cinerarias*.

Silver Flora to Mr. H. B. Smith, Ealing Dean, for group of *Cyclamens*.

Silver Flora to Messrs. Paul & Son, Chessington, for a group of pot Roses.

Bronze Banksian to Mr. B. S. Williams, for a group of *Cyclamens*.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. At this meeting seedling Apples, the *March Queen* and *Barnack Beauty*, from Mr. Gilbert, of Buryleigh, and *Henry Webb*, from Mr. Laxton, of Bedford, were submitted for judgment, but were not considered improvements on existing sorts. Mr. Tatham, Bushy Down, Tooting Common, sent some French Bees named *Australian Prolific*, which were stated to be four days earlier, under the same treatment, than *Osborn's Early Forcing*, the results perhaps of the seeds having been ripened in an earlier climate. Mr. Barter, of the Ilfracrow Road, again brought some good *Mushrooms*, grown in the open-air beds.

Notices of Books.

On and Off Duty; being Leaves from an Officer's Note-book. By S. P. Oliver, late Captain R.A., &c. With Illustrations by the Author. London: W. H. Allen & Co.

Too often we lay down books of travel with a feeling of sorrow, if not of downright vexation, that it should have fallen to the lot of the author to have had opportunities of travel and observation which he could not, or did not, turn to any good account. It is not indeed to be expected that every traveller can be a trained observer capable of recording faithfully all he sees, of whatever nature, or a writer skilled in the art of laying before his readers clear and vivid accounts of what is most noteworthy. Nevertheless, the reader has a right to expect in all and every case an intelligent and faithful narration, while absence of detail relating to particular subjects is readily overlooked if the writer is careful to avoid writing about what he has no knowledge of. Anything more aggravating, for instance, to the reader desirous of obtaining some information as to plants and the particular conditions under which they grow than the way in which some writers allude to the subject can hardly be conceived. Only the other day we had occasion to comment on the raptures of one traveller over the Bougainvillea in Madeira—raptures justifiable enough in themselves, but which rendered the writer ridiculous when he went on to assert that the plant could not be grown in England, all oblivious of the fact that there are few conservatories in the kingdom of which the plant does not form a chief ornament.

Captain Oliver is no such traveller. Although he modestly disclaims any reputation as a man of science it is abundantly clear that his natural faculties and tastes, aided, no doubt, by his military education, have made him an excellent observer. His information is so extensive, his appreciation so catholic that every page betokens a well-read and keenly observant man, with sympathetic appreciation of the questions which are uppermost in scientific circles. With some exceptions the places visited by Captain Oliver are now so well known that a passing visitor has little chance of hitting upon anything not already thrice chronicled. Over the most well-trodden ground, however, Captain Oliver proves himself a delightful and cheerful companion, even on the look-out for what is noteworthy, and always keenly appreciative of the humor of the situation. But Captain Oliver has to tell, not only of Malaya, Ceylon, and of Chinese and Japanese seaports, but of the much less generally known districts, such as Madagascar, Réunion, St. Helena, and Central America. Captain Oliver's travels extended over many years, so that his narrative suffers in some cases from the delay that has taken place in its publication. This is notably the case in reference to Japan, the author's account of which seems meagre by the side of the more recent and complete narrative of the opening up of the country has rendered possible. On the other hand, for the very reasons we have mentioned, Captain Oliver's book will have a distinct historical value; and as the old order is rapidly changing, his faithful account of things as they were will be so much the more valuable. The visit to Tsing Yuen and Peking soon after the Treaty of Tientsin, and to Yeddo, soon after the attack on the Legation, are instances in point; at that time there was much truth in the saying that "a night at the Legation at Yeddo was not unlike a day's duty in the trenches before Sebastopol."

Perhaps the most novel part of Captain Oliver's book is the chapter relating to Réunion. In that island the author partook of the "Palmette" or Cabbage Palm—a circumstance we allude to here because one of our correspondents, a traveller also, lately threw doubts upon the frequency of the use of the "Cabbage," upon which account we quote from the volume before us— "There were several kinds of vegetable, but Palmette predominated, and both as a salad and au gratin it was excessively good. These Palmettes or Cabbage Palms are cultivated extensively in Bourbon for the sake of their *chou* [chou] or Cabbage. . . There are three descriptions of the Chou Palmette, viz., *Arecia alba*, *A. crinita*, and *A. rubra*. The tree is cut down to obtain the soft tender shoot in its spathe which forms the Cabbage. But the thrifty horticulturists never cut down one tree without planting another, and they have them planted in rows in succession, in order that as the tree arrives at its early maturity for the table, there are others ready to take its place." On the other hand one *Arecia*, *A. lutescens*, is reputed poisonous; its glaucous colour of its foliage, and the bitter taste of its Cabbage render it readily recognisable. The occurrence of a poisonous species is noteworthy among Palms.

Captain Oliver has taken pains to insert from the narrative of more recent travellers fuller details where thereat of the subject demands it, while by his copious and well selected references to writers on the geology, natural history, and ethnology of the countries visited, he has rendered his work a veritable book of reference, of the more usefulness as it is provided with an index. But we are trespassing on the patience of our readers, for it is not Captain Oliver known to them as the author of many notes in these pages, and have they not been enriched by numerous singularly effective representations of tropical scenery and vegetation from his skilful pencil, many of which are reproduced in the present volume? To such a friend no introduction is needed; many, however, will be glad to learn that the versatile and accomplished author's narrative is now published in a separate and much extended form of the only defect in which, so far as we see, is a lack of condensing power, several statements of interest only to the author or his immediate friends being allowed to be made public.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MARCH 15, 1882.

Table with columns: MONTH AND DAY, BAROMETER (Mean Reading, 30° Fahr., 18° Réaumur), TEMPERATURE OF THE AIR (Range, Highest, Lowest, Mean for Day, Mean for Month from average of 30 years), Hygrometric (Degree of Sat. in 100), WIND (New Point, Direction, Force), and RAINFALL (Average, in 24 hours). Rows for Mar 10-14 and a weekly mean.

- Mar. 10.—A fine warm day. Overcast. Mild night.
11.—A fine warm day. Overcast. Fine warm night.
12.—A fine morning, fog and darkness in the morning, rain all the evening.
13.—A fine morning, fog and darkness prevailed for a time. Fine night.
14.—A very fine bright day; sun shining brightly. Fine night.
15.—A very fine bright day; sun shining brightly. Fine night.

LONDON: Atmospheric Pressure.—During the week ending March 11, the reading of the barometer increased from 29.77 inches at the beginning of the week to 29.80 inches by 9 A.M. on the 5th, decreased to 29.58 inches by midnight of the same day, increased to 29.28 inches by midnight of the 6th, decreased to 30.23 inches by 3 P.M. on the 7th, increased to 30.27 inches by 9 A.M. on the 8th, decreased to 30.24 inches by 3 P.M. of the same day, increased to 30.37 inches by 9 A.M. on the 9th, decreased to 30.29 inches by midnight of the same day, and was 30.46 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.19 inches, being 0.85 inch higher than last week, and 0.05 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 55° on the 8th and 10th. On the 6th the highest temperature reached was 49°.5. The mean of the seven high day temperatures was 53°.

The lowest temperature in the shade in the week was 36° on the 7th; on the 10th the lowest temperature was 48°.5. The mean of the seven lowest temperatures was 43°.2.

The greatest range of temperature in one day was 16°.5 on the 7th; the smallest was 5°.8, on the 9th. The mean of the seven daily ranges was 9°.8.

The mean temperatures were, on the 5th, 46°.5; on the 6th, 43°.8; on the 7th, 45°.8; on the 8th, 50°.8; on the 9th, 50°.7; on the 10th, 51°.4; and on the 11th, 48°.8. And these were all above their averages by 6°, 3°.3, 5°.3, 10°.3, 10°.2, 10°.8, and 8°.1, respectively.

The mean temperature of the air for the week was 48°.3, being 3°.6 higher than last week, and 7°.7 above the average of the week.

The highest reading of a thermometer with black-

ened bulb in vacuo, placed in the full rays of the sun, was 82°.5 on the 9th; the highest on the 7th was 54°. The mean of the seven readings was 67°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 38°.0, on the 7th. The mean of the seven readings was 38°.0.

Rain.—Rain fell on two days to the amount of 0.19 inch.

ENGLAND: Temperature.—During the week ending March 11 the highest temperatures were 67° at Sunderland, 65° at Sheffield, and 62°.4 at Nottingham. The highest temperature at Blackheath was 55°, at Plymouth 55°.3, and at Bristol and Bolton 50°.5. The general mean was 50°.1.

The lowest temperatures in the week were 29° at Hull, 29°.5 at Wolverhampton, and 30°.7 at Bolton. The lowest temperature at Truro was 43°, at Bristol 38°.5, and at Liverpool 38°.4. The general mean was 34°.7.

The greatest ranges of temperature in the week were 35° at Sunderland, 31° at Hull, and 30°.8 at Nottingham. The least ranges were 17° at Truro, 18° at Bristol, and 18°.4 at Liverpool. The general mean was 24°.4.

The mean of the seven high day temperatures was highest at Sunderland, 62°.5, at Cambridge 57°, and at Truro, 56°.3; and was lowest at Bolton, 52°.8, at Bradford 52°.5, and at Brighton, Blackheath, and Wolverhampton, 53°. The general mean was 54°.6.

The mean of the seven low night temperatures was highest at Truro, 47°, at Plymouth 45°.5, and at Bristol 45°.4; and lowest at Hull, 37°.6, at Wolverhampton 39°.5, and at Sunderland 39°.8. The general mean was 42°.3.

The mean daily range was greatest at Sunderland, 20°.7; at Hull 17°.7, and at Nottingham 15°.5; and was least at Bristol and Plymouth, 8°.2, and at Truro, 9°.3. The general mean was 12°.3.

The mean temperature for the week was highest at Truro, 50°.9, at Cambridge 49°.7, and at Sunderland 49°.4; and was lowest at Bolton, 44°.8, at Wolverhampton 45°.4, and at Hull 45°.8. The general mean was 47°.7.

Rain.—The largest falls were 0.46 inch at Liverpool, 0.45 inch at Bolton, and 0.43 inch at Plymouth and Bristol. The smallest falls were 0.03 inch at Leicester, 0.05 inch at Sunderland, and 0.07 inch at Nottingham. The general mean was 0.23 inch; it fell on an average of from three to four days.

SCOTLAND: Temperature.—During the week ending March 11 the highest temperature was 57°.6, at Aberdeen; at Greenock the highest temperature was 53°. The general mean was 55°.4.

The lowest temperature in the week was 29°.2, at Aberdeen; at Paisley the lowest temperature was 33°.5. The general mean was 30°.0.

The mean temperature for the week was highest at Paisley, 46°.2; and lowest at Greenock, 42°.5. The general mean was 44°.5.

Rain.—The largest falls were 2.74 inches, at Greenock, and 1.81 inch at Paisley; the smallest was 0.35 inch at Aberdeen. The general average fall was 1.35 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon. I.E. STORING IN SAWDUST.—Has any antiquary among your correspondents traced this practice to an earlier date than the casual experiment recorded in your journal for January 10, 1881, pp. 20 and 38? A. M. A.

POMEWATER.—I am anxious to ascertain about the word "Pomewater." It is the name of a kind of Apple made use of some two hundred years ago medicinally. Will you tell me what it means? Can you refer me to any book which will tell me about this variety of fruit? Webster states it—"Pomewater, a sweet juicy Apple." Hope as a Pomewater? Shakespeare: Love's Labour Lost. See also a Pomewater? Where the medicinal virtues are enlarged upon. This Apple, which is now not known, is also the subject of comment in Mr. Elliscomb's Plant Lore of Shakespeare. Also, what is meant by "Pomum Canisum"? What does the adjective "canisurium" as used of Apples, thus,—"Take of 'Pomum canisurium' 2. J. W. G.

Answers to Correspondents.

- ANEMONES: H. Loth. Fine varieties of Anemone hortensis and A. coronaria.
AZALEA APOLLIS: J. Hoskin, Toronto. It is quoted in the Catalogues of the Nurserymen who grow greenhouse plants for sale, and we should think would be no difficulty in getting it from any leading nurseryman in the States.
"CHARITY": E. W. Pamplin. The plant popularly called Charity is Polemonium ceruleum.
ERRATUM.—At p. 258, in the paragraph on Plant Labels, for "painted" labels, read "pointed" labels.
GOOSEBERRY CULTURE IN LUZERN: J. W. For

anything we know the Gooseberry ought to grow quite well in the canton of Lucerne.

HYACINTH MALFORMED: C. L. S. A very common occurrence.

NAME OF APPLE: H. H. Emperor Alexander.

NAMES OF PLANTS: A. M. We cannot name florists flowers. You should take them to some nursery where Camellias and Azaleas are made a specialty. — Z. M. Hellobonus viridis. — H. G. H. We are glad to assist so far as we can consistently with our more paramount engagements, but we cannot undertake to name sixteen wretched specimens, even though they be common Grasses. No. 3 seems to be Agrostis vulgaris; 4, Bromus mollis; 5, Dactylis glomerata; 6, Avena sativa; var. bulbosa; 8, Glycyrrha fluitans; 16, Aira caespitosa. — C. M. Your plant is the Snail-podded Medick (Medicago scutellata), not the Oyster-plant, so called, which is Salsify (Trigonotis pedunculata). — F. H. 1799. One of the more finely cut forms of Asplenium Adiantum-nigrum (the Black Maidenhair Splenwort).

ORCHIDS AU NATUREL: Orchid Grower. What was intended was simply that the plant spoken of is grown in such a way as closely to imitate natural conditions, being pendulous from a slab of wood or bark, as if growing upon a tree.

PEACH BLOOMS NOT SETTING: Gardener. We cannot tell you, in the absence of any details as to the manner in which you have been treating the trees. If they are in a proper state as regards moisture at the roots, and the atmosphere has been kept warm and bracing, there should be no difficulty; though of course you cannot expect them to do so well as those more favourably situated.

PRIMULA: S. K. A poor form of Chiswick Red.

SENECIO SPATHULIFOLIUS: C. H. D. According to Prof. Babington (Journal of Botany, February, 1882) this is distinct from S. compositus. You can refer to the catalogue in question, the compiler being an authority on such questions.

COMMUNICATIONS RECEIVED.—J. H. B., Mentone.—C. G., Pendell Court, not uncommon.—M. Lafosse, who are greatly obliged for your interest in the subject. You can refer to the reproduction used to great (—) J. W.—Stiffard.—W. D.—G. F. W.—E. H.—E. M.—W. G. M.—N. S.—H. M. E.—H. F. W.—I. W.—J. S.

DIED, at Mid-Yell, Shetland, on the 7th inst., WILLIAM DALRYMPLE PATERSON, L.R.C.S., and L.R.C.P. Edinburgh, eldest son of Dr. Paterson, Bridge of Allan. All friends will kindly accept of this the only intimation.

Markets.

COVENT GARDEN, March 16.

The fine weather is bringing early forced fruits and vegetables in large quantities to our market, and prices have considerably fallen all round, Grapes alone making their full value. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Fruit name and price per unit. Includes Apples, Grapes, Kent Cobs, etc.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with 2 columns: Vegetable name and price per unit. Includes Artichokes, Asparagus, Beans, Carrots, etc.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Plant name and price per unit. Includes Aralia Sieboldii, Ficus elastica, etc.

Spring, 1882.

SPECIAL OFFER TO THE TRADE.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

Subject to being unsold on receipt of order.

CUPRESSUS LAWSONIANA LUTEA, 6 to 9 inches, 30s. per 100; ditto, twice transplanted, 50s. per 100; 10 to 12 inches, ditto, 75s. per 100; 12 to 15 inches, bushy, 12s. to 15s. per dozen; 1 1/2 to 2 feet, ditto, 24s. to 30s. per dozen.

MACROCARPA 1 1/2 ft. transplanted in stores, 10s. per 100. JUNIPERUS CHINENSIS AUREA, fine specimens, transplanted spring 1882, 3 to 3 1/2 feet, 10s. 6d., 15s., and 21s. each; 4, 5, and 6 feet, 32s., 6d., 42s., and 63s. each, and upwards.

PICEA PECTINATA (Silver Fir), 12 to 15 inches, 10s. per 100. RETINOSPORA FILIFERA, 12 to 15 inches, 30s. per 100; bushy, 1 1/2 to 2 feet, 12s. to 15s. per dozen.

PLUMOSA, 4 to 12 inches, 30s. per 100; 12 to 15 inches, 42s. per 100.

VAREGIATA ALBA, 6 to 9 inches, 42s. per 100; 10 to 12 inches, 62s. per 100.

TAXUS ELONGATISSIMA, 1 to 1 1/2 foot, 9s. to 12s. per dozen; bushy, 1 1/2 to 2 feet, 12s. to 15s. per dozen; 2 1/2 to 3 feet, 20s. to 42s. per dozen.

FASTIGIATA VAREGIATA (Fisher & Holmes), 1 1/2 to 2 feet, 22s. to 18s. per dozen; 2 1/2 to 3 feet, 24s. to 30s. per dozen.

BAMBUSA JAPONICA, in pots, 9s. to 12s. per dozen. VIRIDIS STRIATA, 30s. per dozen.

BERBERIS JAPONICA, small bedded, 5s. per dozen. CELTIS AUSTRALIS, 3 to 6 feet, 6s. per dozen.

DOUGLASSII, 2 to 6 feet, 20s. per 100; 6 to 8 feet, 30s. per 100; 4 to 5 feet, 50s. per 100; 5 to 6 feet, 9s. per dozen.

DIPLOSPYRUS CHRYSOPHYLLUS, bushy plants, 6s. per dozen.

ESCALONIA MACRANTHA, strong, in pots, 6s. per dozen; 10 to 12 feet, 10s. per 100.

PTEROCALADON, ditto, 30s. per 100.

KUIRA, ditto, 30s. per 100.

FORESTIA VERTICILLATA, 30s. per 100.

HAZEL, Weeping, Standards, 2 1/2 to 4 feet stems, heads 3 to 4 feet, 18s. to 30s. per dozen.

HYDRANGEA MACROCEPHALUM, 6s. per dozen, 42s. per 100.

THOMAS HOGG, 6s. per dozen, 42s. per 100.

HÖLLY, Common Green, 9s. seedling, 6s. per 1000, 50s. per 1000 bedded, 30s. per 1000.

stocky plants, about 2 years, 10s. per 100, 80s. per 1000.

KÖLLEUTERIA PANICULATA, 4 to 5 feet, 10s. per 100. LILY OF THE VALLEY, 10s. per 100.

SAMOLUS LUTEUS, Golden Yellow, 6s. per dozen.

ELEGANTISSIMA, Silver Elder, 6s. per dozen.

SPIRÆA, 4s. per 100, 25s. per 1000.

SNOWDROOP, strong, 16s. per 100.

VERONICA TRAVERSII, about 1 foot, 12s. 6d. per 100, 6s. per 1000, good for seaside.

ANDRÆA FLORIBUNDA, good plants, well set with bloom, 12s. to 24s. per dozen.

ARBUS SIBIRICA, trailing, 6s. to 9s. per dozen.

HEATHS, Hardy, fifteen sorts, stocky plants, for bedding out, 10s. per 100, 80s. per 1000.

MEZENSIA POLIFOLIA, of sorts, 30s. per 100.

SEUIM HYRSIFOLIUM, bushy plants, 6s. to 9s. per dozen.

OAKS (3 to 6 inch), nice young plants, in pots, 3s. per dozen, 70s. per 100.

LONGICERA BRACHYPODA, strong, in pots, 6s. per dozen, 42s. per 100.

CHESTNUT, Spanish, 1 to 1 1/2 feet, 21s. per 1000.

Horse, fine trees, 10 to 12 feet, 18s. to 30s. per dozen.

ELM, English, 5 to 6 feet, 18s. to 30s. per dozen.

Wheatley (crafted), 5 to 6 feet, 10s. to 9s. per dozen.

LINES, 7 to 8 feet, 42s. per 100; 8 to 9 feet, 62s. per 100.

HAFLE, Norway, fine trees, 15 to 18 feet, 10s. to 9s. per dozen.

OAKS (3 to 6 inch), nice young plants, in pots, 3s. to 2s. 6d. per dozen, 8 to 9 s. 6d. per dozen.

POPLAR, Able, 7 to 8 feet, 21s. per 100.

Black Italian, 4 to 6 feet, 18s. to 10s. per dozen.

fine trees, 12 to 15 feet, 12s. per dozen, 15 to 18 feet 18s. to 30s. per dozen.

LAUREL, 6 to 8 feet, 6s. per dozen.

LINDLEYANA CRISPA, 6 to 8 feet, 6s. per dozen.

THORN'S (Standards), good heads, Flants Scarlet, Single Scarlet, and Double Pink, 75s. per 100.

SPECIAL OFFER.

GALDULUS BRECHLEVENSIENS, extra large also ad size.

LILUM CHALCEDONICUM.

LONGIFLORUM, imported from Japan.

Special quotations on application. Also STOCK, Ten-week, Scarlet, White, and Mixed, saved from best imported Seed.

NEMPHILA INDIANA, SWEET FEAS, Mixed, and GREVILLEA ROBERTA.

WATKINS AND SIMPSON, Wholesale Seedsmen, Fyeter Street, Strand, W.C.

GAME COVER.

AMERICAN ARBOR-VITÆ, 18 to 24 inches, 30s. per 1000, transplanted and well rooted.

PINUS BUNYANA, 2 1/2 to 3 feet, 10s. per 1000.

ENGLISH YEW, 15 to 18 inches, 15s. per 100.

COMMON JUNIPER, 9 to 15 inches, 3s. per 100.

BARBERY, 2 to 3 feet, 10s. per 100.

R. AND A. MORRISON, The Nurseries, Elgin, N.E.

LOBELIA CARDINALIS (the Cardinal Flower), makes a grand bed during late summer and autumn, wet or dry; LOBELIA SYPHILITICA, LYTHRUM ROSEUM, HELIANTHUS MULTIFLORUS PLENUM, ACHILLEA FARMACIA, NEW ZONALS of 1881, SINGLE DAHLIAS, DAHLIA VAUREZII.

Prices on application.

A. HEALEY, North Walsham, Norfolk.

The White Hooped Petticoat Narcissus.

NARCISSUS CLUSII OR CROZIERIA MONOPHYLLA.

F. H. KRELAEG AND SON, NURSERYMEN, FLORENCE, and SEEDSMAN, Hartlem, Holland, have just received a fresh importation of very fine Bulbs of this rare and much esteemed NARCISSUS, which they offer at the following prices: long stem, six petals, viz. 2s. 6d.

Per dozen, 4s.; per 100, 35s.

Early orders are requested. Discount to the Trade.

FLOWER SEEDS.

We Grow, Show, and Sell our own Seeds from the best varieties, and, further, it is well known that we have the most complete collections of Plants of the following: therefore can offer none but the choicest, and of such quality that will certainly give delight and the greatest satisfaction to all lovers of good flowers.



OUR Primulas, Cyclamens, and Cinerarias. THEY ARE NOW SPLENDID.

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In addition to the well known and trusty varieties in Seeds, the

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CARTERS' GRASS SEEDS FOR LAWNS AND CRICKET GROUNDS.

AWARDED
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Sydney, 1879.



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THE ONLY GOLD MEDAL, PARIS, 1878.
Beating Thirteen Competitors.



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Carters' Grass Seeds have proved the best in all competitions.—*Vide Juries' Awards.*

CARTERS' INVIGORANT GRASS SEEDS, in Sealed Packets	per Packet—1s. 6d., and 2s. 6d.	Per Bushel.
ORDINARY LAWN GRASS, per bushel, 20s.; per pound, 1s. (<i>As 6 1/2 packets to 1 acre of ground.</i>)	1s., 1s. 6d., and 2s. 6d.	30s.
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50 tons Schoolmaster	20 tons Flukes
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is one of the most distinct and best winter bloomers yet introduced. Coloured Plates, or Bunch of Flowers, 6/ each, returnable to Customers.
Strong Plants, 5s. to 10s. 6d. each.

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CARRIOT, select Altringham.
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BEEF, Nutting's Dwarf Red.
PEA, Prince of Wales.
CUCUMBER, Improved Telegraph.
Tender and True.
ENDIVE, Green curled [*var. eties.*]
TURNIP and MANGEL Seed, finest and most select

FOR SALE.—Twelve clean, healthy AZALEAS, set with flower-buds—two 5 feet high, 3 1/2 feet through; four 4 1/2 feet high, 3 1/2 feet through; six 3 1/2 feet high, 2 feet through.
Twelve clean, healthy CAMELIAS, average size 4 to 5 feet high, 3 to 4 feet through. Apply to
S. DANIEL, Gardener, Eisham House, Grantham.

JOSEPH NAPOLEON BAUMANN, Ghent, Belgium, will be happy to book orders, until May 15, for INDIAN AZALEAS, with flower-buds, grown in pots, for early forcing, and for forwarding in September and October. On May 15 the general stock of Azaleas are planted in the open ground for late forcing.
He has still on hand a good stock of AZALEA MOLLIS, hardy GIBERT AZALEAS with flower-buds, at reasonable prices.
His new CATALOGUE may be had free on application

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MANGEL WURZEL and TURNIP SEED.
H. AND F. SHARPE are prepared to make special offers of MANGEL WURZEL and TURNIP SEED, grown last season from carefully selected transplanted Bulbs. The quality is excellent, having been harvested in fine order, and the prices will be found exceptionally low.
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52, RUE DU CHAUME, GAND. 5, RUE DE LA PAIX, PARIS.

NEW "BEDDING-OUT" PLANT,

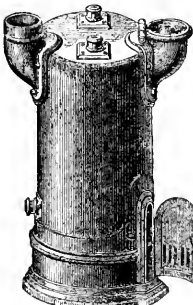
ANNOUNCED FOR THE FIRST TIME, AND WHICH WILL BE SENT OUT ON APRIL 1, 1882. ORDERS WILL BE ATTENDED TO CONSECUTIVELY.
GYNURA AURANTIACA.

The eminent botanist of the Royal Kew Herbarium, Mr. N. E. Brown, speaks thus of this beautiful plant in the ILLUSTRATION HORTICOLE for 1881, the last part:—
"The Gynura aurantiaca is a hardy plant belonging to the Compositae, and is of such an ornamental character as to allow of one's saying that it is not surpassed by any other plant of the same class. The stem and leaves are clothed throughout their entire length with a thick covering of hairs, soft to the touch, and of a beautiful deep violet colour, which gives an appearance of richest velvet to the plant. This is more especially the case with the young leaves, and, when combined with the brilliant orange of the flowers, the aspect of the plant is truly superb."
Without doubt it will gain great favour as an ornamental plant for the open borders."
As this plant in all probability will become as popular as Iresine Lindeni and Coleus Verschaffeltii, both sent out by this establishment, it will be sent out at a very low price in order that it may spread as rapidly as possible.

Two plants 10s., 50s. per dozen.
Orders will be booked from to-day, and all communications must be addressed to

THE COMPAGNIE CONTINENTALE D'HORTICULTURE, 52, RUE DU CHAUME, GAND.
The Illustrated CATALOGUE (English Edition) of NEW PLANTS will appear on April 1 next.

No. 43.
DOME TOP BOILER.



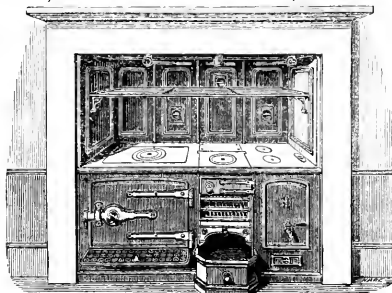
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Single and Double
Cylinders, with
Wooden Handles.



A very Economical Roller.

STEVEN BROS. & CO.,
IRONFOUNDERS AND MANUFACTURERS OF HOT-WATER APPARATUS,
35 and 36, UPPER THAMES ST., LONDON, E.C.

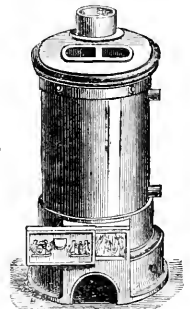


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A very Economical Roller.

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Cheapest Boiler in the Trade.

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FLORISTS' FLOWERS

We have much pleasure in offering the following, in good strong well-rooted cuttings, with names, from our superb collection—Post or Carriage Free at prices quoted—

Table listing various flower types and prices: CHRYSANTHEMUMS, DAHLIAS, FUCHSIAS, GERANIUMS (ZONAL), PHLOXES (PERENNIAL), PENTSTEMONS.

From Mr. A. H. THOMAS, Littleport, May 5, 1881. THE ROOTED CUTTINGS you sent me are the best value I have ever seen, some of the Fuchsias are now splendid!

Cheques or Post-office Orders to

DANIELS BROS., TOWN CLOSE NURSERIES, NORWICH.

3000—Tree or Perpetual Flowering Carnations—3000. A. ALEGATIERE, scarlet; V. ulcan, mottled...

5000—BORDER CARNATIONS—5000. CHOICEST NAMED VARIETIES, 6s. 6d. to 12s. per dozen; also Show PINKS, 6s. per dozen.

ONIONS—ONIONS, and LEEKS.—Splendid strong Autumn-sown ONIONS, now ready for transplanting, can be supplied in any quantities as follows...

A remittance or reference must accompany all orders from unknown correspondents. Cheques or Post-office Orders made payable to FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

VERBENAS—Verbenas. Strong, healthy, well-rooted Cuttings, perfectly free from disease, of White, Purple, Scarlet, and Pink, 6s. per 100, 25s. per 1000; 100 strong rooted Cuttings, in twelve most splendid varieties, First-price Flowers, for 3s. Terms cash.

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SCOTCH FIR, true native Highland Pine, 1 1/2yr. Seedlings, 4s. 7d. per 100,000; 2 1/2yr. Transplanted, 7s. 6d. per 100,000; 12 to 18 inches, 12s. 6d. per 1000; 18 to 24 inches, 15s. per 1000; 2 to 3 feet, 17s. 6d. per 1000.

PINUS AUSTRIACA, P. LAEBACH, P. MARITIMA, and MONTANA, 1 1/2yr. Seedlings, 6s. per 1000; 2 1/2yr. Transplanted, 10s. 6d. per 1000.

POLYANTHUSES, PRIMROSES, HEPATICAS, and AUCURIAS. Apply MR. COOPER, F.R.H.S., CALCOT GARDENS, NEAR READING, BERKS.

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Thomson's Vine and Plant Manure. Manufactured and Sold by THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), LIMITED.

This is the Manure used to produce the splendid Grapes grown at the Tweed Vineyard, Clovenfords.

Full particulars on application. The Trade supplied. All Letters to be addressed to THE MANAGER, The Vineyard and Nursery, Garston, near Liverpool.

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Circulars of Advantages, Analysis, and Testimonials, post-free.

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ARCHANGEL MATS, best colour and quality; also **ST. PETERSBURG MATS** and **RAFFIA SEED BAGS** and **SACKS**, **KNITTING** and **SHADING**, &c. Prices on application.—**WM. PETERS**, 44, Tenter Street South, Goodman's Fields, London, E.

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MARENDAZ and FISHER, James Street, Covent Garden, W.C. have received a special importation of new **ARCHANGEL MATS**; also a large consignment of **PETERSBURG MATS**, **MAT BAGS** and **RAFFIA FIBRE**.

NATIVE GUANO,
 SUITABLE FOR ALL CROPS.

Price, £3 10s. per Ton, in Bags, at Aylesbury.

A single x cut, Sample Bag sent, Carriage Paid, to any Railway Station upon receipt of Post-office Order for 5s.

This valuable Manure, prepared from Sewage by the "A. B. C." process, has been extensively used for several years, by Farmers, Gardeners, and others, whose reports testify to its fertilising properties.

EXTRACTS FROM LAST SEASON'S REPORTS:—

WILLIAM CRUMP, Gr. to Duke of Marlborough, Blenheim Palace Gardens, December 12, 1881.

"Used for Vines, Peach trees, and other fruit trees, also Potatoes, Carrots, Parsnips, Onions, &c. Results: satisfactory. Fruit trees assumed rich dark green foliage, increased vigour, whilst the fruit swelled up to a very fine size. Potatoes came out in splendid condition; other roots were benefited by its application. No other manure used. Native Guano. Undoubtedly a valuable fertilising agent, and I shall lose no opportunity of recommending it to gardeners and others."

A. BLAIR, Head Gr. to H. Cameron, Esq., The Lilies, Woodon, January 3, 1882.

"Used for Peas, Potatoes, Onions, Cabbage, Cauliflowers, Celery, Vines, Cucumbers, &c.; Chrysanthemums, Primulas, Geraniums, Fuchsias, &c. Results: Onions, Cabbage, Cauliflowers, and Peas good; Cucumbers, first-rate; Potatoes, a good crop, and I consider it a good manure for pot plants. I think the Native Guano only requires to be more known to the public to be largely used."

Sixteen Prizes awarded at Birmingham Show, 1881.

The Annual Show of Farm and Garden Produce, grown with Native Guano, will be held at Aylesbury in October next. Schedules and Prizes and all particulars, together with testimonials, &c., may be obtained upon application to

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WILLIAMS' NEW HOTHOUSE SHADING.

The most suitable for Shading Orchids, Ferns, Palms, Stove and Greenhouse Plants.

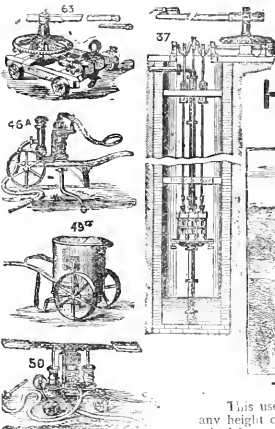
After several years' successful trials at home, I have much pleasure in bringing this article before the notice of Orchard Growers, as being better adapted to the culture of Orchids and other plants than any other Shading. It is largely used by R. Warner, Esq., of Chelmsford, and many other successful cultivators of Orchideaceous Plants.

It is a strong durable Cotton Netting, woven in squares, so close as to exclude the direct rays of the sun, but at the same time admitting the greatest amount of light attainable through Shading. It withstands the weather better than any other class of Shading, and may be used beneficially during cold weather to keep the frost out, on account of the thickness of its texture. It stands exposure much longer than canvas, and is altogether a better article. It is astonishing to see the difference in the growth of Orchids shaded with this material, and those shaded with canvas; in the one case the plants receive the greatest amount of light attainable through Shading, and consequently grow more robust, and produce stronger spikes and better coloured flowers—in the other the plants are drawn up, the houses appear quite dark, the spikes become slender and weak, and the plants in many cases do not flower at all.

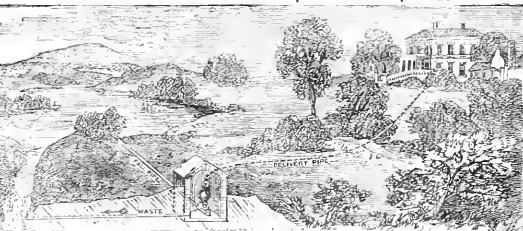
Blinds made up to any size and fixed complete.

Sold in pieces, 30 yards long by 1½ yard wide. Price, 45s. each.

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VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.



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This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

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S. OWENS and CO. Manufacture and Erect every description of Hydraulic and General Engines, Work for Mansions, Farms, &c., comprising PUMPS, TURPINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GASWORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS HYDRANTS, HOSE PIPES, &c., &c. Particulars taken in any part of the Country. Plans and Estimates furnished.

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THE ABOVE and many other PATTERNS

are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense.

as do "grown" Edgings, consequently being much cheaper. GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design. F. ROSHER and CO., Manufacturers, Upper Gower Street, Chalkfarm, S.E.; King's Road, Chelsea, S.W.; Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also LOOKLEY'S PATENT LEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES,

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fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post. FLINTS and BRICK BIRRS for Rockeries or Terraces. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER and CO.—Addresses see above. N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

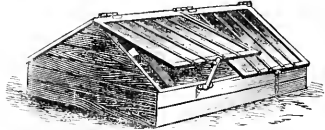
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HORTICULTURAL BUILDERS,

HOT-WATER ENGINEERS,
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 Plans and Estimates on application for every description of Horticultural Buildings in Wood or Iron.
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TENANT'S FIXTURE. Of improved construction, can be erected in a few minutes, with Roosting House, Covered Run, Nests, Perches, &c., complete, 12 feet long, 4 feet wide. Price 60s. net, carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post. BOULTON and PAUL, Manufacturers, N.wich.



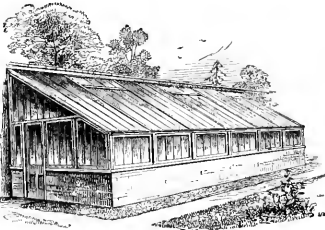
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R. HALLIDAY AND CO. desire to draw special attention to their Plant Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

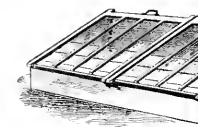
- Prices, delivered to any station in England, also Dublin and Belfast:
6 feet long, 4 feet wide ... £ 8 0
12 feet long, 4 feet wide ... £ 13 0
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The glass is nailed and putted in. Lights and framing for brick pits at proportionally low prices. R. HALLIDAY AND CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

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W. H. LASCELLES will prepare Special DRAWINGS and ESTIMATES for GREENHOUSES, if desired, without charge, and send his Illustrated Sheets, Profiles, and also Sketches of Wooden Buildings for Tool-houses, Store-houses, &c. Horticultural Work of every description executed in the very best manner.



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CASH PRIZES - Carriage Paid
No. 2 size ... 8 ft. long ... 6 ft. wide ... £ 7 0
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No. 4 size ... 16 ft. long ... 6 ft. wide ... £ 27 0
These Frames are 1 1/2 inches deep in front, and 2 1/2 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. These Frames are made of the best hard red deal, shipped from the best districts for durable wood, all painted four coats of best oil colour, the lights are glazed with best 20-z. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales; also to Edinburgh and Dublin. Estimates for Garden Frames, Pot Lights, Sashes, &c. 'The Frames you sent me give the greatest satisfaction' - W. SMITH, Bentley Terrace, Melton Mowbray.

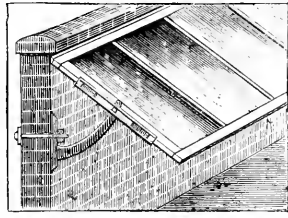
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'ART WITH ECONOMY.' Applied to Conservatories and Greenhouses. With Illustrations, Prices, &c. Part I. now ready Post-free twelve stamps. HORTICULTURAL BUILDINGS Of every description Made, Erected, Fitted and Heated. ESTIMATES and PLANS GRATIS. CHEAP ART SUMMER-HOUSES. Illustrations and Prices Gratis. Mr Fawkes' New Illustrated Work of Reference on Horticultural Buildings, post-free, 6s. Prospectus sent gratis.

T. H. P. DENNIS & CO., MANSION HOUSE BUILDINGS, LONDON, E.C. WORKS: CHELMSFORD.

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Supported by strong Iron Brackets, 2 feet wide. 2s. per running foot.

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LEAN-TO or SPAN ORCHARD HOUSES, consisting of top and front sashes in red deal framing, channelled and glazed without putty with 20-z. glass. Sashes removable when not required for the trees. Price, 12s. 6d. per foot super-carriage paid. Specimens view, Catalogues and Price Lists free. W. PARHAM, Northgate Works, Bath, and 411, Oxford Street, London, W.

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For larger Manual and Foot Drills, see Illustrated List free from F. HIRD & CO., 11, Great Castle St., Regent St., London, W.

The Best System of Heating is by Hot Water. The Best Hot-Water Joint is Jones' Expansion Joint.

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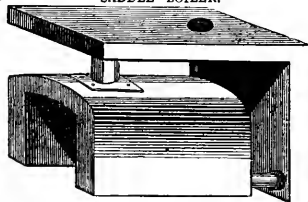
THE BEST JOINT. Medals Awarded, Horticultural Show, Aston, 1875. SIMPLE, DURABLE, NEAT, CHEAP. Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c. Illustrated CATALOGUE; also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES

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REDUCTION IN PRICES. With 2 feet pole, 4s. 6d. '4' '55. 6d. '6' '65. 6d. '8' '75. 6d. '10' '85. 6d. '12' '102. 6d. Longer lengths (jointed) supplied to order. This implement is admitted by the leading horticultural authorities to be unrivalled for Pruning and Trimming Trees of all kinds, Shrubs, Fruit Bushes, Vines, &c.; also the Standard Fruit Gatherer, price 10s. 6d. with 2 feet pole, and 12s. 6d. with 10 ft. pole; longer lengths to order. Illustrated Circulars post-free. Standard Manufacturing Co., St. Alkmund-Churchyard, Derby. Sold by the principal Ironmongers and Seedsmen.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler with the following improvements - viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes: -

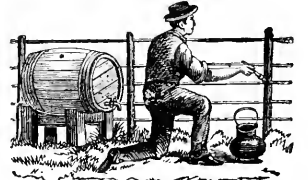
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Larger sizes if required. From Mr. CHARLES YOUNG, Nurseries, Balkham Hill, S.W., May 29, 1873.

'Having given your Patent "Double L" Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work.'

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HILL and SMITH'S BLACK VARNISH, (Registered Trade Mark).



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received. Sold in Casks of about 20 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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'H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade mark as above, without which none is genuine. Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to HILL and SMITH, Brierley Hill Iron Works, Staffordshire; 115, Queen Victoria Street, London, E.C.; and 180, Euchaean Street, Glasgow.

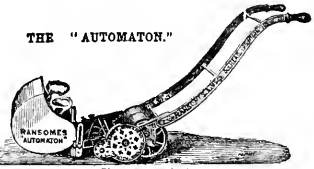
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HORTICULTURAL WINDOW GLASS, 15-oz. and 20-oz., in Boxes containing 200 feet. Carriage Paid to any Railway Station in England.

Price Lists on application. ALFRED S. E. Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 8, Prince Vidor Road, London, N.

THOUSANDS IN USE.
SENT CARRIAGE PAID.
MONTH'S TRIAL
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THE "AUTOMATON"

 Sizes, 8 to 22 inches.
THE BEST GENERAL PURPOSE MACHINE.

The "AUTOMATON" Lawn Mowers are thoroughly strong, well-made, and durable machines, and the best suited for general work and Gardeners' use. They cut the grass perfectly, leave no ribs, but produce a smooth velvety surface on the Lawn, and are light in draught.

The "AUTOMATONS" have front rollers for general work, and *scare* rollers for cutting long grass, or when it is unnecessary to roll the grass in front of the cutters. They have the best machine made gearing, the best self-sharpening knives of steel and iron rolled together, and automatic silent drivers.

R. H. & J. also manufacture
"REVERSIBLE" Lawn Mowers for small Gardens and Borders, and
"HORSE-POWER" Lawn Mowers for Large Lawns, &c.

RANSOMES' LAWN MOWERS ARE THE BEST.
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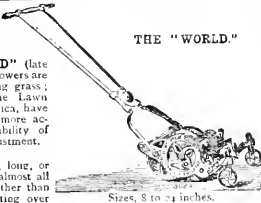
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 Sizes, 8 to 24 inches.
FOR CUTTING LONG GRASS.

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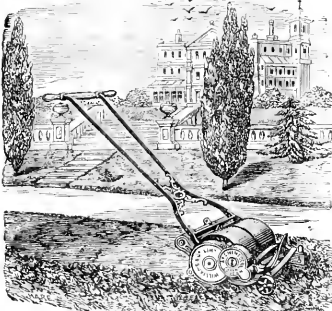
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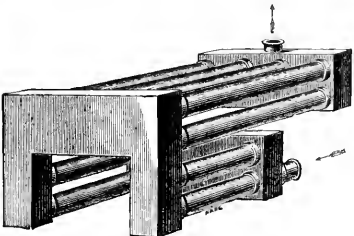
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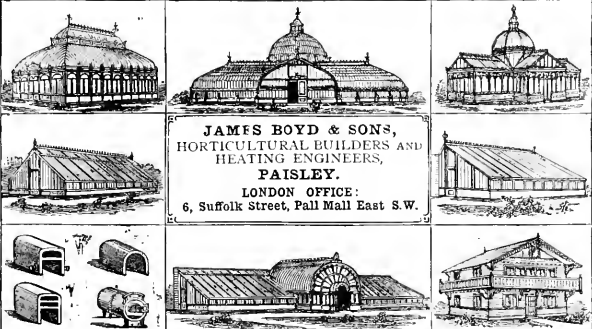
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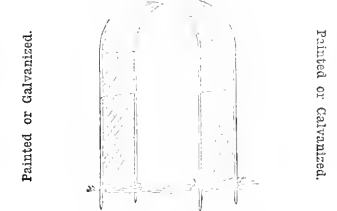
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the late Emperor of the French, the Emperor of Russia,
and most of the Nobility, Clergy, and Gentry
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Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856,
And Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

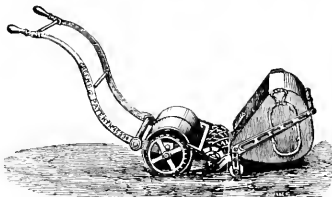
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

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- 1st. Simplicity of Construction—every part being easily accessible.
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Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower.

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
*To cut 22 inches. By Two Men ...	8 10 0
*To cut 24 inches. By Two Men ...	9 0 0
* It made stronger, suitable for Donkey, 30s. extra.	

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

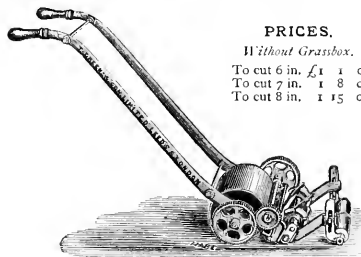
To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
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HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.



PRICES.

Without Grassbox.

To cut 6 in.	£1 1 0
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To cut 8 in.	1 15 0

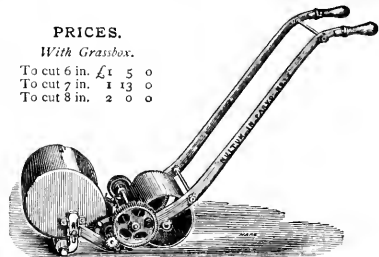
This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

PRICES.

With Grassbox.

To cut 6 in.	£1 5 0
To cut 7 in.	1 13 0
To cut 8 in.	2 0 0

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, serviceable machine, and very easy to work.



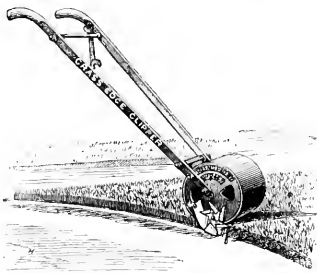
GREEN'S PATENT GRASS EDGE CLIPPER.

Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.

SIZE and PRICE.

Wide ..	Diam. ..	Price ..
8 inch ..	7 inch ..	£1 1

Packing Case, 2s.



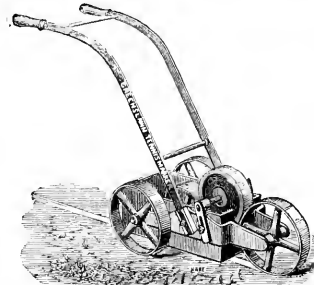
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This Machine is of novel design and construction, and the simplest and most effective in its operations.

In the trough containing the liquid there is a loose drum which revolves when the machine is in motion, and conveys the marking material to the intermediate pulley, which in its turn transmits it to the front one, so that the ground is marked effectively as the machine is pushed along.

Price, 21s.

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.



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VEGETABLE and FLOWER SEEDS OF SUPERIOR QUALITY.

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In every respect the finest Double White Corolla ever offered.

Flowers large, corolla of the purest white, very double, sepals rich crimson, well reflexed; its floriferousness is unapproached by any other variety...

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From Mr. J. HORSHFIELD, Gr. to Lord Helyarbury, Helyarbury, Wilt. "After having seen your new Fuchsia, 'Edelweiss,' a fair trial, I have no hesitation in pronouncing it to be the best double white variety with which I am acquainted..."

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DOUBLE FLORET DAHLIA.

THREE CERTIFICATES OF MERIT Awarded for its 'New Form,' by the following Horticultural Societies:

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One of the greatest novelties in the 'form' of the Dahlia yet offered. Each floret has another of smaller size within it. Flowers of good outline, colour rich crimson.

To be sent out after the middle of April, 25, each.

Opinions of the Press: HENDER'S DOUBLE FLORET DAHLIA. During the last few weeks I have been visiting some of the exhibitions in South Devon and Cornwall, and none of the novelties have struck me so much as the Dahlia of which the name is given at the head of this note...

NEW ZONAL PELARGONIUM, CRIMSON VESUVIUS.

A magnificent sport from Salomon Vesuvius, with fine crimson flowers. Trusses very large, habit dwarf, equal to the old Vesuvius for floriferousness.

Price 1s. each; 2s. per dozen, Post free. Autumn struck.

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THE GREAT SUPERIORITY OF GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN MOWERS



OVER THE COURSE OF ALL OTHER MAKERS IS UNIVERSELLY ACKNOWLEDGED.

THEY WILL CUT Either Short or Long Grass, Bents, &c., Wet or Dry.

These advantages no other Lawn Mowers possess.

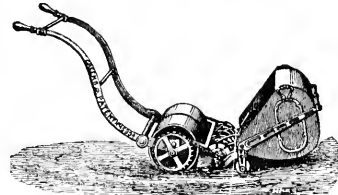
They are the only Mowers which have been in CONSTANT use from 15 to 20 years in the Royal Gardens, Windsor.

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Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The following Prizes were awarded to THE GREEN & SON (Limited), Leeds and London: A Silver Medal, the 1st and Highest Prize of the Royal Horticultural Society, was awarded to Green's Patent "Silens Messor" Lawn Mowers.

"The Journal of Horticulture," of June 9, says:—"Messrs. GREEN took the Silver Medal in this class of eight exhibitors, each having a number of machines, was no exception, for special advantages in some form or other were claimed for each kind of mower, and it may be safely said that all were good and did their work well."

"The Garden," of June 11, says:—"Messrs. GREEN took the Silver Medal for their Mowing machines, which were represented by their 'Silens Messor,' and the horse-mower machines with new patent side delivery grass boxes."



They are the simplest in construction, the easiest to work, the least liable to get out of order, make little noise when in use, and are the most durable Lawn Mowers extant.

Table listing mower specifications and prices: To cut 6 inches... 1 s. 0 d.; To cut 8 inches... 1 s. 6 d.; To cut 10 inches... 2 s. 0 d.; To cut 12 inches... 2 s. 6 d.; To cut 14 inches... 3 s. 0 d.; To cut 16 inches... 3 s. 6 d.; To cut 18 inches... 4 s. 0 d.; To cut 20 inches... 4 s. 6 d.; To cut 22 inches... 5 s. 0 d.; To cut 24 inches... 5 s. 6 d.; To cut 26 inches... 6 s. 0 d.; To cut 28 inches... 6 s. 6 d.; To cut 30 inches... 7 s. 0 d.; To cut 32 inches... 7 s. 6 d.; To cut 34 inches... 8 s. 0 d.; To cut 36 inches... 8 s. 6 d.; To cut 38 inches... 9 s. 0 d.; To cut 40 inches... 9 s. 6 d.

Prices of Horse, Pony, and Donkey Machines on application. They can be had of all respectable Ironmongers and Seedsmen in the United Kingdom, or direct from the manufacturers.

Carriage paid to all the Principal Railway Stations in the United Kingdom. Illustrated Price LISTS free on application.

N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London Establishments, where they will find prompt attention, as an efficient staff of workmen is kept at both places.

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Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz.:

- 15 per Cent. for Cash with order, 10 per Cent. for Cash within One Month of date of invoice. 5 per Cent. for Cash within Three Months of date of invoice. After Three Months no discount can be allowed. They hold the following in great quantity and of the finest quality: ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9s. to 15s. per dozen, 6s. to 10s. per 100. Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 8s. to 10s. per 100. NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen. French Varieties of 1880, 18s. per dozen, 12s. per 100. CURRANTS—Black, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100; cheaper by the 1000. NUTS and FILBERTS—Largest and Best Varieties, fine Bushy plants, 6s. to 10s. per dozen, 40s. to 60s. per 100. HERBS of many kinds, 3s. to 6s. per dozen. PLUM (Prunus)—Variegated, common (P. domestica variegata), a very striking and easily grown variegated tree, 2 1/2 to 3 feet, 9s. to 3 1/2 feet, 12s. per 100. ELM—Wych, transplanted, 4 to 6 feet, 8s. to 10s. per 100; 6 to 8 feet, 25s. per 100; 20s. per 100. POPLAR—Black Italian, 6 to 8 feet, 9s. per dozen, 20s. per 100; 10s. per 100; 8 to 10 feet, 5s. per dozen, 30s. per 100; 24s. per 100. WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen; 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 5s. per dozen, 35s. per 100.

- Cerulean, 6 to 8 feet, 5s. per dozen, 15s. per 100; 8 to 10 feet 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen. ASH—(Fraxinus excelsior) atrovires, 3 to 4 feet, 12s. per dozen; 4 to 6 feet, 18s. per dozen; 6 to 8 feet, 22s. per dozen; 8 to 10 feet, 28s. per dozen. spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 15s. per dozen.

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- HOSE-CHESTNUT—Extra transplanted, very fine, well-rooted, 10 to 12 feet, 6s. per dozen; 12s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100. Scarlet-flowered, 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.

- ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen. Giant or Huntingdon (macrophylla), 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen. Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen. Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per dozen; 12 to 15 feet, 36s. per dozen.

- MAPLE—Norway (Acer platanoides), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen. WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The trunk of a 100 ft. tree is sent with 600 order, in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 24s. per 100; 8 to 10 feet, 6s. per dozen, 36s. per 100; 10 to 12 feet, 12s. per dozen.

- EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 18s. per 100. ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close to the sea; 6s. per dozen, 40s. per 100. cut-leaved—a handsome lacinated form, and like other Elders, extremely useful for ornamental planting close to the sea. 6s. per dozen, 40s. per 100.

A slight extra charge must in most cases be made for packing. Where each plant of 100 or 300 is sent with 600 order, the amount for postage may be forwarded in stamps after despatch of goods. All the above prices are subject to the discounts named at head.

THE GENERAL AUTUMN LIST will be forwarded Gratis and Post-free to all applicants. N.B. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.

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B. S. WILLIAMS

Begs to announce that he will send out the following

NEW PLANTS,

FOR THE FIRST TIME, EARLY IN MAY:—

AMARYLLIS, "Mrs. Garfield,"	Each— <i>s. d.</i>
ABUTILON ECLIPSE	from 21 0
ARALIA COCHLEATA 5 0
" NOBILIS 21 0
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AZALEA "Duke of Connaught"	... 10 6
BEGONIA WILLIAMSONII 10 6
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ATTRACTION, CHASTITY, CRITERION, GENERAL GARFIELD, MR. POWELL, PATRIOT
Price, 7s. 6d. each.

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Price, 7s. 6d. each.

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Which will be ready next month.

B. S. WILLIAMS,

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, N.

SUTTONS'

SPECIAL GOLD MEDAL,



MELBOURNE, 1880-81.

PRIZE GRASS SEEDS,

FOR
LAWNS, TENNIS GROUNDS,
AND
CROQUET and CRICKET GROUNDS,
Have been used with the greatest success in the grounds of
The Principal International Exhibitions,
The Principal Cricket and Croquet Grounds,
The Principal Parks, &c.,
IN EUROPE.

"Melbourn, October 22, 1880."
"Sir,—By direction of the Commissioners for the Melbourne International Exhibition I have to request that you will be so good as to convey their best thanks to Messrs. Sutton & Sons, of Reading, for their valuable Lawn Grass Seeds planted in the grounds of the Exhibition during the late winter. The seeds have germinated freely and the lawns are now in splendid condition. Messrs. Sutton & Sons may accept my assurance that the introduction of their Lawn Grass Seeds into this country has been attended with very great success.—I have the honour to be, Sir, your most obedient servant,
(Signed) "GEORGE C. LEVEY, Secretary.
To THE CHIEF CLERK, Melbourne International Exhibition Offices, London."

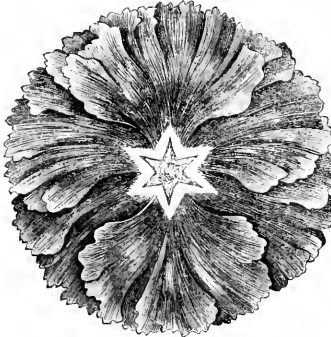
PRICES:—

SUTTONS' MIXTURE for LAWNS and CROQUET GROUNDS, 3s. 3d. per gallon; 25s. per bush.
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HOW to MAKE and IMPROVE LAWNS, see Suttons' Pamphlet, New and Enlarged Edition, gratis and post-free on application.

SUTTONS' CHOICE FLOWER SEEDS.

FREE BY POST OR RAIL.



SUTTONS' NEW PRIMULA—"RUBY KING."
Deep blood red: perfectly distinct.
First-class Certificate, Royal Horticultural Soc., Jan. 14, 1879.
Price, 5s. per Packet, post-free.
Full particulars may be had, gratis and post-free, on application.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN,
READING, BERKS.



THE

Gardeners' Chronicle.

SATURDAY, MARCH 25, 1882.

TRAVELS OF PLANTS.

(Concluded from p. 366.)

THE wild plants of Peru and Chili were carried by the first explorers of those countries to Spain long before they grew in England or Ireland. Potatoes were in Burgundy in 1560, and in Italy about the same time. In 1584 they were at Youghal, but it was not until thirty years later that they took firm hold of the ground in Ireland on their re-introduction at Youghal by Sir Walter Raleigh. Meanwhile Gerard, the herbalist, received from Sir Francis Drake some tubers, which he planted in his garden at Holborn. In 1663 the Royal Society published rules for the cultivation of the new crop. The Dutch carried the Potato to the Cape, and it passed into India in 1800, and has generally spread over the whole world, being confined in hot countries to the hills.

The Potato recalls the memories of an age of travels and voyages, when Drake sailed westwards with his five ships, singeing the King of Spain's beard on his passage, and re-appearing to be dubbed Sir Francis after having circumnavigated the globe. The nation was at all times extremely curious as to foreign countries, and having become wealthy by means of trade and the growth of wool, it naturally welcomed travelled plants and introduced them in its gardens. In exchange for the Potato and two other plants, Tobacco and Cinchona, America obtained from this hemisphere Sugar, Coffee, and the Cocoa-nut.

A word or two on the Sugar-cane, a plant allied to the Indian Rattan, but in the estimation of schoolboys widely different in flavour—the one being bitter, and the other sweet. We pass over its early travels from its home in China, and notice only its passage into Spain with the Moors, into Madeira and Mexico with the Spaniards, into Brazil with the Portuguese, into Barbadoes and Jamaica with the English colonists in the seventeenth century, and into Bourbon and Mauritius with the French.

The exchange of plants between America and the Old World includes Wheat and Maize, whose typical climates are widely different. It is the habit of Maize to commence its growth suddenly at a gallop in June. Wheat, on the contrary, prefers to advance gradually, and it breaks down with rust and mildew when forced on by an excess of sun, without a sufficient pause between seed time and harvest. Maize has been known to run its course in ninety days, and to reach the threshing floor to the tune of 160 bushels per acre. It is not surprising, therefore, that this prolific grain should have accompanied the colonists of various nations over the whole of America from Chili to the chain of lakes. It was introduced into gardens on this side of the Atlantic within fifty years of the first voyage of Columbus. It entered the Mediterranean by way of Spain, and before the death of Queen Elizabeth and her counsellors—two of whom were noted gardeners. It reached the Levant, where it became an important item in the trade of the Venetians. It

afterwards passed up the Danube to Hungary, and travelling eastward with the merchandise of caravans, it gradually entered the Rice countries, and reached China and Japan. Maize, however, is a native of temperate zones, and Rice of the tropics, consequently there are points where they part company. The latter does not find sufficient warmth in Europe north of the Alps; the former is at home in Ohio, Illinois, and the northern part of Kentucky, but in the Gulf States it finds too much heat. In the hot districts, where Cotton and the Sugar-cane flourish to perfection, it becomes magnificent in stem and leaf, and proportionately deficient in the ear or cob.

We will now take Tea. It has not been a great traveller as a tree, but the leaf ranges wide, and frequently passes twice through the teapot in company with any other small leaves resembling it in size. The first Tea was brought to England in 1666 by Lords Arlington and Ossory, who obtained it from the Dutch East India Company. Its original price was 60s. per pound. Fortune and other authorities describe the *Thea bohea* and *T. viridis* (green Tea) as varieties produced by the influence of age, soil, climate, and cultivation. Souchowg, hyson, &c., are sorts which receive their names according to the time of picking and the age of the leaf and of the wood which bears it. Tea leaves, like grass in process of being made into hay, can only retain their green colour when quickly dried without oxidation of the juices by exposure in damp weather. Artificial green Tea is coloured by the use of indigo, gypsum, and Prussian blue, and being slightly poisonous, it has sometimes been known to "murder sleep."

The Paraguay Tea, so largely used in Brazil and neighbouring countries, is a Holly of restricted habitat, with properties very similar to those of Tea.

The Coffee tree is an indigenous evergreen in Arabia, where the berry remained locally unused till a Muffi of Aden acquired a taste for the beverage produced from it in Persia. In 1554 it was sold at Constantinople, where it had a remarkable effect in emptying the mosques in favour of the *cafés*. The berry travelled westwards in 1615 as an item in the Venetian trade. The *cafés* of Paris and the corresponding shops in London became fashionable at the end of the century.

To the preceding list of plants, which have been distributed by the industrious hands of man, we propose to add a few trees, placing first the Date—a Palm which has travelled from the confines of Asia through the Syrian and African deserts. Some of the finest plantations are those around Medina. Those of Egypt are important.

Two other equally important plants are the Banana and Plantain, tropical fruits which appear to be indigenous both on the Euphrates and the Orinoco. A patch of Bananas yields four or five times as much food as the same breadth of Potatoes, and the tree grows from a sucker, bears fruit in eight months, and sprouts and fruits again in three months. It is, therefore, a convenient tree for the tropics, and has been dispersed over them from the earliest ages. It will be remembered that the Bread Fruit of the Pacific—a tree producing fruit the size of penny loaves, yellow, sweet, and pleasant to the taste—was once set up in opposition to the Banana. The excitement on the subject culminated in London, in the idea of a crop of undiluted bread growing ready baked in a large spreading tree of the Friendly Islands. George III. was accordingly petitioned on the subject, and the *Bounty* was sent out to Otaheite under the command of Lieutenant Bligh, for the purpose of securing some specimens of the important tree. The *Bounty* reached her destination in 1788, and shipped 1500 young trees, which were

destroyed during the mutiny. A few years later Admiral Bligh received a similar commission, and succeeded in conveying the Bread Fruit to the West Indies, where the colonists soon discovered it to be inferior as food to the *foo-foo* of the Plantain, or Banana, while the tree itself is of slow growth.

Other food trees of the tropics are the Cacao, which cannot wander beyond the regions of great atmospheric heat and moisture; and the Dourian, the largest of tree fruits which Mr. Wallace enjoyed in the Malayan Archipelago. For the sake of naming the second largest tree fruit, we mention the Brazil-nut, whose woody fruit holds sometimes a quart of those angular and oily nuts. Circumstances prevent these trees from travelling far, but there are others to be briefly noticed.

The Aspen trembles all through Europe. It may have commenced its curious habit in the Caucasian range, where it is still a prominent tree, but historically it has always been dispersed over Turkey and Russia as far as the Frozen Ocean, and there is nowhere such a trembling of Aspen leaves as in the woods around Moscow, where innumerable seedlings sprang up after the conflagration of 1813. The Aspen is found in the bogs of Denmark at all depths, while the Alder, Birch, and Hazel do not occur below the Oak level. Like the Scotch Fir, therefore, it is one of the primeval trees of Europe. It is also a native of the woods of Invercauld, near Braemar, where it ascends to a height of 1600 feet. It travels into Sutherlandshire, loves moist situations and woods, overhanging the Highland lochs. The margin of Loch Katrine and the islet of the "Lady of the Lake" are its favourite sites.

In the Highlands on the banks of the Dee and the Spay, in the pass of Killiecrankie, and everywhere in England, what tree is so bewitching in its beauty as the Birch of Russian pleasure-grounds, and of Siberian and Icelandic wastes? On the Apennines the Birch begins to grow at about 5000 feet above the level of the sea, in Lapland it ceases at a line 800 feet above the Fir, and 2000 feet below perpetual snow. The Birch is the superlative tree as regards the extent of ground it covers, in Northern Europe, and in the variety of purposes to which it is converted in Lapland, where the natives sit in birchen huts on birchen chairs wearing birchen boots and breeches, with caps and capes of the same material, warming themselves by fires of birchwood charcoal, reading books bound in birch, and eating herrings from a birchen platter, pickled in a birchen cask. Their baskets, boats, harness and utensils are all of Birch—in short, from cradle to coffin the Birch forms the peculiar environment of the Laplander.

That fastigate tree the Lombardy Poplar has been traced from Persia, where it abounds, and from the Himalayas, to the banks of the Po, and thence to the margin of our English streams. About a hundred years ago Lord Rochfort imported from Turin the first cuttings of the Lombardy Poplar, which introduced here the novelty of a pole clothed with foliage.

The Cedar of Lebanon is a modern tree in Europe. The oldest ar, or were, at Chelsea, the tallest at Strathfieldsaye, the largest at Sion House. Lebanon is a wet mountain whose frost and snow equals that of Scotland; consequently the Cedar of Lebanon is adapted to the English climate and affects damp situations such as the banks of the Thames. It likes to dip its roots in running water for the purpose of absorption in dry weather. On dry soils it will be found a dwarf.

The introduction of the Cedar of Lebanon into France was an effort of most interesting devotion on the part of Bernard de Jussieu, who brought it from the Holy Land in 1757, and kept it alive on the voyage by sharing with it the very small quantity of water which he received during a pro-

longed passage. In the absence of a flower-pot Jussieu is said to have planted the Cedar in his hat, and by giving it a moiety of his daily glass of water he succeeded in keeping it alive, and afterwards had the satisfaction of planting it in the Jardin des Plantes at Paris. In 1837, at the age of 100 years, it was cut down, having attained a height of 80 feet.

The Elm, a wayside tree in Germany, a Vine-peg in France, and an ornament of several avenues in Madrid, is a puzzling tree to botanists, the genus being too mixed in character to reproduce itself true from seed. The Wych Elm is our only undisputed native, ripening its seed in our climate—the surest test of a native tree—and extending from the coast villages in Sussex to the haughs of the Teviot and Tweed, and even to the Highlands. All the varieties of the British Elms may be referred to this *Ulmus montana*, and to the old English Elm—*Ulmus campestris*—which has smaller leaves, throws up numerous suckers—not a habit of the Wych Elm—and sometimes displays a trunk of 90 feet long and 15 feet girth. This is a constant tree of avenues and parks in the southern and midland counties, and of hedgerows in the valleys of the Thames and Severn. It is spread over Southern Europe, Western Asia, and Northern Africa, and it has been naturalised in England, where it rarely ripens its seeds, of which, indeed, only a portion ripens in France and Germany. The English Elm was rarely found in Scotland before the Union, and only on sites where it was known to have been introduced. It has been distributed over Ireland in modern times. Evelyn spoke of it as being rarely seen north of Stamford, and as having been imported from Italy by our great benefactors the Romans. Even Philip II. admired the stately form of our tree of lights and shadows, whose open foliage admits the light and produces "the checkered shade," which is the charm of woods. He had sat, perhaps, though not too often, with Mary—

"Under the shady roof
Of branching Elm, star proof,"

and on his return to a more congenial country he transported to the Escorial some English Elms.

Space will not allow us to add to this short selection of travelling plants, and we have therefore omitted the Conifers, which have arrived from the East and West in this age of easy transit in numbers too great for enumeration. The same remark applies to the plants introduced by private firms, and to those collected by Sir J. Hooker and other naturalists. H. E.

New Garden Plants.

NEPENTHES HIRSUTA VAR. GLABRESCENS.

THE *Nepenthes* we now figure (fig. 59) we have received from Glasnevin, and have seen in many other establishments under the name of *Nepenthes zeylanica*, together with a red variety of the same known as *Nepenthes zeylanica rubra*. Although familiar with the plant in cultivation we have long been uncertain as to its correct identification. One thing seems certain, that is, that it has nothing to do with Ceylon, though it may have been conveyed there, and introduced from that island. Sir Joseph Hooker, who has made a special study of these plants, refers it to *N. hirsuta*, a native of Borneo. If so, it differs from native Bornean specimens in being nearly entirely glabrous. It belongs, as will be seen from our illustration, to the section with panicle inflorescence. The following descriptive notes were taken from plants growing in the nurseries of Messrs. Veitch, of Chelsea, Williams, of Holloway, and from specimens kindly forwarded by Mr. Moore, of Glasnevin:—

Nearly glabrous. Stem reddish. Leaves sub-

amplexicaul, broad at the base, lanceolate, with two equidistant nerves on either side of the midrib. Pitchers 5 by 1½ inches, elongate, cylindrical, slightly dilated at the base, reddish, with conspicuous veins, or wholly green, wings deep fringed, mouth ovate, slightly prolonged at the back, surrounded by a greenish-yellow finely-ribbed rim; lid about the size of the mouth, cordate, emarginate, with a simple spur. The small pitchers crowded at the base of the stem are similar, except in size, to the others. Male inflorescence panicle, flower segments ovate ciliate. (Pollen cells compound globose ciliate. *H. G. Smith.*)

and of Baker, the *Lygodium polycarpum* of Desvaux, the *Lygodium Forsteri* of Lowe, the *Lygodictyon Forsteri* of J. Smith, under which name it was recently figured in these pages (figs. 46, 47, p. 339), and the *Lygodictyon Schkuhrii* of J. Smith.

According to the modern idea that the marked differences which occur in the venation of Ferns should be made use of for breaking up into groups of more manageable extent the otherwise vast array of species which come under the more antiquated genera, Mr. John Smith many years ago proposed for the plant now in question the generic name of *Lygo-*

Fulcheri; it differs from the common form of the species in the following particulars, as well as in its bolder and more vigorous habit of growth:—

Pinnæ larger (more than 3 inches long, and nearly 1 inch broad), more regularly tapered from the base to the apex, the base obliquely truncate scarcely at all cordately-rounded, and the apex acute.

Though no doubt specifically identical with *Hydroglossum scandens*, we believe our present subject as above observed, as a more vigorous-growing variety of it than that which has been long occasionally, though rarely, met with in collections. We have never seen the older cultivated form putting on anything like the luxuriant growth and ornamental character assumed by the specimen shown last January, at the meeting of the Royal Horticultural Society, by Mr. Kettle, gardener to H. Egerton Green, Esq., of King's Ford, Colchester, to which a First-class Certificate was worthily awarded for its very effective presentation. In that state, as the woodcut shows, it has not only a distinct and handsome but a very characteristic aspect, and may claim an honourable position amongst decorative and exhibition Ferns. The garden name of *Lygodium Fulcheri*, under which it was exhibited at South Kensington, was given to it provisionally in Mr. Green's garden in compliment to Mr. Fulcher, by whom it was brought from Sydney in 1879—then but a tiny plant, which has since made good progress. Mr. Kettle, who deserves our warmest thanks for developing this new beauty, informs us that the imported plant made a good growth in 1880, but that he unfortunately used it for indoor decoration before the fronds were matured, which damaged it to such an extent that they were all lost. It, however, made another capital growth in 1881, and in this dress it was exhibited last January. A recent examination of the plant, moreover, shows that it promises to throw up strong stems in the coming spring. It was grown in what may be termed a warm greenhouse—a small house used for the cultivation of Maidenhair Ferns. The soil in which it was potted consisted of loam and peat in equal parts. The plant exhibited received no special treatment; nor in fact was there any intention of submitting it to the judgment of the Floral Committee until this course was suggested last autumn by a visitor at King's Ford, who supposed it to be a novelty not in commerce.

The *Lygodiæ* consist of two genera—*Lygodium*, with free veins; and *Hydroglossum*, with reticulated venation. They are very similar in external appearance, but are distinct in habit from all other Ferns in that they produce numerous tall, slender, climbing stems from the crown of the roots. In *H. scandens Fulcheri* the stem or caudex is semiterete and of a pale brown colour, producing short branches, from the apex of which grow a pair of fronds, which vary from 6 to 9 inches long and from 4 to 6 inches broad, and are made up of from four to six pairs, sometimes more, of suberiacous pinnæ, attached by short fusco-hirsute petioles, with which they are articulated. The sterile pinnæ are oblong-lanceolate, 2 to 3 inches long, unequally crenate, the lower ones with the superior base subtruncate or slightly rounded, the upper ones with the base acute. The fertile pinnæ are usually shorter, with the little spikelets of fructification projecting from the marginal teeth. The veins, which are prominent on both surfaces, anastomose in about two series of elongate oblique hexagonous areoles. The figure of *H. scandens* in Schkuhr (t. 139) represents the fertile fronds of that species in their smaller form, with more ovate pinnules, resembling the upper left hand figure in the illustration at p. 331, but the fertile parts of the variety *Fulcheri* do not appear to take this abbreviated form.

The species is a native of the Society, Sandwich, Fiji and other Polynesian Isles, and is also found in East Tropical Australia. As an exhibition plant it would go well with the *Gleichenias*, to which it would form a striking and effective contrast. *T. Moore.*

THE QUEEN AND HER SERVANTS.—The Queen has just caused a memorial stone to be placed over the grave of the late Mr. Andrew Toward, in Whippingham churchyard, Isle of Wight. It bears the following inscription, which was written by Her Majesty:—"To the memory of Andrew Toward, for twenty-nine years the faithful land steward of Queen Victoria and the Prince Consort, by whom he was much esteemed. Born December 21, 1795; died May 7, 1881."



FIG. 59.—*NEPENTHES HIRSAUTA* VAR. *GLABRESCENS*.

HYDROGLOSSUM SCANDENS VAR. *FULCHERI*.

The oldest name for this handsome climbing Fern, called *Hydroglossum scandens* by Presl, is *Ophioglossum scandens* of Forster, and hence we think Presl's modern name, adopted above, should be preferred to others which have been proposed. It is not the original *Ophioglossum scandens* of Linnaeus, which is the plant now known in gardens and by botanists as *Lygodium scandens*, and differs from *Hydroglossum* in its free not reticulated veins, as well as in the form of its fronds. The plant bears many *altiss.* Thus it is the *Hydroglossum polycarpum* of Willdenow, the *Lygodium reticulatum* of Schkuhr

dictyon. The name *Hydroglossum* had, however, long before been applied by Willdenow to a genus equivalent to the *Lygodium* of Swartz, and as this thus superseded name included one of netted-veined species, Presl, in his review of the Schizaceae, to which the plant appertains, retained it for the netted-veined genus, to which it belonged on the ground of priority, and we have accordingly adopted it in the Synopsis of Genera which forms part of our as yet unfinished *Index Filicum*.

The new introduction which has been figured at pp. 339, 331, and which is the subject of the present notice, appears to be a more luxuriant form of *H. scandens*, for which we propose the varietal name of

NEW POTATOS.

I HAVE been able to make up a list of twenty-one apparently *hitherto* new kinds of Potatos, and offered in commerce for the first time this season. Of these I find the Messrs. Sutton & Sons to have no less than six kinds, all, I believe, from that prolific raiser, Mr. Robert Fenn. Our Scotch friends have a fair share of the total, as they offer us five kinds; but America, through an English house, as far as I can learn, offers us only two kinds. With so many new home-raised sorts it is but probable that American kinds—none of which have obtained a generally good reputation for table quality—should be somewhat distanced in the race; and I incline to the belief that Americans will be less grown in the future than they have been in the past.

As usual, the white kidneys are one of the strongest classes, not less than eight being of that section. These are:—Victor: a handsome flattish tuber of medium size, and very early. Duke of Albany: a large kind, the tubers in form very much resembling those of Beauty of Hebron, starts at every eye, and should be a large cropper, and will no doubt turn out fine handsome samples. Both of these are offered by Mr. C. Sharpe, of Sleaford. Cosmopolitan: a large, long, flattish tuber, very handsome; a heavy cropper, and quite early: First-class Certificate, Chiswick, 1881; sent out by Mr. Dean, of Ealing. Cleopatra (Messrs. Carter & Co., Holborn): a handsome broad tuber; should be in its correct form a little arched beneath, and rounder on the upper side—a fine cropper; First-class Certificate at Chiswick, 1881, as Foster's Seedling. Victoria Kidney: seedling from the old Victoria, and much earlier, flattish, and fairly handsome; First-class Certificate at Chiswick, 1881; sent out by Messrs. Oldroyd & Co., Shrewsbury. Queen of the South: described as a fine handsome kind; sent out by Messrs. Kerr & Fotheringham, Dumfries. Ingliston Fluke and Cromwell, both sent out by Messrs. Smith & Co., Aberdeen, are evidently of the fluke breed; long, flattish, the former having prominent eyes, the latter the best looking of the two sorts.

The white rounds are Early Regent, Standard, and Fiftyfold, raised by Mr. Fenn, and sent out by the Messrs. Sutton & Sons, of Reading. The two latter received First-class Certificates at Chiswick last year. The tubers are of good round form and handsome. Early Border, another from the same firm, is well adapted for frames and warm borders, and is a very pretty Potato. Early Cluster was one of the first kinds certificated at Chiswick last year. Its tubers are flattish-round and handsome. It is a very heavy cropper, and is sent out by Mr. Dean. Myatt's Albert Edward is a very promising white round, with a good reputation from the raisers. It was exhibited at the International Potato Show last year, but was not, I believe, grown at Chiswick; sent out by Messrs. Myatt, of Evesham. Premier, a roundish oval-shaped tuber, has a dwarf top, and is very early; should be useful for summer exhibition; sent out by Messrs. Downie & Laird, Edinburgh. Fortyfold White, a Regent-like tuber, deep eyed; sent out by Messrs. Smith, Aberdeen.

Of coloured kidneys one of the finest is Defence; sent out by Messrs. Lee & Sons, Hammersmith. It is long, large, and fairly handsome, purplish-mottled in colour, and very distinct. This has not been grown at Chiswick. Prizetaker, one of Mr. Fenn's, and sent out by the Messrs. Sutton, a large and very handsome pale red kind, tubers shaped much like those of Bountiful; First-class Certificate at Chiswick, 1881. Queen of the Valley (American), sent out by Messrs. Hooper & Co., Covent Garden; large and coarse, skin pink, an enormous cropper; First-class Certificate at Chiswick, 1881.

Coloured rounds are limited to Adirondack (American), flattish round, pale red skin, fairly handsome, heavy cropper—First-class Certificate at Chiswick 1881; and Heading Russet, another of Mr. Fenn's, and occasionally referred to in these pages as Berkshire Rose, also sent out by Messrs. Sutton: it is cerise-red in colour, flattish round, and very handsome. Thus we get eight white kidneys, eight white rounds—an unusual proportion of this section, three coloured kidneys, and two coloured rounds. Out of these I think there will not be found one that is not of good table quality, some altogether first-rate, so that it is evident we are going ahead in the right direction. A. D.



OREGON CONIFERS.—By the courtesy of Messrs. Veitch we have been enabled to examine some specimens recently received by them from Oregon, and of which they have a large stock in cultivation. It is satisfactory to find that, though much yet remains to be cleared up, Coniferous nomenclature is so far fitting down, that there was no doubt as to the correctness of any of the names of the specimens we have examined. A few notes on some of the more important are here appended.

PINUS TUBERCULATA.—The bark on the young shoots is a rich cinnamon colour; the leaves are in threes, 3–4 inches long, faintly saw-toothed, sharply apiculate. The cones, 5 by 3 inches, hang down from the main trunk and branches, to the surface of which they are closely appressed, so that on the side next the trunk the cone is flattened, and the scales are checked on their development, while on the other side the cone is markedly convex, and the scales project as stout, conical, woody prominences. The cones hang for years on the tree without falling or liberating the seeds. The action of a forest fire is apparently not found to cause the cones to open.

TSUGA PATTONIANA (foot of the Three Sisters, G. H. Collier, August, 1881).—Branchlets grey, and much cracked when young, ferruginous and pulverulent. Leaves linear acute, $\frac{3}{4}$ inch long, more or less three-sided, covered with stomata on all sides and with a single resin canal beneath the midrib. Cones erect (?), 2 inches by $\frac{5}{8}$ inch, cylindrical oblong, purplish scales, thin, rounded, at first pubescent. Wing of seed oblong obtuse.

THUYA GIGANTEA, Springfield, Oregon.—This is the plant often grown under the name T. Lobbi in British gardens and very different from the Libocedrus decurrens which sometimes does duty for T. gigantea. The cones are deflexed, cylindrical, oblong, with one or two oblong seeds to each scale, the wing being deeply two-lobed at the top.

ABIES GRANDIS.—The specimens entirely agree with those described and figured from Dr. Engelmann's notes and photographs at p. 179, February 5, 1881, and, indeed, come from river-banks in the neighbourhood of Eugene City, Oregon, the same locality as that from which Dr. Engelmann's specimens were derived. In our illustration the cones are shown as too dark in colour, their real colour when fresh being apple-green; but the dried cones are of a brownish tinge. The leaf-section of the specimens now examined shows a much more prominent midrib than is shown in our figure, which, however, is correct in essential structure. Dr. Engelmann, as we have often mentioned, considers the A. Lowiana or Parsoniana or lasiocarpa as a form of A. concolor; but while acknowledging the greater value of his opinion, we can but express our opinion that in English gardens the plant is much more like a form of A. grandis, and the fruiting specimens grown by Mr. Mackay bear out this view. The true concolor is figured at p. 661, May 21, 1881. A Parsoniana (with its many aliases) is figured at p. 649, May 22, 1880, under the name A. concolor, and A. grandis at pp. 179, 180, February 5, 1881. All three are abundantly distinct for garden purposes.

A. AMABILIS (Sisters, Foley's Cascade).—The specimens (shoots and foliage only) correspond accurately with those figured in the *Gardeners' Chronicle*, and show the blunt leaves on the barren shoots, and the acute leaves on the fertile branches.

A. SUBALPINA also corresponds with the figure as given in the *Gardeners' Chronicle*.

ARBOREUM SEBASTIANUM.—The fourth part of the *Icones* contains beautifully executed illustrations of three species of Pterocarya—P. stenoptera, Spachiana, and fraxinifolia—hardy trees with the general character of the Walnut, but varying in the foliage, and with long, racemes of bony fruits, each provided with two leafy wings, varying in shape in the different species. *Cratogeomys leucophloeos* is a species with greyish bark, destitute of spines, elliptic serrate leaves and oblong reddish fruits. *C. coccinea cordata*, one of the finest of the Thorns, whose large crimson oblong fruits are not only handsome but edible. *Calycanthus floridus*, an old-fashioned plant in English gardens, remarkable for its dull-coloured, fragrant flowers. The variety here figured is said to be harder than the type.

PALMS IN SMALL POTS.

In the growth of this large family of plants for general decorative purposes, it is a common mistake made by many cultivators who are anxious to hasten on the size of their plants to frequently report them. This rule may apply to many plants, but I am quite convinced, in the case of Palms in general, that it can be dispensed with. Not only can they be removed from place to place much easier, but their roots will remain more healthy when somewhat pot-bound, provided abundance of water is supplied them. In the case of kinds grown in a stove temperature, for instance, some may be required for indoor decorations, where they will be in a lower temperature for a while. If these plants should be growing in somewhat large pots in proportion to the size of the plant, the roots will be found to suffer sooner than if kept in smaller pots. This I attribute to the roots not being able to absorb the moisture in the soil so quickly as they ought to do, consequent upon the inaction caused by a lower temperature and the excess of soil to their requirements.

If the roots once become unhealthy in the case of a Palm, they will take some time to come round again; and should the plants when in this case have to be utilised in other than their growing quarters, they will the more quickly suffer, as evidenced by sickly decaying foliage. Palms should at all times be abundantly supplied with water, and occasional stimulants administered. For this latter purpose I find Standen's Gardeners' and Amateurs' Friend one of the very best: a little of it should be sprinkled on the soil and watered in. I once had a case in point of a large specimen of *Stevensonia grandifolia* (*Phœnicophorum sechellarum*) which had become too large for its quarters. It had become much pot-bound, even to cracking its pot, and not being disposed to report it, I sank it into the tank of water over which it had been growing; the water, being at all times warm, suited the plant to the letter. By doing this I kept it some time longer in a vigorous condition.

The soil I find to suit Palms best consists of about equal parts of good fibrous peat and sound turfy loam with plenty of fibre; to this we add a few half-inch bones, or bone-meal, and a liberal supply of silver-sand, giving the pots also a good drainage. In shifting the plants, one size larger pot than the former is in most cases quite sufficient. In the case of those in pots that have reached their limit in size, scarcely too much water can be given. For table plants Palms can be grown sufficiently large for all cases in 48-sized pots. We use many even in 60's, in which size some are extremely useful and pretty.

The following is a good selection of kinds for table plants, viz., *Cocos Weddelliana*, *Geonoma gracilis* and *pumila*, *Chamedorea glaucoflora* and *grammifolia*, *Kentia Forsteriana* and *australis*, *Araucaria*, *area*, *lutescens* and *rubra*; *Euterpe edulis*, *Calamus ciliaris*, *Thrinax elegans*, *Acanthophoenix ciliaris*, and *Phœnix rupicola*. For general decorative purposes, and especially adapted through their thriving so well in small pots, the *Kentias* are invaluable: the deep green colour of their bold foliage always makes them attractive. For light leathery appearance none are better than *Chamedorea glaucoflora* and *Cocos Romanzoffiana*, with slender stems and nice heads of plummy foliage; these are well suited for the decorations of entrance-halls, &c. Of good durable kinds resisting the dry atmosphere of rooms as well or better than any others are *Phœnix tennis* and *reclinata*, also *Seafartha elegans* and *Latania borbonica*. All of the *Demonorops* are also serviceable, but require more care in handling, on account of their spines.

Of insects that are troublesome to Palms the white scale is one of the worst; if not quickly checked, sickly yellow spots will soon be seen. Another some what longer kind of scale of a dull colour will settle down along the midrib of some kinds and cause trouble. Mealy-bug is also troublesome. For all the e-an insecticide of proved efficacy, and about 50 per cent. beyond printed instructions in strength to be used, will soon dislodge them. Red-spider is troublesome at times to those of slender growth, as the *Chamedoreas*, and also to *Thrinax elegans*; as the liberal use of the syringe will check these, and all the more effectively if a bag of soot is constantly kept in the tank from which the water is drawn. In purchasing any fresh stock, it is a good plan to select those with a clean healthy stem, stout in pro-

portion to the size of the plant, and the smaller the pot in proportion to the size of the plant the better for the future well-being of the same. *James Hudson, Gunnersbury House, Acton, W.*

CALADIUM TUBERS.

YOUR correspondent at p. 23, vol. xvii., in giving his opinion on this subject, says, "When the leaves have died down in a natural way" he could keep the tubers without giving them any special attention, provided they were placed in not too low a temperature. In this opinion I beg to concur, as I think he has in the sentence quoted hit the very root and substance of the whole question. The reasons for this opinion are founded on the fact of my having witnessed most of the ways of treatment described by your various correspondents in different establishments in England. The dry, the moist, the cool, and the hot, all obtain and have their supporters and defenders with varying proportions of success. My own pet system used to be of the latter class, much experience having pointed it out as the means whereby the greatest success was attained if "the leaves had died down in a natural way," after being fully developed, and having had sufficient time to store up the necessary amount of starchy matter so important to produce a well-keeping tuber. It is the soft, sappy, and spongy bulbs that are so difficult to keep under any kind of treatment, but the well-ripened ones will also rot if placed in too low a temperature.

In Jamaica these plants thrive remarkably well planted in the open ground where the temperature ranges from 65° to 90° Fahr., with the ground temperature never lower than 65°. They like moderate shade, will not stand wind, and during the growing season are benefited by plenty of moisture. I have known them for weeks—I may say months—at a time without a drop of rain at the resting period, or "when the leaves have died down in a natural way." On the other hand, during the same period I have seen them deluged with rain for weeks. Under both conditions the tubers remained sound, and when raised for the purpose of division, &c., their lower surface presented an appearance similar to a new Potato. There can be no doubt, therefore, that the secret lies in a careful attention to the life history of the plant, especially during the "going to rest" period, when from their untidy appearance they are usually "pushed to the back," "shoved down the stoke-hole," "under the stage—oranywhere, in fact, to get them out of the way"—just at the most important time, when careful attention is required to produce a perfect tuber. Grow in good heat with shade, ripen with a little sun, keep warm during rest, and Caladium growers need never despair of keeping tubers with success. *John Hart, Superintendent, Government Cinchona Plantations, Jamaica.*

FUNGI OF ANTS' NESTS.

THE fungi which occur in tropical countries on ants' nests are for the most part very peculiar, but no fungologist has yet made a special study of them in the countries where they abound. Specimens of one or two species of Podaxon are frequently gathered by botanists, as their size and peculiar appearance at once attract notice, and an esculent Agaric has once been found on them in abundance, while a very singular form, to which the provisional name of *Leninus cartilagineus* was given, was found by Mr. Gardner 4 feet below the surface of the earth on the comb of Termites; and the same botanist also gathered in Ceylon what appears to be a form of the common *Nylaria hypoxylon* on the combs of the white ant, but doubtless many interesting though less attractive forms would reward closer researches. We therefore received with great interest specimens of a minute white fungus sent by Dr. Duthie from Saharunpore, which he found, to use his own phrase, "in some white ant runs about 2 feet below the surface of the ground."

The portions of earthy crust, though extremely fragile, arrived in perfect order, and with a common lens showed little white globules, which had all the appearance of Persoon's *Egerita candida*, and on closer examination it was found that the appearance was not deceptive, as the structure was clearly very much the same with what is figured in the *Notices of British Fungi*, and the form of that fungus, but with the addition of

conidia which show a material difference though not sufficient to constitute a distinct genus. It is to be observed that the figures of *Egerita candida*, including those of Greville and Corda, are altogether unsatisfactory, inasmuch that Corda proposed a genus which he named *Crociosporium* for a plant which is congeneric with Persoon's *Egerita*. This genus was adopted by

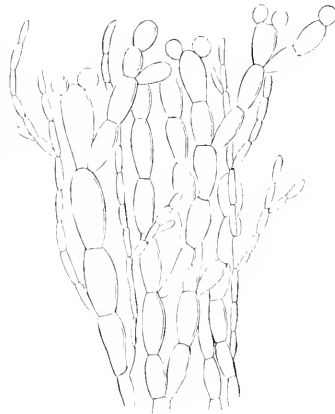


FIG. 60.—*EGERITA DUTHIEI*.

Bonerden, and still more lately by Sorokin in a late number of *Strie*, vol. iv., tab. 6, of *Annales de St. Nat.*, where there is an elaborate analysis. We recognise, therefore, three distinct species—*Egerita candida*, Pers., *E. Cordae* (sub *Crociosporium*), and *E. torulosa* (Bon.). It is at once clear on the inspection of the several figures that they are congeneric, and we have now to add a fourth species, of which we give a figure under the name of *E. Duthiei*. The little white globe bodies consist of a compact mass of threads with swollen joints, which are often branched and bear at their upper end one or two globose smooth spines, which according to Mr. Broome's observations, sometimes form little chains; mixed with these



FIG. 61.—*EGERITA DUTHIEI*.

threads and proceeding from them are much more slender threads with oblong joints, the ultimate points falling off, and which therefore must be regarded as conidia. *M. J. B.*

Our figure 60 represents both kind of threads with spores and conidia as observed by the writer of this notice, and fig. 61 sketches of the same as observed by Mr. C. E. Broome.

The Herbaceous Border.

PRIMULA ROSEA.—This brilliantly coloured Primrose is now coming in flower on my rockeries and borders, and of all the early rock Primroses is perhaps the best; *P. denticulata* and its varieties are more vigorous in growth, but their flowers are less hardy and less capable of resisting spring frosts. Like most other Primroses, *P. rosea* does best when treated as a triennial; divided plants are liable to club and to flower badly. Some seed sown as soon as ripe in the spring of 1880 produced me 200 or 300 plants, part of which were planted out on rockeries and borders in the autumn of that year, and flowered sparingly at the end of the following March. Owing, however, to the late frosts they ripened no seed. They are now flowering, with many crowns and flower-stalks each, the vivid crimson-pink of the buds when opening being surpassed in the same colour by no flower I know. A plant lifted in autumn and potted and kept in a cold frame till February, and then brought into the greenhouse to flower, produced twenty-one flower-stalks, having nearly a hundred flowers open at a time. The seed is not enclosed in a capsule, but is loose on the outer surface of the receptacle [This statement requires further explanation. Will our correspondent oblige by sending seed at the right time, Ed.], and requires careful watching if it is intended to collect it. It comes up almost as soon as sown. I have spoken of Primroses as triennial because I find that they mostly arrive at their climax in their second spring flowering, after which the flowers are never so fine or the plants so healthy, however carefully they are divided. *C. Wolley Dod, Edge Hall, Malpas, Cheshire.*

ANEMONES APENNINA AND RANUNCULOIDES.—These two very pretty Anemones are at the time of writing (March 13) in full bloom, and will doubtless continue in flower for another three weeks. They are eminently suited for planting out in groves or near woodland walks; in fact, for such a purpose as this one cannot over-estimate their worth. The celestial blue of *A. apennina*, and the rich golden-yellow of *A. ranunculoides*, together with the common white *A. nemorosa*, have when seen from a distance, and intermixed with each other, quite an enchanting appearance; indeed, for an artist with his pigments and brushes, or for a poet in his most thoughtful moods of meditation and reflection, they would form reasonable subjects not unworthy of their skill and imagination. With some persons, I believe, it is a moot question as to whether *A. apennina* is indigenous in Britain. It certainly is growing wild [naturalised] in a small piece of woodland in the park here, and has been known to grow in the same place for upwards of sixty years—how long previously I have no information at hand; but although this is the case I am not at all prepared to assert that it has not been planted there at some time or other, on the contrary, I am very much inclined to think that it has been, and for this simple reason, it cannot be found growing wild—at least I myself have not met with it—in any of the other woods or plantations in the district. *J. Horsfield, Hestonbury.*

SEMI-DOUBLE AND FULL-DOUBLE DAFFODILS.—We all know the two forms of the common double Daffodil of gardens, one in which the outline of the trumpet is preserved unbroken, the inside being double; the other in which the trumpet expands and mixes its petals in confusion, so as to make a full double flower. I was assured by Mr. Harpur Crewe some years ago that this difference is merely an accident of soil and cultivation and not constant in the same bulbs. I have since found by observation that he is quite right, and that the semi-double is in the common Daffodil the more vigorous form of the two, produced by rich strong soil, and that by transplanting into thin and poor soil the full-double flower is produced. It has several times been stated in the *Gardener's Chronicle* that the double form of the wild Daffodil, *N. pseudo-Narcissus*, generally has the trumpet only double. Last year I received by post from Devonshire a dozen bulbs of it, all in flower, and all semi-double. This year their growth is, as might be expected, rather weak, but nearly all are flowering, the flowers being full double. In the double forms of *N. incomparabilis* I believe that poverty of soil causes the flowers to revert to a nearly single form, as in this gravelly soil I have often found them with only the inside of the cup double. *C. Wolley Dod, Edge Hall, Malpas, March 17.*



Orchid Notes and gleanings.

WORK IN THE HOUSES.—The growing season could hardly have opened in a more favourable manner for all classes of Orchids, and any plants that the grower intended to retard will be more difficult to keep at rest during the next month or six weeks; and, should the present exceptional weather continue, any Cattleyas or Dendrobiums that may be required for late flowering will be perfectly safe if placed in the cool-house for a month or so; and any plants in the East Indian-house that it may be desirable to keep late should be placed in a warm, moist corner of the Cattleya-house, where they should be closely watched, and if the plants show any signs of suffering from the change, remove them at once to their old quarters. Before the next Calendar appears we hope to re-surface all the Phalenopsis, and any that are well rooted and are now large plants for the size of basket they occupy, will be placed, without being disturbed, in baskets a size or two larger. In every case all the old moss will be carefully picked out from the roots of the plants, and as much of the old drainage and charcoal as can be got away without injuring the roots. After this each plant should be thoroughly cleansed at the root with the syringe, using tepid water for the operation. Allow the plants to drain and get a little dry before mossing them up again. It is very necessary to be particular in using none but the best and strongest moss for these plants. In sorting the moss for Phalenopsis we select the growing points of the moss only, which when put round the plants makes a light springy dressing through which the air can permeate freely, and this soon induces the plants to root vigorously. Drain the baskets thoroughly and place a few pieces of charcoal across the top of the baskets, just under the base of the plants. The new roots will soon find out the charcoal and travel along it to the outside of the baskets, where, if the atmospheric conditions of the house are suitable, they will rapidly extend. Avoid keeping the moss soddened about the roots, but the surface should be lightly and carefully syringed to start the moss into growth, and when this takes place the plants generally do well for the season. In the East Indian-house the *Vandas suavis* and *tricolor* will now be flowering freely, and as soon as their flowers are cut the plants should be carefully sponged over to clear them of any exudation from the flowers. In this house the useful winter-flowering *Cypripedium Hookeri* will be in right condition for being repotted, and if the plants are getting large they may with advantage be divided. Pot them in a mixture of two parts fibry peat to one of clean sphagnum moss. *Cypripedium Stonei* in the same house will be making up its growth, and as the flower-spikes will shortly appear it should not be allowed to suffer for the want of water.

Plants of *Odontoglossum citrosatum* that have been grown in the Cattleya-house will now be showing flower, and should be elevated to strengthen their slender spikes. A few plants of this species should always be grown in the cool-house to give a succession of flowers, and though they do not make such fine growths as in the Cattleya-house, we have always found them keep healthy and flower freely in the cooler temperature. In this house the winter-flowering *Oncidium Cavendishii* will now be getting over, and the plants may be started into growth again at once. Repeat any that require it, and start them in the East Indian-house, giving them a light position, and when the foliage is fully formed the plants will bear a considerable amount of sun with advantage. Should easterly or north-easterly winds occur after the bright weather we have had, it will be necessary to ventilate very cautiously; and during the prevalence of winds from these two quarters the houses should always be kept a little moister than when a southern or westerly wind is blowing. J. Roberts, *Gardenshire*.

CATTELEYA TRIANE VAR.—Referring to the note upon the above in last Saturday's issue, of Messrs. Veitch's varieties, permit me to state that one of the most distinct—which was perhaps not there when the

writer of the note referred to walked through the houses (as I purchased it)—is the joint bloom on a last year's imported plant of six bulbs that has made two leads and flowered from one. The bloom is 4 inches across and almost round. Colour uniformly bluish, with two exceptions—1, the venation of the petals is a fainter shade, almost white; and 2, the labellum, which is darker than the rest of the flower, the dark purple front and dark orange throat being divided almost as if painted, so distinct is the division of colour; the margin is crisped and white. The plant-roots are aerial, as yet none holding to anything, and no plant has yet its full strength. Next year I look for a great improvement even on this description. D. B. C.

DISA GRANDIFLORA SEEDLINGS.—I send you a small tuft (fig 62) out of a pan of seedlings of *Disa grandiflora*, to show how freely they are produced from seeds. These were sown on October 31 last. At four weeks after sowing they make their first leaf; they do not make much progress until they are about a year old. When the autumn growth begins they make rapid progress, and at the end of the second year they are strong plants. Some that were sown in the autumn of 1879 have every appearance of flowering during the coming summer. I have crossed *Disa* with many sorts of Orchids, but fertilisation does not seem to be readily effected. However, a cross with *Holca eclectica* as the pollen parent produced five seeds, three of which are growing, but whether a cross was really effected would be hard to say, as a



FIG. 62.—SEEDLING PLANT OF *DISA GRANDIFLORA*.
(The line to the left side indicates the real size.)

grain of pollen might have fallen on the stigma in taking out the pollen masses. T. Myles, *Lambethhurst*.

LÆLIA HARPOPHYLLA.—This distinct species is now in flower in several collections, but I must confess when I saw it in the Burford Lodge collection and also in Mr. Lee's collection at Leatherhead I was disappointed with it. The plants at present in flower were so far behind the fine form exhibited by Sir Trevor Lawrence at South Kensington last spring as to raise the question whether the large-flowered variety, which is probably scarce, should not have a distinctive name. There is a very good form of it in flower in Messrs. Veitch's nursery, King's Road, Chelsea, at present. It has quite the colour of *Lælia chinabarina*, but the flowers have considerably more refinement, and are borne on stems about 6 inches long, the flowers not rising higher than the tops of the leaves. The flowers are very useful to cut for small vases or for buttonhole flowers. I find it succeeds best near the glass in the warm end of the Cattleya-house. J. D.

FRUIT PLANTATIONS.—Gerard, in advocating the planting of fruit trees, alludes to one objection that may be raised to the practice in the following terms: "but Envie saith, the poore will breake downe our hedges, and we shall have the least part of the fruit," but forward, in the name of God, graffe, set, plant, and nourish up trees in every corner of your grounds, the labour is small, the cost is nothing, the commodity is great, your selves shall have plenty, the poore shall have somewhat in time of want to relieve their necessity, and God shall reward your good mindes and diligence."



The Flower Garden.

ROSES.—The completion of the pruning of Roses is now imperative and no time should be lost; the extraordinary mild weather has encouraged a very strong growth which, however, must all be cut back to the dormant eyes at the base: very strong shoots may be left from 4 to 6 inches in length, but the weak ones should be shortened to the lowest dormant bud, and where shoots are very much crowded they should be thinned out. When pruned let the borders be dressed with a good and rich compost of strong loam and dung, which should be carefully forked in but not so deep as to disturb the roots; in the progress of this work we have found that the soil about them is in what we call a rather unkind condition particularly when the drainage is defective owing probably in a measure to the want of the disintegrating influences of frost, the greater reason therefore that it should be at once turned up to the influences of the sun and wind. Care should be taken to make all labels good and to put new stakes to standards where necessary.

SUBTROPICAL PLANTS.—The seedling plants of these will now require to be potted off singly in small pots, and plants from the stores potted some time back, if full of roots, may be treated to a shift; it should be borne in mind that these must all be kept gently on the move in growth, and at the same time a beginning must be made by changing the rooted plants into an intermediate temperature to prepare them for the necessary hardening off—in fact the whole stock of tender plants intended for open air culture will for the next two months be undergoing the various gradations of temperature intended to prevent them receiving a severe check when turned out. Guard against exposing them during the process of hardening to sharp cutting winds, which are often injurious as the weight of foliage increases. Continue to insert cuttings of choice Dahlias and look to the roots of single varieties, potting the weak ones and placing the larger ones in leaf-mould to furnish cuttings or to make strong plants as wanted, the seedlings sown last month as directed will be ready for potting and should have every encouragement to make a strong growth. Golden Feather may still be sown on a slight bottom-heat under glass; they will make nice plants by planting time; earlier sown plants may be potted and brought forward under glass if required large.

ANNUALS.—It will be time next week to commence the main sowings of the different varieties of hardy annuals in patches in the mixed borders; each patch should be marked with a small stick, so that the position may not be disturbed in future planting operations. If a gentle bottom-heat has been secured, the sowing of tender annuals should be made at once. These form a very important part in the autumn display of the flower garden and should have every attention. If sown at once in seed-pans or boxes they will be ready for pricking out into a larger space early next month, and thus a supply of nice stock plants will be secured. *Helichrysum* are amongst the first requiring this attention, as they must be early to ensure a good display of bloom. The double-flowered *Zinnia elegans* also forms a very durable and beautiful bed, and should be sown early and pricked out. *Marigolds* (both French and African), *Tropæolums*, *Dianthus*, *Petunia*, and *Gaillardia* are all showy and necessary, and must be subjected to the same routine. It is time now to plant the beds of *Tigridia pavonia* and *conchiflora*; insert the bulbs 4 inches deep and cover them with sand, keep the beds fairly moist until they are in good growth, when they require a large quantity of water, with liquid-manure occasionally.

ROCKERY.—In the course of the regulating operations in this department care must be taken to use the shears very freely upon all the autumn-flowering hardy Heaths; this will keep them nicely in shape and greatly strengthen the bloom. The white and purple Irish Heaths are peculiarly amenable to this discipline. The hardy fernery should now be thoroughly overhauled and cleared of extraneous matter, and well top-dressed with peat and loam. John Cox, *Keston*.

The Orchard House.

By this time the fruit ought all to be set in the early house, and swelling; if so, and the weather is warm in the day, give the trees a good washing with the syringe or garden-engine between 7 and 8 o'clock in the morning, and as soon as this is done open the ventilators a little at the highest part of the house. If there is any greenly on the trees, there is no more effectual way of destroying them than by fumigating in the evening of calm days. If the trees are in pots, they will now be making fresh roots very freely, and it will be necessary to give plenty of water, examining the soil at intervals to see that it is not overdone. I have often urged the importance of noticing those trees that have been top-dressed, especially if the dressing was applied late in the season; it is so easy to be deceived, because the top-dressing will be quite moist when the part of the soil underneath is quite dry, owing to its being packed full of roots. It requires some experience to know when the trees are all right in this respect. The temperature need not be higher than 55° at night, but if the weather is mild it may be maintained at 60°, with just a little artificial heat. In the house where no artificial heat is applied, the trees are now in flower; and with favourable weather the fruit will be sure to set well. There are frosts every night, but not so severe as to lower the temperature much below 40°. We shut the house up shortly after 4 P.M., if the temperature is low at that time; if it is over 55° we do not shut up until an hour later. Twice a day we go over the trees and gently shake them to distribute the pollen; this is done at 10 A.M. and about 1 P.M. If there are only a few trees, and the owner is much interested in them, he may not think it too much trouble to go over the blossoms once or twice a day with a camel's-hair pencil, using the brush very lightly. Those varieties which are shy setters ought to be crossed with a free setting variety. *J. Douglas, Loxford.*

Grapes and Vineries.

The earliest house can still be kept at a night temperature of 65° to 70° with a rise of 10° by day. The bright weather is very favourable for pushing them on. Close the house early in the afternoon, and with bright sunshine let it run up to 90° with plenty of atmospheric moisture. Now that the stoning process is about completed, look the bunches over for the last time, taking out all stoneless berries, or any that are crowded and likely to bind in the final swelling. Water the borders thoroughly when dry with tepid manure-water, and syringe the borders occasionally with manure-water, the ammonia given out being very beneficial. As the laterals commence to grow, if there is any part of the trellis destitute of foliage, tie them down until all the trellis is covered, and do not stop them any more except to prevent overcrowding. If such kinds as Foster's Seedling or Madresfield Court are grown in the early house, do not stop them at all after the stoning period, as the foliage will to a great extent prevent them from cracking. Admit air early when that the weather is bright, and steadily increase it till mid-day, taking care not to have a rush of cold air, for even with bright sunshine the outer air is at times very cold. The first house of succession Hamburghs will now be thinned, and can be kept as advised in previous Calendars. Those started about February 1 will be coming into flower, and must be kept at a night temperature of 65° with a rise of 10° by day. Take off the surplus bunches before they come into flower, and if the border is dry, water thoroughly with clear tepid water at once, they will not then require any more at the roots until they are set and thinned, when they must have a good soaking. Do all the tying down and stopping a few days before they come into flower, and let the evaporating pans go dry until they are set; damp the house down early in the day, so that it will dry up early, and the atmosphere be light and buoyant towards mid-day. Tap the rods several times daily to disperse the pollen. Keep Muscats that are set at a night temperature of 70°, with a rise of 10° by day; do not thin them until the leading berries can be seen, or the result will be a number of small stoneless berries. After thinning is completed, water the border with manure-water at a temperature of 85°, for it is of the utmost importance that Muscats should always have the water warm.

Keep the evaporating pans filled with weak manure-water, and damp paths and borders with tepid water several times daily. Admit air on the back ventilators early in the day, and close early in the afternoon, to economise fire-heat. Those started about March 1 will now be breaking fast and must be kept at a night temperature of 60°, steadily increasing it as growth advances, with a rise of 10° by day. Any strong young Vines that have been tied down to induce them to break regularly must be tied up to the wires before growth is far advanced. I usually tie the main stems a few inches below the wires, so that when they are in flower and the rods are shaken the pollen disperses better. All late varieties, such as *Alicante*, *Gros Colmar*, *Lady Downe's*, &c., for keeping through the winter, if started as previously recommended, can be kept at a night temperature of 60°, with a rise of 10° by day; let the temperature rise to 80° with sun-heat at closing time, as it saves fire and is more healthy than fire-heat. Keep the rods well syringed several times daily until the bunches can be seen, when it may be discontinued. Keep the paths and borders damped down with tepid water several times daily according to the state of the weather outside. Early pot Vines must have liberal supplies of tepid manure-water, for unlike established Vines they have only very limited root-space, and ought to be looked over twice daily, for if they once become thoroughly dry at this stage they never recover it; keep a moist healthy growing atmosphere, and close early in the afternoon. If wanted as early as possible they may this mild weather be kept at a night temperature of 70°, with a rise of 10° by day. *Joshua Atkins, Lockinge Gardens, Wantage.*

The Hardy Fruit Garden.

THE bright weather we are now experiencing is exerting its influence on the buds of all fruit trees; especially is this the case on walls, where such early blooming fruits as Apricots and Peaches form quite a beautiful show. Every available means for the protection of this excellent promise should be utilised in assisting to prevent that rapid radiation of heat from the walls which occurs under unclouded skies during the nights of such fine days as we are now enjoying, when the thermometer hovers about the freezing-point each morning. Amongst the best of helps in this direction may be mentioned temporary coping boards to which the protecting material can readily be attached. It is well to see that this material be either removed on fine days, or be of so open a description that a free circulation of air passes at all times. Even such seemingly slight protection as is afforded by a single or doubled herring-net has great influence in limiting the loss of heat from walls; and, if supplemented by thicker covering on emergencies, when we have relapses of almost wintry weather, will be found of great practical utility. Upright boards placed against walls at convenient intervals are also of great use in breaking the force of winds in situations where the trees are much exposed, and such boards may be retained for some time after the ordinary protecting materials have been removed, and until the foliage has become sufficiently firm in texture to resist the sudden chills that are so productive of blight on Peaches. The covering may now be removed from Fig trees, but it will be well to do so by degrees, or at least to provide some slight covering to use if the state of the weather should make it advisable to again protect for a time. Where the pruning has been deferred until the uncovering of the trees at this time, it will be necessary to proceed with it without delay; as, although it is of advantage to be able to see exactly which shoots are best furnished with embryo Figs, late pruning is apt to induce bleeding when put off too long. Thin out the branches where over-crowded; cut back those of the bearing-shoots of last year that are not required for the extension of the tree, also any weak, unproductive growths, and remove entirely any gross shoots that are not wanted to furnish any part of the tree. In rearranging the branches on the wall see that they are securely fastened with tying material of a sufficiently strong description to support their massive foliage, and to resist the great pressure of wind to which their large leaves expose them.

Let all grafting that remains to be done be proceeded with at once, and see to the moistening of the

clay of grafts put on in the beginning of the month. Ugly gaps are occasionally seen in otherwise well-furnished Pear trees on walls; such vacancies can be effectually filled by inserting ring grafts, which may be put in by lifting the bark with a T cut as in budding, but with the cut across made as a notch, removing a portion of bark to facilitate the insertion of the scion. This is also a ready means of testing new varieties, which can thus be speedily fruited where there are strong and established trees to work upon. For those interesting themselves in raising seedling Pears, this means of propagation offers more speedy satisfaction than working upon independent stocks would be.

Fruit trees carrying a heavy bloom will be greatly assisted over the exhausting process of perfecting such quantities of pollen by being supplied with liquid manure where such is obtainable, but it will be well to bear in mind that, if applied while the blossom is open, it ought to be done in the early part of the day, so as not to lower the local temperature about the tree at night by evaporation; and at present we are happily having a dry time, which, if continuous over the blooming period, will greatly enhance the prospects of a full fruit crop for 1882. *Ralph Crossling, Castle Gardens, St. Fagan's.*

The Pine Stove.

SHADING should be applied over the glass without delay: in light structures it is absolutely necessary. Too much, however, is as injurious as too little, therefore the proper medium should be arrived at. What is requisite is a means of shading that does not intercept the light, and at the same time regulates the solar heat. The sun's rays become chemically changed in their passage through the glass, therefore when it becomes too strong its effects should be diminished. Most growers are aware that the largest fruits of the season are those ripened in the autumn, which can only be attributed to the fact that the heat and the sun's rays are more equable. An ordinary observer will soon notice the difference in the colour of those grown in the shade and others grown in the sun; the former have a colour and freshness that the latter never attain. Successful shading is a vital point in culture, and this is why we allude to it so comprehensively. There are many different ways of shading as well as different modes of ventilation, which look light and elegant, but which in working are complicated, and soon get out of order. The system we adopt and like best is a roller with a wheel at its end; this folds and unfolds the cords as the rollers are worked up and down the roofs. If the houses are in one long continuous roof the rollers can be worked by two rollers pulled up and down from each end; two rollers worked in this wise will shade a roof from 120 feet to 160 feet long. When the shadings are let down the rollers run from the apex to the bottom of the roof, and when adjusted the opposite motion takes place. At the top of the roof is a piece of flat wood 2 inches broad and about 1 inch thick: this is the length of the shading. The canvas is tacked to the wood, then the wood is fastened by means of screws to the top of the roof; this holds the scrim fast and in position. Instead of pulling the shading up and down by hand a small wheel is fixed to the end of the house, which collects the cords, and works the rollers up and down more evenly. On one side of the winding-wheel is a cog with a catch to drop into it: this holds the shading at any part of the roof. The scrims used should not be too thick, as this darkens the inside of the house. That unique variety, the Smooth Cayenne, is the most tender and impatient to bright sunshine of all Pines, and it is useless to attempt to grow it without some shading. The varieties of Queens will stand more sunshine than many other varieties, yet Queens must have proper shading. Pines should not be allowed to become too browned, as it creates a state of things not conducive to vigour. The Smooth Cayenne is the first to show unmistakable signs of things not suitable, by having a waxy, brownish appearance, which relaxes the energies of the plants. At one time this, in our own appearance was thought to imply great vigour, but we find the most robust and healthy plants soon assume this colour if exposed to excessive sunshine. *D. Wilson, Castle Hill, Devon.*

PERKINS' CHAMPION BROCCOLI. — We send you half a dozen average-sized heads of our Champion Broccoli, which we are now cutting for the market. The growth is dwarf and compact, and we have seen cutting for three weeks or more, and we have seen cuts of an size and very true. *Thomas Perkins & Sons, Northampton.* [A fine sample of a good close protecting Broccoli. E.]

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Mar. 27	Sale of <i>Lilium auratum</i> Bulbs, at Stevens' Rooms.
TUESDAY,	Mar. 28	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 4 P.M.; Scientific Committee, at 4 P.M. Spring Show.
WEDNESDAY,	Mar. 29	Spring Flower Show at Sevenoaks. Royal Botanic Society's First Spring Show, Sale of Established Orchids, at Stevens' Rooms.
THURSDAY,	Mar. 30	Sale of Imported and Established Orchids, at Stevens' Rooms.
FRIDAY,	April 1	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

MR. DARWIN, whose patient industry is not less remarkable than his candour and his sagacity, has contributed to the Linnean Society another of those memoirs which form such important contributions to the history of natural science. The present case turns principally upon points in the CHEMICAL DEPARTMENT OF VEGETABLE PHYSIOLOGY, and if the results obtained are less conclusive than is the case with some of his previous essays, that circumstance is attributable mainly to the little insight we have at present as to what really goes on in the laboratory of the living plant. The chemist can tell us with much minuteness and circumstantiality of detail the results of his observations and analysis of the dead plant, but the nature of the changes which take place in the living plant in its various stages of growth is a much more difficult problem. Obscure and difficult though it be it is obviously of cardinal importance, not only from the point of view of abstract science, but from the standpoint of the cultivator who seeks for intelligible principles on which to base his operations. The microscopist, too, is able to tell us much of the structure of the machine, but heretofore he has been puzzled to account for the apparent anomaly of seeming identity of structure, and very diverse physiological action. Two cells, mere bags of membrane, enclosing semi-fluid contents, in juxtaposition it may be, and to the eye identical, are often proved by chemical and other means to have very diverse qualities. Such cases are matters of everyday experience, and Mr. DARWIN'S paper will be hailed as a contribution towards its future explanation, furnishing, as it does, another proof of the frequent relative independence of cells, and their differences one from another.

In the present instance Mr. DARWIN'S researches turn upon the action of solutions of carbonate of ammonia on the contents of the cells. Roots of a species of *Euphorbia* were immersed in a weak ammoniacal solution for a short time, and then microscopically examined, with the result that certain of the cells in the immediate vicinity of the tip of the root were found, under the influence of the solution, to be filled with fine brown granules. The course of the ammoniacal fluid upwards, from cell to cell, was traced by this gradual deposition of granular matter from below upwards. It was observed also, that while certain of the cells were thus affected in more or less longitudinal series, adjacent lines of cells, structurally not different, were yet unaffected, so that a kind of alternation existed between rows of cells containing the deposit or precipitate and other rows free from it. A similar functional diversity in different lines of cells is familiar to all who have experimented with coloured fluids or chemical solutions in endeavouring to trace the course of the fluids in question in the interior of the plant. Those cells from which the root hairs originate were, as a rule, free from deposit, thus inferentially confirming the opinion that those organs are organs of absorption rather than of elaboration. Various other solutions besides the ammonia produced similar effects, varying in degree in various cases. That the precipitation was a vital one was shown by experiments with dead tissues of the same plants in which no such effect was produced. Chemical investigation of the granular matter

goes to show that it is of nitrogenous nature, allied to protein.

It would be unlike Mr. DARWIN to confine himself to one plant or one set of experiments, consequently we find that he submitted to like experiment a large number of plants belonging to different families and genera, the details of which we cannot now enter into. It must suffice to say that, with few exceptions, the results were uniform in kind, if not in degree. One exception is remarkable, though its significance is not yet apparent. In the roots of *Cyclamen* the colour of the deposit was green, and it was found in the cells from which the root-hairs spring as well as in the others. The deposit is usually granular, but passes by degrees into globular masses, which become confluent into irregular masses, generally brownish in colour, but sometimes pale blue or green. Alcohol, ether, iodine, or acetic acid have no effect on the deposit, save perhaps to alter its colour, but caustic potash slowly dissolves them. While some plants are conspicuously changed by the ammonia salts, or by osmic acid, and others only slightly so, some are not affected at all. In considering the significance of these changes Mr. DARWIN apparently leans to the view that the substance deposited is something useless to the nutrition of the plant, of an excrementitious character in fact. But on these and other points we can offer no opinion till the publication of the paper, when all the facts of the case will be before us. No doubt it will stimulate further research into those processes going on in the living plant, upon which at present we so greatly need enlightenment.

THE long-expected crisis in the affairs of THE ROYAL HORTICULTURAL SOCIETY has come at last, and was determined by the judgment on Wednesday of the Justices of the High Court of Appeal. It will be remembered that the Commissioners of the Exhibition of 1851, who are the landlords of the gardens at South Kensington, sought to obtain re-possession of their property on the grounds of non-fulfilment of contract on the part of the Society. This action of the Commissioners was resisted by the Society on various grounds, one being that, if the Society ceded the property occupied by them, the interests of the debenture-holders, who lent their money on the security of the property, would be seriously impaired or cancelled. There were incidental questions as to whether the Society and the Commissioners were or were not partners in the matter. If partners, then, of course, the Commissioners must bear their share in the ill-fortune that had befallen the Society, and bear their share of responsibility towards the debenture-holders. When the action came, some months ago, before Mr. Justice FRY, that learned Judge gave his verdict against the Commissioners and in favour of the Society. The verdict occasioned some surprise to those conversant with the history of the affair, and at any rate justified the Society in the action they took. The Commissioners, however, were not satisfied with the decision and appealed against it. The result of the appeal, which is, we presume, final, is to reverse Mr. Justice FRY'S decision, and to enjoin the Society to give up possession of the Kensington Gardens within four months. The debenture-holders, it is affirmed, have no case, and have to bear their share of the costs. Such in brief is the present state of affairs. We do not care to go back into the past history of this melancholy and most involved business. The present judgment relieves us of all necessity for going back to that entanglement. We prefer to consider what may be the probable results of the decision, and if we are correct in our view the results are upon which the Society may be congratulated. Its debenture debt will be wiped off, for, as was pointed out by the Lords Justices, the debenture-holders

lose their money without remedy against any one. If the Kensington Gardens have to be given up the debenture debt, if we are correct in our view, will be cancelled, and no horticulturist will feel much regret so long as it is possible to develop Chiswick, which is not affected by the present decision, and retain a place in London for official business and the holding of exhibitions. It is to be hoped that the Commissioners and the Society will now come to some businesslike and equitable arrangement by virtue of which the Society may retain so much of the Kensington garden as may be necessary for their purposes, be relieved from the incubus of debenture debt, and from the possession of a garden which has become a burden and an eyesore, or, if it be deemed desirable to retain the use of the whole of it, that the Commissioners may find some of the funds necessary for the purpose, so that it may be kept up in a proper manner. We must admit, however, that the functions of a horticultural society are, or should be, of a higher and more practically useful character than the maintenance of a playground for the fashionable residents and visitors to South Kensington, and that by attending to its own proper business the Society is more likely to win in public estimation than by becoming managers of a public recreation ground. These matters, however, depend essentially upon financial considerations, and with the example of the Zoological Society—Jumboism apart—before them, it is clearly not impossible for a society to combine the requirements of popular recreation with educational aims and the demands of advanced science.

—PROLIFEROUS PINE.—Last week we gave an illustration of a Pine-apple in which the pips were replaced by tufts of leaves, miniature suckers, which gave the plant a very noble appearance, even if it were not such as would satisfy the caterer for a civic banquet. We now supply a corresponding illustration (fig. 63), in which the supernumerary growths show themselves in the form of fruits. The fruit of a Pine-apple consists of the whole inflorescence, consisting of many flowers and fruits consolidated into one succulent mass after the fertilisation of the flower, so that what we speak of in ordinary terms as a fruit is in this case really an agglomeration of many fruits and bracts. In the case before us not only is the central spike so changed, but the ordinarily leafy "gills" have undergone a similar change, producing an appearance as striking as in the former case, and one more attractive to the fruit grower, as it gives promise of greater usefulness. We must admit, however, that for table purposes we should prefer one of a less prolific character.

—MR. JOHN LEE.—On Thursday evening, Mr. JOHN LEE, so long and so honourably connected with the Royal Vineyard Nursery, Hammersmith, was entertained at a Complimentary Dinner at "SIMPSON'S." The chair was taken by HERBERT J. ADAMS, Esq., one of the Vice-presidents of the Gardeners' Royal Benevolent Institution, who had the pleasure also of presenting Mr. LEE with a service of plate, of the value of fifty guineas, subscribed for by the office-bearers of the Institution—from the President, the Duke of Buccleuch, down to the Secretary—to mark their sense of the valuable services he has rendered to the Institution during the long period of forty-one years, as a Trustee of the funded property of the Institution, and for nearly the whole of the time as Chairman of the Committee.

—A NEW BALSAM.—In the No. 8 house at Kew is a fine plant of a remarkably handsome Impatiens, of which a figure has been prepared for the *Botanical Magazine*. It came up at Kew among some soil which had been used for packing purposes at Zanzibar. It forms a neat pyramidal bush, has light green foliage and flowers, with long slender spurs and flat corollas of a bright rose-crimson colour, exhibiting in sunlight a marked iridescent gloss. This species, it is to be hoped, will long remain an inmate of our stoves, and not after a year or two quite disappear from cultivation. With the exception of *I. Jerdoniae*, which so many people cannot manage, and which perhaps owes its existence still among us more by reason of its being perennial than on account of its strikingly coloured flowers—a mixture of green, red, and yellow—how few of the tropical Balsam

which have found their way to this country within the last half century, many of them eminently handsome and desirable plants, are at the present moment to be found in British gardens!

— *BEGONIA UNULATA* AS A BASKET PLANT.—In Messrs. LAING & CO.'s nursery at Stanstead Park, Forest Hill, there is now one of the most unique specimens of this Begonia, sometimes called Count Alfred de Leinengen, growing in a basket

baskets who have a plant stove or intermediate-house at command, need have no fear of growing a specimen equally good in a few months from a rooted plant.

— *ENKANTHUS JAPONICUS*.—This is a very desirable shrub, both on account of the profusion in which its white flowers (about the size of those of Lily of the Valley) are produced, and also by reason of the gorgeous colouring assumed by its leaves in autumn. It is, moreover, a compact, neat-habited

of *Cupressus Lawsoniana*. The habit of growth of different individuals is tall or short, compact or loose, pyramidal, columnar, or fastigiate, the branches spread horizontally, or ascend or hang down; they are flattened from above downwards, or from side to side, they are convex or flat, or they are rounded like whip-cord. They are of every shade of green, or variegated with yellow or white. All these variations, and many more that might be cited, occur in one species. It is no wonder, then, that considerable dif-

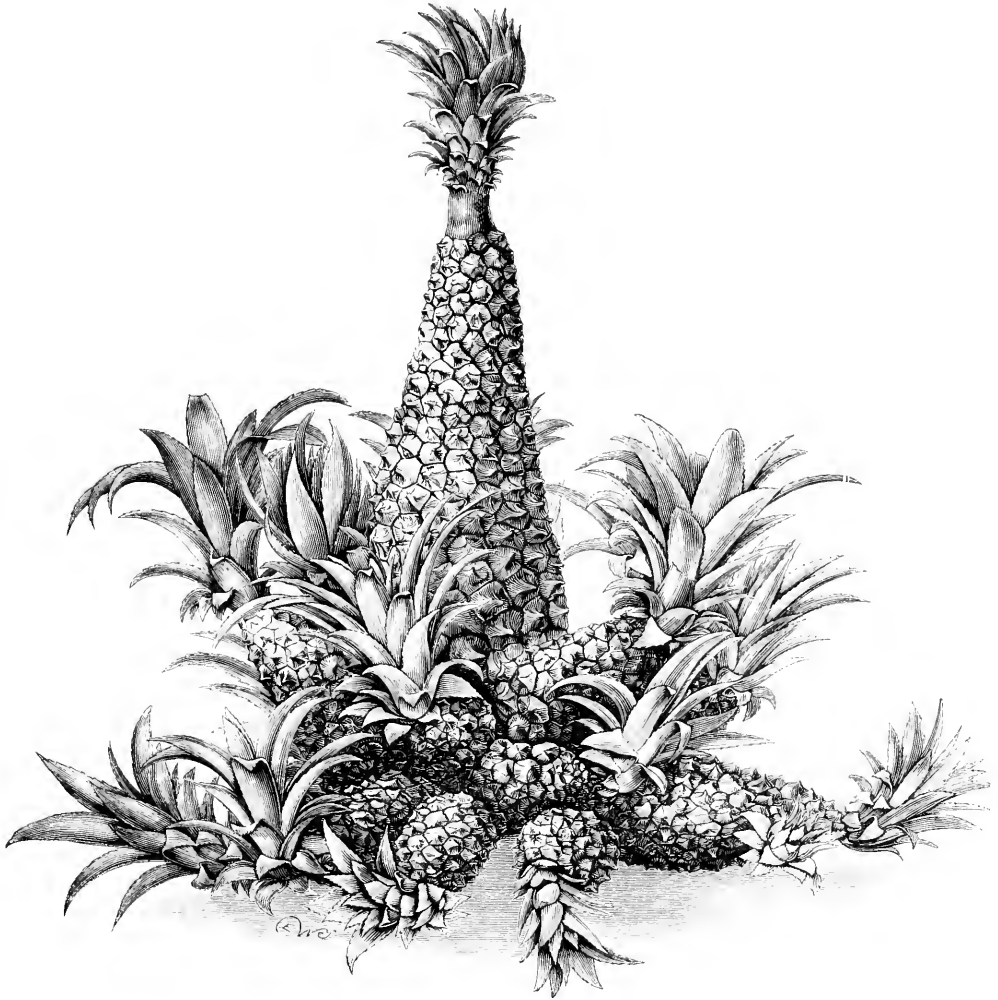


FIG. 63.—A PROLIFEROUS PINE-APPLE. (SEE P. 404.)

scarcely 12 inches in diameter, and less than 6 inches in depth. There is fully 3 feet in width of its beautifully cut foliage, studded with flowers, and the length of the shoots falling balloon-shape to a point is close upon 6 feet. The plant is now making fresh growth, and the points of the young shoots are projecting in a natural way a couple of inches beyond the clusters of flowers which nestle among the older leaves, and altogether it is perhaps one of the finest basket plants ever seen. A plant that will attain to such dimensions in such a meagre root-run can hardly be said to be difficult to grow, and lovers of plants for hanging

bush, and as it is hardy in Northern France there can be no reason to doubt its suitability for outdoor cultivation in this climate. The Kew plant, which is now in full bloom in the winter garden, was figured in the *Botanical Magazine*, tab. 5822. The flowers last some time, and open before the leaves are fully developed. In autumn the foliage turns to a brilliant golden-orange colour, diversified with redder spots.

— SPECIES.—Any one wishing to form an idea of the little value of "habit" as a means of distinguishing so-called species, should examine a seed-bed

ferences of opinion arise among naturalists as to the limitations, or even the existence of species. Very rarely can the observer have before him all the material requisite to form an absolutely accurate opinion.

— THE WARD JACKSON PARK, HARTLEPOOL.—A premium of £30 is offered by the West Hartlepool Improvement Commissioners for the most approved plan for laying out the new "Ward Jackson Park," 17 acres in extent. A comprehensive and complete design is required for utilising the land for this purpose, but not necessarily for completing the whole at

once, but so providing that the work may be carried out from time to time as may be considered advisable. A lithographed plan of the ground, with sections and all further particulars, may be obtained on application to Mr. GEORGE SCOTT, Town Surveyor, at the Athenæum, West Hartlepool. Each plan must bear some distinguishing name, mark, or motto. All plans must be delivered on or before May 1. We note that a premium is also offered for a design for the laying out of the People's Park at Grimsby.

— **FRUIT BLOOM.**—The ensuing fruit season promises to be one of the best for Pears we have long known, for the bloom will be truly wonderful, and the buds are strong and apparently healthy. At Chiswick the trees, even ere a bloom is expanded, are in almost every case a mass of buds, and when in a week or two hence the blossoms have opened, the gardens will be white almost as snow. True pomologists, who do not limit their observations to fruit only, but note all the characteristics of bud, bloom, and leaf, will find the present spring a remarkably valuable one for observation. Easter Beurré is the earliest expanded kind, and is, indeed, almost a sheet of bloom before a single flower is open upon any other tree. Still farther, although the clear, bright, cool nights have brought several white frosts, not a thickened pistil is yet to be seen. We ought also to have a grand Apricot year. The bloom has been very abundant, and fruit is set in enormous quantities. If no casualties happen there will be ample employment presently in thinning. Peaches and Nectarines are flowering profusely, and the great heat experienced, with dews at night and an absence of east winds, is inducing the fruit to set rapidly. The work of fertilisation is immensely helped by the insects—bees especially, for these are as busy as if it were May. Apple buds are not yet so prominent, but as they develop it is evident that these will be ample, though probably the fruit crop may not be so large as it was last year. Plums promise well; and, indeed, it may be added that the Black Thorn will soon be literally smothered in blossom. We got fair Plum crops last year, but they were partial. Whatever may result, it seems probable that bloom will not be wanting. Cherries are a mass of bloom-buds, but then they seldom fail to flower freely. Of bush fruits there is ample evidence that they will bloom abundantly, but good crops on these is the rule. By no means an unimportant feature is the vast amount of bloom found on many deciduous forest and other ornamental trees, all tending to the promise of a fruitful year.

— **AUSTRALIAN FLOWERS.**—Those who admire natural yet artistically treated representations of flowers, would do well to see a screen now exhibited in the South Court of the South Kensington Museum. It is the work of Mrs. ROWAN, some of whose productions we have had occasion to admire on former occasions. The screen consists of three panels, each of which is devoted to characteristic illustrations of the flora of New South Wales, Victoria, West Australia, and New Zealand. The general scheme is a representation of some characteristic plant, such as *Tecoma jasminoides*, *Kennedyia nigricans*, *Clematis indivisa*, &c., with an undergrowth of *Grevilleas*, *Cephalotus*, *Rhipogonum*, *Acacias*, *Leptospermum*, &c., according to the country. There is a graceful freedom of treatment combined with accuracy of detail and harmonious grouping which is very noteworthy.

— **HELIOTROPE WHITE LADY.**—This is found to be a most useful variety by bouquetists and others who have to form combinations in cut flowers. "It stands well," is the remark made concerning it, and it is all the more noticeable that it is so, as *Heliotropes* have the reputation of soon fading when in a cut state. Not only are the individual flowers larger, but they are produced with great freedom, and by the aid of some heat during the winter flowers can be had almost all the year round. President Garfield, a new introduction of MESSRS. CANNELLS, with flowers of a pale lavender colour, is a decided acquisition also, the individual flowers, as in the case of White Lady, being very fine. The addition of these two fine varieties will no doubt have the effect of calling attention to the undoubted claims of the "Cherry Pie" to a wider recognition than it has received of late. It is a plant that has undoubtedly fallen somewhat into neglect, and yet for cutting purposes the

gardener has scarcely a more useful subject. Sentation, bluish-purple; Swanley Giant, rosy-lavender; Jersey Beauty, bright mauve-purple; and the Queen, creamy-white, are all good varieties for pot culture.

— **BUCKLANDIA POPULNEA.**—A very striking effect is produced in one of the octagons of the Temperate-house at Kew, by the placing on the shelves at intervals of good-sized plants of *Bucklandia populnea*, which rise above the lower growing plants like so many giant sentries. The large leathery pale green leaves of this plant are cordate, ovate acute on long stalks, and are effective by their very simplicity of form. The large reddish stipules of this plant are very curious, consisting of two leafy oblong plates placed face to face in an erect position between the leaf-stalk and the stem.

— **THE ROCK GARDEN AT KEW.**—Extensive preparations are being made for this. The site chosen is near the old Museum No. 2, in proximity to the herbaceous ground, between it and the Orchard-house. The plan adopted is that of a serpentine valley, with undulating banks. The subsoil is almost pure sand, but preparations are being made for a full supply of water. At present, of course, nothing can be seen save the ground-work, the curves of which are very agreeable.

— **COPROSMA LUCIDUM.**—One of the most conspicuous ornaments of the Temperate-house at Kew just now is a large shrub of this species. Its bright shining foliage and profusion of small transparent orange berries are very attractive. The flowers are greenish, and not very showy, but the plant has the advantage of being ornamental for the greater part of the year.

— **RHODIENDRON BUDS.**—The leaf-buds and flower-buds of some of the Sikkim *Rhododendrons* at this season are, as is well-known, almost as handsome as the flowers, and in point of colour sometimes even brighter. What object can be served by this brilliancy before the flowers open it is not easy to guess.

— **THE ROOT TRADE.**—The term "root" is applied so widely that it may be at once needful to say that the root trade to which we refer is neither that of Mangels, Potatos, or other edible products, but is limited in its application in this case to the traffic in hardy flower roots, of which such immense quantities are grown near and around the metropolis. The humble hardy flowers—Daisies, Pansies, Pinks, single Carnations, and many other things—are peculiarly useful to the hawker and ordinary plant coster—an active and enterprising body, who buy up large quantities of things at low prices and dispose of them somehow and somewhere, but always at a good profit; yet it is rather remarkable that although we have had such an open favourable winter for planting of all kinds the root trade has not been active, and prices now are very low in consequence. Perhaps the hawker is, in his dealings with the general public, not his own friend. The anxiety to "get on" at the moment is perhaps natural with a race that evinces little thought for the morrow, but the usual result of the deal is that the customer fights shy in the future of the class of people who have deceived him. The "Jack" trade, as we have often shown, is one of the most unflinishing deceits, yet it flourishes, because it is not limited to the metropolitan suburbs, but has its best market in the provinces, the hawker rarely traversing the same ground twice. In some things deception is not possible, but then the production is so easy that it would be profitless. Hollyhocks, Delphiniums, single Rockets, and some other things are often made to pass for named kinds or good double strains; but Daisies, Pansies, Violets, and other freely propagated plants are generally sold when in bloom. Buyers will find now they can get plants not only cheap but also extra good, as the open winter has promoted growth of an unusual kind, and all kinds are robust and will give ample bloom.

— **POTATO EXPORTS.**—Having regard to the hitherto almost invariable nature and extent of our food imports from the United States, it comes as a surprise to learn that during the past winter a quarter of a million of sacks of Potatos have been sent to that country, and these largely from the United Kingdom. That the vast expanse of land under cultivation in America should have failed to

produce last year enough of Potatos to satisfy the needs of its population is, indeed, a remarkable fact, and one due, it would appear, not to the Colorado beetle, once the threatened scourge of the Solanum in the States, nor to the Peronospora, the chief scourge of our Potato crops at home, but almost solely to drought, which proved so protracted and so universal. With such a wealth of resources, the Americans have not hitherto realised the possibility of home famines of any sort, and therefore have not found, as at home with our vast population and our very limited area of earth have, that restrictions upon the trade in articles of food must be removed, and the widest liberty given to their introduction. When we have had to endure losses incidental to short Potato crops, we have thrown open our market to the world, and the teeming populations have obtained from France, Holland, and Germany ample and cheap supplies. To feed the masses well and cheaply is of more importance than the establishment of some fiscal regulation that looks philosophically right, but is economically wrong. Now that the population of the United States feel, as far as Potatos are concerned, the pinch of hunger, they find the vicious ogle of Protection doubling to them the price of the healthful food, for 25s. duty per ton is exacted upon all that is imported. Our home merchants tell us that but for that intolerable impost the exports of Potatos from Europe might have been doubled. But if it is strange that America should need Potatos from us it is not less remarkable that we should have even plenty to spare. That is indeed a novelty, and one that must somewhat confound those political economists who are ever prating that we don't grow enough of this, that, and the other. Last year we grew far too many Potatos. We not only have wanted none from the foreigner, but we have exported vast quantities, and even now Potatos with us are so cheap they can hardly be given away.

— **THE GENERAL HORTICULTURAL COMPANY (JOHN WILLS) LIMITED.**—On Thursday Mr. ROMER, Q.C., applied to Mr. Justice CHITTY for the appointment of two directors of the General Horticultural Company as provisional liquidators of the Company pending the hearing of a creditors' petition to wind up the Company. The application was assented to by Mr. CROSSLEY, Q.C., on behalf of the Company, which it was said was insolvent. The Company has several branches, and carries on an extensive business. Mr. Justice CHITTY granted the application, and authorised the provisional liquidators to carry on the business in the ordinary way as a going concern, and to expend a sum not exceeding £350 a week.

— **LABELS.**—MESSRS. FISHER, CLARK & CO., of Boston, Lincolnshire, send us specimens of their labels, made of some tough waterproof material which can be written upon with ink, and which it is alleged will bear the longest exposure to the rain. At present we have had no experience as to the durability of these labels, but should they stand the test they will prove a great boon.

— **MANDIOCCA IN BRAZIL.**—The staple article of food in Rio Grande do Sul, Brazil, is stated to be farinha prepared from the tuberous root of the Cassava plant, *Manihot utilisima*. Three years ago there was a severe famine in the northern provinces of the empire caused by drought, which necessarily caused a great demand for farinha. During this time nothing scarcely was grown in any part of the province except farinha. As prices were exceedingly high, they still went on planting, as if the demand were always to remain unlimited. Land was cleared in all directions, to enable them to produce double and treble the quantity they had ever previously grown. Their whole attention seems to have been concentrated solely on farinha, and they are now suffering severely in consequence. Rain came at last in the northern provinces; there were abundant harvests, and in consequence there was no outside demand whatever here for farinha. The quantity produced in this and other provinces was so great that it fell considerably in price, so that a large portion of the crop was allowed to rot on the ground as it would not pay to prepare it. This has been a severe lesson, and the growers are likely to turn it to good account. They are convinced indeed that Coffee is a far superior article to depend upon. The Government of the province of Rio Grande do Sul is doing all in its power to encourage the growth of Coffee, which is of excellent

quality, and they have lately offered £100 to all persons who will plant and produce from 10,000 trees. In two years' time it is probable that large quantities of Coffee will be exported from here both to Europe and the States.

— **ESSEX FIELD CLUB.**—The twenty-fourth ordinary meeting of this Club will be held at the headquarters, 3, St. John's Terrace, Buckhurst Hill, Essex, this (Saturday) evening, at 7 o'clock. The following communications will be read:—1. "The Woolwich Beds at Leyton"—a note by ALFRED P. WIRE. 2. "The History of Botanical Investigation in Essex," by Professor G. S. BOULGER, F.L.S., F.G.S.—Part I.: GERARD, PARKINSON, DALE, and RAY.

— **THYRSACANTHUS RUTILANS.**—It is seldom one sees a better selection of plants for the embellishment of sitting rooms than those exhibited at the late show of the Bristol Horticultural Society, held on the 22d and 23d ult.—notably those from the gardens of LEWIS FRY, Esq., M.P., who, among other first-rate examples, had a plant of the old favourite *Thyrsacanthus rutilans*, grown in a 6-inch pot, with nine drooping racemes of its lovely scarlet flowers, which, hanging gracefully over its healthy green leaves, had quite a fascinating effect. There were many newer and more valuable plants exhibited in the same class, but none that was more admired or more truly beautiful in appearance.

— **HORTICULTURAL CLUB.**—The usual monthly dinner was held on Tuesday last, at the Club rooms, Henrietta Street, Covent Garden, and was well attended.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending March 20, issued by the Meteorological Office, London:—The weather during the greater part of this period has been characterised by very fine warm days and cold clear nights. By the 20th, however, the sky had become cloudy, and some showers had occurred at nearly all our stations. The temperature has continued above the mean in all districts, the excess ranging from 3° or 4° in the southern and south-western parts of England and Ireland to 7° in "England, N.E." and "Scotland, E." The maxima were very high for the season, a reading of 66° being registered at Scarborough on the 16th, and in London on the 18th; while in many other places the thermometer reached 64° or 65°. The minima, which occurred generally on the 14th or 15th, ranged from 28° over eastern and central England to 35° or 36° in Scotland. The rainfall has been less than the mean in all districts. Bright sunshine has been much more general than for many weeks. The percentages varied from 27 in "Scotland, W.," and 36 in "Ireland, S.," to 66 in "England, E.," and 67 in "England, S." Depressions observed:—During the greater part of this week an area of very uniform and high pressure has existed over England and France, while a few slight depressions passed from west to east to the northward of our islands. Calm and variable airs were consequently experienced over England, and south-westerly breezes in Ireland and Scotland. At the end of the period, however, the distribution of the pressure had changed; the barometer had fallen rather briskly; some small depressions were passing from west to east across England, and the south-westerly wind had spread to all parts of the kingdom.

— **GARDENING APPOINTMENTS.**—MR. SYDNEY WHITE, who has been Foreman at Welford Park, Newbury, for the last two and a half years, is engaged as Gardener to Sir ROBT. MUNDY, Hollybank, Eusworth, Hants.—MR. J. STONEY, late Foreman at Shirburn Castle, Tetworth, Oxon, has been engaged as Gardener to Sir THOMAS EARLE, Bart., Allerton Tower, Woolton, Liverpool.—MR. J. EVANS, late Gardener at Addiscombe Park, Croydon, has been engaged as Gardener to J. L. BROUGHTON, Esq., Broughton Hall, near Ecteshall, Staffordshire.—MR. J. DEVILLE, late of Weyston Lees, Monmouth, has been engaged to Mr. RAONE, Alton Towers) as Gardener to JAS. MEAKIN, Esq., Darlston Hall, near Stone.—MR. HENRY CLARK, Gardener to Mrs. HALL, Syndale Park, Faversham, is engaged (through Messrs. JOHN LAING & Co.) to succeed Mr. CRUMP as Gardener to the Duke of MARLBOROUGH at Blenheim.



NEW FRENCH ROSES.—I know of no point on which a greater change has taken place amongst the rosarians of England, than the manner in which the catalogues of new Roses from over the water are looked for. Formerly—even as lately as seven or eight years ago—there was an exciting desire to see these lists. Happy were they considered to be who obtained a glimpse of the forthcoming novelties; but this was ever and is still a most difficult task. There is never much to be seen about Paris, for although some of the Paris Rose merchants distribute a large number of novelties (?) each year, few are "gained" in the neighbourhood—you must go further south, and at Lyons find yourself in the delightful "terre des Roses"; the names of Lacharme, Liabaud, Guillot père and Guillot fils, Schwartz, Ducher, and Levet, recall to fond memory some of the grandest flowers, but who ever saw much of novelties in flower at Lyons? Roses very soon go out of bloom there, and just before you came there had been a frightful storm—the Roses are all *abîmés*. "You may see, monsieur, the ground is strewn with their poor petals, and there will not be any more in flower until after you are gone: it is very unfortunate." Now and then you may be more successful, and get a glimpse of something fine, but it is rarely so, and I think we may be sure of this, that if we do see anything it is good—it is the indifferent flowers that are always destroyed: this is remarkable, but so it is.

Next to seeing the flowers it was considered a great thing to get some information from some of the growers, and then, when the catalogues did appear, there was an emulation to see them, to let the Rose world know all about them; then our English nurserymen, who were as much in the dark as the amateurs, got some of them propagated quickly, and happy did the amateur consider himself to be who could get a few spindly plants raised in heat, although there was not the smallest likelihood of his getting a flower that season, and perhaps after he had taken the trouble to propagate them he had to throw them all away. Now all these things are a dream of the past; a few of our leading Rose growers take a pleasant trip to Lyons, they see something, or nothing, as the case may be; but it is a "jolly outing," and wears, at any rate, the appearance of business; when they return, they are asked languidly if they have seen anything really good; if they say "Yes," I am sorry to say it is too often received with an incredulous shrug; if they say "No," no disappointment is expressed. The catalogues are published, but there is no rush for them; they are but little noticed in the papers, in proof whereof I may adduce the fact that the present season not one notice has been given of them.

There are, I think several reasons for this. One is the very satisfactory one that we have got such grand Roses that it seems to be almost impossible to excel them. Whether we take the Hybrid Perpetuals or Teas, we may well ask where are we going to obtain anything that shall exceed in beauty Marie Baumann, Charles Lefebvre, Horace Vernet, A. K. Williams, Marie Van Houthe, Maréchal Niel, and a number of other first-rate flowers. Mark the smile of incredulity with which you will be welcomed if you say that you have seen a Rose better than Marie Baumann or Alfred Colomb, and when you detail all that Mons. A. or B. has told you of his new "gain," the smile is no way relaxed; and, in truth, it is exceedingly difficult to excel them. Occasionally "a bright particular star" comes to view amidst the constellations of our rose firmament, but it is a very rare case; hence, as this has gone on for some years, growers have come to consider the long list of sixty or seventy Roses as a mere matter of course; they will let anybody try the experiment of growing them and profit by their experience, while growers for sale do not enter so largely into them as they used to do, and rely more on their knowledge of the raiser than on the descriptions of the flowers, which are too often fallacious. Then there is another reason which is in some way satisfactory, viz.,

that English growers have of late years been raising some good flowers, which although not up to the standard of the best of the French flowers (for we have no English Marie Baumann or Charles Lefebvre), yet a few of them take a place amongst the best first-rate flowers. The chief reason has been, however, the innumerable quantity of worthless flowers which have been sent into commerce; they have come with high-sounding titles and with grand descriptions, but the greater portion of them have turned out to be impostors.

We have this year the usual orthodox number of between sixty and seventy new varieties, divided into the various sections, the bulk being Hybrid Perpetuals. Of these there are thirteen Teas, forty Hybrid Perpetuals, four Hybrid Teas, three Noisettes, two Bourbons, one Perpetual Moss, one Polyantha, and one Rugosa. With regard to the Teas, Hybrid Teas, and Noisettes we may dismiss a good many of them at once, as they are raised by a grower in the South of France, and not one of his has as yet in this country proved worth its manner. They are the delight of the numerous visitors to the Riviera, to whom a Rose in the months of December and January blooming out-of-doors is a real treat, and who would think it too bad to stop and criticise. Out of the twenty Teas, Hybrid Teas, and Noisettes he has thirteen—leaving only seven to all other growers; but if my information be correct—and I have had it from some of our most experienced growers—there is one amongst them which is a Koh-i-noor. I mean *Etoile de Lyon*, raised by Guillot fils, who has already given us some splendid flowers; it is said to be something between *Maréchal Niel* and *Cloth of Gold*, to hold itself up well, as is the habit of the latter variety, its colour a clear bright sulphur-yellow, with the centre somewhat deeper. This is quite enough to make one's mouth water, and happily it has been seen and ordered by those who are not likely to be led astray by a thing's being new. Guillot has another Tea, *Madame Cusin*, of which he gives a glowing description: a well formed strong-halated rosy-purple, with white ground and slightly yellow tint. *Gonod* has one which, if it at all bears out the description, ought to be a beauty—*Beauté de l'Europe*. He describes it as having the form of a *Cabbage Rose*, deep yellow, and the reverse of the petals copper. Imagine, then, a yellow A. K. Williams, but, alas! I cannot form any very strong anticipations of coming joys.

I pass on to the Hybrid Perpetuals: of these Moren and Robert have Albert de Blotais, *Archiducesse Elizabeth* d'Autriche, and *Madame Yorke*. Liabaud sends out *Ampère*, *Capucine Liabaud*, and *Pierre Margery*. Ducher has *Ernest Pernet* and *François Olin*. Leveque et fils send out *Comte Adrien de Gerniny*, *Comte de Flandres*, *Madame Marie Rödener*, *Madame Martha d'Halloy*, and *Tatiana Oueguine*. Schwartz has to give us *Comtesse Henriette Combes*, *Mons. John Twombly*, and *Mons. Jules Vigener* has no less than six—*Eugène Tronson*, *Hippolyte Marchand*, *Intendant Perrie*, *Madame Charles Lavot*, *Madame Gabrielle Mérite*, *Madame Rosalie de Wincop*. Lacharme offers but two—*Helène Paul* and *Violette Douyer*. Guillot has also two—*Jules Mongés* and *Madame Marie Bianchi*. Nabonnard has *La Madeleine*. Schmitt (a new name) announces *Madame Adelaïde Cote*: *Besson* two—*Madame Fortunée Besson* and *Madlle. Marie Chautet*. *Gonod* has *Marie Garner*. *Souper* & *Notting* have *Madame Marie André* and *Madame Anna Grérol*. *Pernet* has *Pierre Duand* and *Berthes*, *Souvenir de Madame Bertha*. Now, taking the pretty safe rule that those who have already given us cause to trust their judgment may be relied on, while those who have heretofore sent us Roses of little value, may be esteemed to be worthless guides, I should then select from these raisers Lacharme, the raiser of Charles Lefebvre, and Guillot de La France, Liabaud of Jean Liabaud, Levet of Etienne Levet, and Schwartz, the raiser or sender-out of A. K. Williams.

In *Helène* (or *Helén*) Paul Lacharme promises us a nearly white Rose of the *Victor Verdier* type. He describes it as a pure white, occasionally shaded with bluish. Several of our growers who have seen it pronounce it to be a great acquisition. He has also in *Violette Douyer*, a seedling of Jules Margotin, another light Rose, what he describes as white shaded with tender flesh colour, perhaps of the *Captain Christy* type (*Guillot*). *Jules Mongés* is described by him as a seedling from *Souvenir de la Reine d'Angleterre*, with large cup-shaped flowers, fine shining

rosy-carmine; the other, Madame Marie Bianchi, must be a curious flower. It is described as lilac, darker in the centre, back of petals white, and, what is very rare amongst French raisers, it is stated to be the issue of artificial hybridisation between Victor Verlior and Virginale. Liabaud has Ampère, a seedling from Lion des Combats, carrying one very far back, to a long-forgotten Rose, dark purplish-crimson. Capucine Liabaud is described as being of a brilliant carmine-red, but it is said to be only nearly full. I fear that it is one of those open flowers of which he has already given some examples. Pierre Margery is described as a full flower, very bright rose, brighter at the centre. Schwartz' Comtesse Henriette Combs is described as of the Centifolia form, satiny rose, back of petals white. John Twombly is said to be of a lively currant-red; and Jules Grévy—the result again of artificial hybridisation—viz., of Triomphe de l'Exposition and Madame Falcot—is said to be salmony-white, the exterior of petals lively salmon-rose. Levat has Madame Bruel, a seedling from Comtesse d'Oxford, colour carmine-rose; Madame Crozy, a seedling of Souvenir de la Reine d'Angleterre, colour of the China Rose; and Ulrich Bruner, a seedling from Paul Neyron, with large petals, and of a cerise-red colour, another Titchborne.

All who know the pretty little Paquetette, or Daisy Roses, so profuse in blooming and pretty in habit, will be glad to hear that Guillot has in his Mignonette a very pretty rose-coloured one.

In addition to these M. Eugène Verdier, a most prolific vendor of new Roses, announces that owing to the severe winter of 1879-1880, he has been unable to put into commerce this season any of the magnificent gems "of which he has more than 400 in course of study!" With a liberality rare indeed he offers to sell the entire stock, both of those that have flowered and those which have yet to bloom. Well, we shall have in one way or other plenty of novelties, by-and-by; in the meantime we shall look forward to the blooming of the Roses I have named, for several think that it will be a notable year for new Roses. *Notes verveux, Will Ross.*

TEA ROSE LADY MARY FITZWILLIAM.—Blossoms of this fine hybrid Tea Rose (Hevonensis × Victor Verdier) have reached us from Mr. H. Bennett, of Shepperton. They are very large, very full, the petals broad and recurved, the colour flesh-pink; and very fragrant. The leaves are glabrous, and the wood moderately prickly.

HOME CORRESPONDENCE.

The Weather.—Winter came yesterday (March 21), when a few showers of snow fell. During the night biting winds, drifting snow, and hailstorms, and a few degrees of frost. To-day (22d) hail and storm showers alternating all day, with a few gleams of sunshine; wind sharp and biting, likely to be a sharp frost to-night. Wind north-west. Peaches, Nectarines, Apricots, in full and glorious blossom; Plums just about to open. Hurried on our screen of boughs yesterday: fearful of result. Apples and Pears backward, and safe against several degrees of frost. *D. T. Fish, March 22.*

The Bone-Tree.—In September last you were so kind as to devote a portion of your columns to an article on the Bone-tree; will you allow me to call your attention to the enclosed letter from Captain Maclear, commanding H.M. surveying ship *Alert*, which appeared in the *Standard* of the 10th inst. —

"Sir,—In August last there appeared in the *Standard* a letter from Lieutenant de Hoghton about the pearl-shell fisheries in Torres Straits. In this he mentioned a curious tree that picked up bones. The account was so curious that I wrote to Mr. Chester, the resident magistrate at Thursday Island, for an explanation, and I think his answer will interest you. — "I have made inquiries about the tree, and I find that it grows at Marbae, not far from Pearson's Station. It is a kind of Banyan, or Fig tree, and sends down long vines, or tendrils roots, from its upper branches; these run along the ground, and from time to time small detached in their path, such as bones and other unconsidered trifles. The vines afterwards contract, and draw up whatever is attached to them. This is Pearson's explanation of the phenomenon.—I am, sir, your obedient servant, *J. P. Maclear, H.M.S. 'Alert,' Colombo, Feb. 18.*"

From this it would really appear that, besides myself, there are three other people "living in the nineteenth century who believe a tree capable of dealing in bones

in the manner described;" and I live in hopes that, when investigated, other people, and perhaps even the Editor of the *Gardeners' Chronicle*, come round to the same belief, and acknowledge that "the confiding bone merchant," you so aptly portray as slumbering beneath its shade, might find his bones actually, and himself metaphorically, "up a tree," when he finished his nap, so I recommend the said bone merchant to give Jersey Island (or Marbae) in general, and Philip Harbour (that island in particular, a wide berth, for that harbour stands the "Bone tree," *Thomas de la Motte, Commander Royal Navy, St. Leonard's, March 20.*

Earliness of the Season.—Herewith I send, as specimens of the earliness of the spring, even in cold Yorkshire, — (1) a small branch cut from an unpruned hybrid perpetual Rose bush growing in an open border, on which, as you will see, the buds are quite visible; (2) an Apricot that I picked myself from a young tree growing at the south end of a farmhouse near here: of course a fireplace regularly in use at the north side of the wall has much to do with the size of the Apricot, all the fruit similar to the one sent being in a space of 2 feet square. The trees and branches are just setting, still Apricots are large as small Walnuts, even with the aid of fire-heat mentioned above, are not common in the middle of March from unprotected trees even in ordinary early seasons. *H. P. Clayton, Grimston Park Gardens, Tadcaster, March 15.* [From Thorpe, near Halifax, we have received strong evidence of the mild season that has been experienced in that part of (West) Yorkshire. Ed.]

Bees in Peach-houses.—It is an old-fashioned plan, and one not generally recommended now, to put a hive of bees in a Peach-house when the trees are in bloom. I think, however, much may be gained by doing so. A week or two ago the Peach trees in an unheated house here were in full bloom. Many dull days happened at the time, and, as we had not the slightest control over the atmosphere in either low temperature or excessive moisture, I felt rather afraid of the result, my only hope being in the bees, which had been used in another house, and which I had brushed-fertilising of the blooms was never attempted, but the bees were very industrious, and the fruit of their labour is now visible, as the specimen of "setting" which I send you is an ordinary sample of what may be seen all over the house. *J. Muir, Mangon, S. Wales.* [A very good "set." Ed.]

Seedling Abutions.—I am glad to see that these useful plants are being brought out so well. All lovers of flowers will find them well deserving of attention. They are easily propagated, and easily grown, and altogether well deserving of extensive and general culture. Some of the old named sorts were good, but many of the new seedlings are better, and amongst the latter there is one here which I consider of more than ordinary merit. There is only one plant of it in bloom at the present time. It is eight months old, and is growing against the end of an intermediate-house. It is not a very large plant, as it has always flowered so freely that wood and leaves were made slowly. If every branch was cut off they might easily be held in one hand, and all the blooms which are open on it this day (March 21) I send to you. They are eight dozen in number. Throughout the winter hundreds of blooms have been cut from it, and it is no exaggeration to say that now there are thousands of buds on it to open. For compact growth, prolificness, and size and colour of its deep rich golden flowers, I have seen none to equal it. *J. Muir, Mangon Park, S. Wales.* [Evidently a first-rate variety. Ed.]

The Conservatory at Longford Castle.—Just now the conservatory at this extensive gardening establishment is exceedingly gay, and doubtless will be so with spring flowering plants for some few weeks to come. The roof, which is wired, and over which those two admirable climbers, *Tasmania Van Volxemi* and *exoniensis*, grow, is in itself a sight worth seeing at any time of the year. With regard to these two *Tasconias*, it may be as well to remark that in their training and tying, anything and everything pertaining to stiffness or formality is strictly avoided. The object appears to be to imitate Nature as far as practicable, and thereby to obtain the best possible effect, and, as regards flowering, the most satisfactory results. Here there are festoons and streamers waving and dangling to and fro in the air, as the ventilators are opened, and bedecked with their curiously-shaped and beautiful crimson-coloured flowers, each depending from the shoot on which it is borne by its long and slender thread-like footstalk. Altogether the roof has a most chaste and lovely appearance when the plants are in full flower. As evidence of the suitability of *Tasconias* for a cool house, it may be mentioned that the plants under notice have been flowering continuously for the past eighteen months or two years. Amongst the other occupants of the

structure are well-grown and well-flowered examples of *Spiraea*, *Arum*, *Eupatorium*, and *Lily* of the Valley, &c., in abundance. Nothing could be more simple or more successful than Mr. Ward's way of treating *Lily* of the Valley. The roots are strong impored clumps, and are potted mostly into 5 and 6 inch pots; according to the time they are wanted in flower so they are brought into the Mushroom-house, and covered with about 6 inches of decayed leaves; here they remain till the crowns have started well into growth, then they are transferred to one of the forcing-houses, where there is plenty of heat and moisture. By adopting this plan, both leaves and flowers come away simultaneously and are both fully developed at the same time; *Eupatorium riparium* and *Arums* are well done, and two more useful plants for cutting from at this time of the year cannot well be imagined. They are like all other good things, *i.e.*, worth doing well, and will pay for liberal treatment. If planted out early in the summer and grown in a rich open border containing a few barrowsload of turfy loam, and potted up towards the end of September, the results will be highly satisfactory. In addition to the above there is also a very choice and varied collection of *Solanums*, *Cyclamens*, *Primulas*, *Calceolarias*, and *Cinerarias*, together with many other miscellaneous subjects too numerous for special comment. Seeing that there has recently appeared in your columns a paragraph or two both *pro* and *con* respecting seedling *Cinerarias*, I may here state that at Longford Park are a few seedlings, and that they are a superb collection, too. Although further selection may be necessary before attaining the ideal standard of excellence which a technical florist would require, the strain itself is of such a character that any one who has to grow for market or furnishing would not, with seed of it in their possession, think for a moment of growing or perpetuating named varieties. Some of the selfs are exceedingly good, and leave little for the most fastidious of critics to desire, being in form, colour, size, and substance all that one could wish. Written from memory, I think I may safely state that many of the individual flowers would easily cover half-a-crown, and some of them possibly a crown piece. Where this is the case the reader may be sure the plants are well grown, some of them measuring from 18 inches to 2 feet high and something like 3 feet through. *J. H.*

Trickery in Plants: a Caution.—Last year about this time or a little later a man was seen in Maidstone with a tray of young plants offered them for sale at twopence each—a single shoot from 2 to 3 inches high, each plant separate, pressed tightly into a lump of fresh wet loam, about the size of an egg; he called them "the new Brazilian Musk," the plants being very strongly scented with that perfume. He stated that Mr. Ladds, of Bexley Heath, supplied him with plants as he wanted them. A friend of mine purchased a plant which I happened to see afterward, and told them it was "the Musk" at all, although the smell was the same; but the plant was potted to grow on, and in a few days it was scentless but healthy. It remained in the pot till in bloom, when it proved to be the Dead Nettle, *Lamium album*, and must have been scented with Musk in their young state on purpose for sale. Of course, then it was too late to find the man, or who he would have been handed over to the police. *H. Thiers, Wotton.*

DORYANTHES PALMERI.

A SPECIMEN of this noble plant is now coming into flower in the southern octagon of the Temperate-house at Kew. We had occasion to mention and to figure the plant a few years ago (1874, vol. i, p. 181), our illustration being taken from drawings made in Queenland. We reproduce a figure (fig. 64) showing a small portion of the inflorescence. This is, we believe, the first occasion of its flowering in this country, and the stately grandeur of the plant is such that we recommend all those who have the opportunity and the space to avail themselves of it. Imagine a bold dense tuft consisting of very numerous broad lance-shaped leaves, each about 6 feet long by 6 inches in breadth, gracefully arching over, a mile from the centre of the tuft of leaves arises to a height of 10–12 feet a slender column, clothed with appressed leafy bracts, and bearing at the summit a compact, many-flowered panicle of large 6-parted funnel-shaped flowers, at present somewhat dull-red in colour. Whether as the growth continues this will be exchanged for the brighter hues which characterise the plant in its native country remains to be seen.

THE Twickenham Horticultural and Cottage Garden Society's thirteenth summer show will be held in the grounds of the Orleans Club on July 7.

Florists' Flowers.

CHINESE PRIMULAS AT READING.—The *Primula sinensis* has of late shown a tendency to variation that could never have been dreamed of by the gardeners of the past generation. Time was when, if a nurseryman received an order for Primulas, he would go to the seed-pans and select the red-stalked plants as purple-flowering, and the white-stalked plants as white-flowering varieties. It is no longer safe to do this. One of many results of intercrossing has been that we now get flowers of snowy whiteness on plants

The Fern-leaved section appears to be prolific of floral surprises. A new type, provisionally named *Rosy Pink*, is of an exceedingly attractive hue of colour—soft and expressive, and in addition has a vigorous and yet compact habit of growth. There is also a double form, of this rich rose colour, also on Fern-leaved foliage, but if anything the colour is more intense, and it makes a charming pot plant. There are also the Fern-leaved type, with rich purple flowers—one in particular, with a rare vividness of tint. This came in a somewhat unlooked-for manner among some special crosses, and the flowers, being large, finely-formed, and rich in colour, and the habit of growth dwarf, compact, and yet vigorous, will make a good parent. There is a new type of white Fern-leaved, in which the flowers are of the purest white, and also

should be fertilised with their own pollen, to keep it pure in colour. Side by side with this could be seen growing the best variety of white Primulas, of others' raising, that Messrs. Sutton & Sons had been able to obtain. This practice enables them to form comparisons, and this is decidedly advantageous in selecting seedlings. One seedling, marked $\times 29$, represents a selected type obtained from a cross between a fine white and *Toukings' Princess Louise*, that produced flowers of astonishing size—large, stout, and exceedingly well formed—a stiff habit and dwarf foliage, and with the trusses well above the leaves. This will make a very fine variety for exhibition purposes.

Ruby King, the new deep blood-red coloured variety, was in fine form this year, and being late in



FIG. 64.—*DORYANTHES PALMERI*: BRANCH OF THE INFLORESCENCE. (SEE P. 408.)

with coloured leaf-stalks, and coloured flowers on plants with pale or white leaf-stalks. A larch of seedlings raised from seed taken from flowers carefully and intelligently fertilised will be found pregnant with floral surprises of a peculiarly interesting character. There is no end to the infinite variety Nature has stored up in her marvellous storehouse, and the Chinese Primrose appears capable of indefinite illustration of varying tint.

The London Road Florists' Seed Grounds of Messrs. Sutton & Sons at Reading may be likened to a floral laboratory where experiments in fertilisation are tried, and with decided and substantial successes. In early spring the Primulas of the *sinensis* type afford a rare floral treat. They are both well grown and bloomed, and consequently one sees them in their best character, and can properly appraise their merits.

of large size and substance; it also flowers with great freedom, as many as three and four good trusses being seen on quite small plants, and so forming dense pyramids of flower. This is a charming variety for decorative purposes. The selected white and red Fern-leaved types are also very fine.

Of the plain-leaved section there are many fine types. The selected red, superb red, blush and pure white types, are all very fine; but these have to give way to newer selections of a very valuable character. One, named *Snowdrift*, is really a pure white Primula, that is to say, from the time the flowers expand till they decay not a trace of blush comes on to them. This is the common fault of some of our finest white Primulas, but we are surely reaching on to a strain when the purity of the whiteness will be undimmed by time—the trusses of this variety stand up so well above the foliage. The flowers of this fine type

flowering helped to keep up a good succession. As a selection is made every year for seed purposes, a gradual but sure improvement goes on. *Reading Pink* is of the same colour as *Suttons' Rosy Queen*, on Fern-leaved foliage, and in both cases, while the colour is especially pleasing, the flower-stalks are borne well above the foliage. A new selection, numbered $\times 60$, is of a very bright red colour—quite a new shade of red, reminding one of *Ribes sanguineum*—flowers large, very stout, and the best shape and substance, the habit excellent in every respect. A new selection, with pretty soft lilac-pink flowers—quite a new shade, has been named *Princess Beatrice*. This deepens to a bright pink as it ages, but retains a distinct and novel tint, the segments being margined with white and flaked with the same: thus promising to furnish a new type of striped Primulas. The flowers open nearly pure white, and deepen in

insure the equality or uniformity of conditions, or to make correct allowance for their difference, and at least one very ingenious instrument by receiving the air into different pipes, opening different valves according to its varying strength, and then giving out two similar, but distinct musical notes, the one of which answers to a definite direction, the other to a definite velocity. Such things can, at present, only be considered as pretty and ingenious toys; they can undoubtedly mark a difference between one wind and another, but are quite unequal to giving any exact measure of relative, and still more of absolute force. Even the more generally recognised types of anemometers, the very commonly used pressure plates of Mr. Ostler, or the revolving cups of the late Dr. Robinson, are by no means entirely satisfactory. The action of stream lines in front, or of the partial vacuum behind the exposed surface, leads to curious vagaries difficult to understand, and as yet impossible to correct. But till they are understood and corrected, anemometers, as a scientific standard, are very uncertain.

The President, in conclusion said, that what we want is not so much new and improved apparatus for registering or recording; for though those we have are not perfect, they are far superior to the anemometers they are applied to. The question is, how can we get a more exact result in the instrument itself, or in the theory which translates its action. It is to this that we would wish more especially to call the attention of all meteorologists.

In connection with the meeting there was an exhibition of instruments, consisting of anemometers of various meteorological types, &c. The anemometers exhibited were forty-five in number, and included, among others, those of Beckley, Biram, Cator, Hagemann, Howlett, Lind, Lowae, Osler, Oxley, Robinson, Ronalds, Somerville, Whewell, and Wild. There were also photographs and drawings of old forms of anemometers, damaged caused by whirlwinds, &c.

Scottish Horticultural Association. — The annual meeting of this Association, held on Tuesday, the 7th inst., at St. Andrew Square, Edinburgh, Mr. Downie, President, in the chair. There was a good attendance. The Secretary, Mr. A. Milne, read the report, which congratulated the Association on the work of the past year. There were now upwards of 400 members on the Association's books, and 25 new members had been added during the year, being an increase of four, compared with the number enrolled last year. Twenty papers had been read, and ten Certificates had been granted by the adjudicating committees for new plants, fruits, and vegetables, which the Association had also been awarded to three members for the superior culture of flowers. Thirty-one members had exhibited collections of plants, flowers, fruits, and vegetables, during the year. The report of the Treasurer, Mr. D. P. Laird, showed that the income for the year, including balance from last account, amounted to £64 5s. 6d., and the expenditure to £41 11s. 0d. The reports were adopted. A discussion took place on the desirability of having a journal or periodical started under the auspices of the Association. It was ultimately resolved, on the motion of Mr. Hugh Fraser, President, that the Council of the Association to appoint a sub-committee to inquire into the whole matter, and to report to a future meeting. Mr. Dunn, Balkeith, reported that five essays had competed for the prizes offered by the Association for the best essay on the "History of Hardy Fruit Culture in Britain," and the judges had awarded the prizes to the essays bearing the following notices: — 1, *L. Supra*, Mr. George Oliver, Royal Botanic Gardens, Edinburgh; 2, *Terna verna molitorum arena*, Mr. Mark King, Edinburgh; 3, *Beaumontia*, Mr. Peter McFavish, Ardrey Castle Gardens, Sirling. Four cases of insects injurious to plant life were exhibited by Mr. George Oliver, Edinburgh Royal Botanic Gardens, and he was awarded the 1st prize for his collection, which was commended by the judges for its arrangement and appearance. Everett Professor Balfour was elected Hon. President; Mr. Hugh Fraser, Leith Walk Nurseries, was elected President; and Messrs. J. Downie, A. McLeod, and F. Muoro, Vice-Presidents. The Secretary and Treasurer were re-elected. To the retiring President a certificate of thanks was accorded.

Mr. Robertson Muoro, Abercorn Nursery, exhibited a collection of hardy spring flowers, which were very much admired. It included Primulas, Hepaticas, Saxifragas, and Scillas. Mr. Chapman, Easter Duddingston Lodge, exhibited specimens of the following plants: — *Phlox phurum*, Scillas of sorts, and Saxifraga Bursertiana; while Mr. George McKinnon, Melville Castle Gardens, displayed some flowers of *Cilanthus pinnatifidus* in remarkably fine bloom for the season.

Law Notes.

COURT OF APPEAL: *Lincoln's Inn, Monday, Jan. 20.* — [Before the Master of the Rolls and Lords Justices Cotton and Lindley.] *The Commissioners for the Exhibition of 1851 v. The Royal Horticultural Society.* — This was an appeal by the plaintiffs from an order made in June last by Mr. Justice Fry, dismissing the action with costs. The trial lasted five days and was fully reported by us at the time.

The plaintiffs were the owners of considerable land at Kensington, and in 1860, being anxious to promote the science of horticulture, they granted to the defendants a lease of certain land (now known as the Royal Horticultural Gardens) on very favourable terms, but the provision upon which the case was de-

vised by Mr. Justice Fry was one to the effect that the amount of rent payable should be to a certain extent contingent upon the receipts of the gardens, and for the purpose of ascertaining this amount from time to time a Joint Expenses Committee was appointed. The plaintiffs' action was to compel a forfeiture of the lease, on the ground that no rent had been paid for many years, and that they were therefore entitled to re-enter and take possession of their land. It appeared, however, that owing to various causes the Expenses Committee had not met for a very long time, and the defendants therefore contended that the amount of rent due, if there were any, had never been ascertained or demanded. Mr. Justice Fry held this objection to be fatal to the plaintiffs' case.

The debenture-holders were also parties to the action, and they submitted that the plaintiffs and the defendant Society were practically partners, and that in any case their debentures should be satisfied before re-possession was obtained.

The plaintiffs now appealed.

The Solicitor-General, Mr. Crossley, Q.C., and Mr. Beaumont appeared for the appellants; Mr. Fischer, Q.C., and Mr. Haughton for the respondents; Mr. Cookson, Q.C., and Mr. De Castro for the debenture-holders.

The SOLICITOR-GENERAL went through the various agreements set out in our previous report, and contended that the mere non-constitution of the Expenses Committee did not deprive the plaintiffs of their right of re-entry.

THE MASTER OF THE ROLLS: It would be very unjust if it were so. The respondents could by that means evade payment of rent altogether, by simply preventing the committee from meeting.

Mr. FISCHER said that as a matter of fact the plaintiffs themselves were the only persons to blame for the non-constitution of the committee.

The SOLICITOR-GENERAL admitted that that was so, but there could be no doubt as to the Society's inability to pay the rent, and, indeed, the Horticultural Gardens had failed. With regard to the debenture-holders, the learned counsel contended that they could not have higher rights than the Society itself, and he repudiated the idea of a partnership existing between the Commissioners and the Society.

Mr. FISCHER, Q.C., submitted that the non-constitution of the committee had prevented the ascertainment of the amount of rent payable. The Horticultural Society had never placed any obstacle in the way of the committee, and were most desirous that it should meet. The Society had the interests of the debenture-holders to consider, and therefore they were obliged to stand upon the letter of the agreement. The bargain between the parties might have been unusual, and even unwise, but at the same time it was binding. Between the years 1874 and 1875 there had been differences between the members of the committee, but in the latter year those disputes were settled, and since then the Society had repeatedly applied to the Commissioners, who had, however, refused to meet, therefore there had been no legal failure as to payment, and the plaintiffs ought to be non-suited.

On Tuesday, Mr. COOKSON, Q.C., addressed the Court at length in support of the case of the debenture-holders. He contended that even if the plaintiffs succeeded in the action, provision should first be made for the debenture-holders, who had been induced to subscribe their money upon the faith of the lease being free from all question. Indeed, the re-entry clause had been inserted after the money was subscribed, and therefore ought not to bind the debenture-holders. The arrangement between the Commissioners and the Society amounted to a partner ship. The whole affair was purely a commercial speculation, and no relation of landlord and tenant existed between the parties.

The argument in support of the debenture-holders' case lasted the whole day, and at its conclusion the Court intimated that they did not desire to hear the plaintiffs in reply, and were willing to adjudge in the morning.

On Wednesday, March 22, the MASTER OF THE ROLLS, in giving judgment, said the Court had come to the conclusion that Mr. Justice Fry had put a wrong construction upon the agreement. The Society had entered into an agreement with the Commissioners to take a lease from them for thirty-one years, which it was eventually arranged should be renewable for another term of twenty-one years, of certain garden ground at Kensington. The Commissioners, having regard to the character of the Society and the object for which the lease had been required, were willing to grant very liberal terms, and they agreed that no rent should be paid in the first instance, but that they (the Commissioners) should advance £50,000 to complete the necessary buildings, &c., on the ground, and that the Society should raise a similar sum, and that the Commissioners should get for rent the yearly sum of £2145, which was 4 per cent. on the sum advanced to them. That was to be subsidiary to the payment of the expenses of keeping up the garden and the payment of interest to the persons who advanced the £50,000 to the Society. The net rent of £2145 was to be paid, and the surplus, if any, was to be divided equally between the Commissioners and the Society. Naturally, the Commissioners wished to retain some control over the expenses of the Society, and it was suggested and agreed

that there should be a regulating committee of six persons, three nominated by the Society and three by the Commissioners, of whom one of the Commissioners' nominees should be chairman. The Court below held that the Commissioners should have a preponderating vote in the committee; then for the protection of the Society there was a clause that the committee should allow reasonable and necessary expenses. There was, however, no power to enforce a meeting of the committee, although it had been suggested in the Court below that a *mandamus* might be applied for, but even if the committee could be compelled to meet how could they be compelled to give a decision? But surely the Society could not have been placed in a worse position in consequence of the committee not having met, for the authority of the committee was limited; they were bound to allow fair and reasonable expenses, and if the Society thought that the committee had failed to allow any proper items they had the right to go to arbitration, either to the court or to the matter. Now, it was clear from the agreements that the £2145 for rent was reserved only by way of interest on the £50,000 advanced by the Commissioners, and if they did not get that, the arrangement was to come to an end, and they were to be entitled to take possession of the land again, and put an end to all the agreements. Therefore the question for the Court was, had there been such a failure? The Society did not deny that there had been, but they said "You cannot find out whether or not there has been a failure until the committee have met, and the committee have not met by reason of your own refusal." That argument, however, would not hold good. There would be something in it had the expenses of the Society been unreasonable, but there was no suggestion of that sort from any of the parties. It had been proved that no rent had been paid since the year 1874, and that was *prima facie* evidence that there were no funds to pay it with; however, it was seen from the accounts of the Society, which were in evidence, that for several years past the receipts in excess of expenditure had not been sufficient to even pay the interest on the debentures. Therefore, as regards the Society, there had been no defence whatever to the action. As regarded the debenture-holders, who had very properly been made parties to the action, they took a different position altogether. They said they were induced to lend their money upon representations made by the Society, by which the Commissioners were bound, and that those representations prevented the Commissioners from taking advantage of the forfeiture, and then they had contended that on a fair construction of the debentures, and having regard to the events which had happened, the Commissioners were not entitled to re-enter without providing for the debentures. In the opinion of the Court those contentions could not be sustained. There had been no representation of a fact which was untrue, and the debenture-holders must be taken to have known exactly the terms of the lease, upon the security of which they advanced their money. It had also been contended that the arrangements amounted to a partnership between the Commissioners and the Society. There certainly were some elements of a partnership, but not all. The Commissioners were not to receive profit, but only part of the surplus after paying expenses of keeping up the gardens and the interest on the debentures. No partnership had been intended, nor had any existed. The debenture-holders had advanced their money to the Society and not to the Commissioners, and any rights of the Commissioners had not to be defeated by the claims of third parties.

On these grounds the Court had decided to allow the appeal, and the Commissioners would therefore be allowed to re-enter and take possession of the gardens.

The plaintiffs' counsel stated that the Commissioners had no desire to press the Society unduly, and they would consent not to take possession for four months.

The action, therefore, was ordered to be dismissed, the Society and debenture-holders paying all the costs.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MARCH 22, 1882.

MONTH AND DAY.	BAROMETRE.		TEMPERATURE OF THE AIR.		WIND.	HYGROMETRIC STATE OF THE AIR, from the GARDNER'S Tables 6th Edition.	RAIN, &c.	
	Mean.	Range.	Mean.	Range.				
Mar. 16	30.43	+0.57, 65.	37.5	25.0, 40.6	8.1, 2.4	76	S.W.	0.00
17	30.41	+0.49, 65.	39.5	23.0, 40.1	7.8	74	S.W.	0.00
18	30.41	+0.28, 65.	35.0	30.0, 40.1	7.7	74	S.W.	0.00
19	29.85	+0.04, 60.	39.5, 22.5, 48.6	6.9, 4.3	7.8	78	S.W.	0.00
20	29.66	-0.18, 62.	33.0, 25.5, 49.7	8.0, 3.1	6.7	81	S.W.	0.00
21	29.55	-0.25, 59.	33.0, 17.5, 40.0	0.0, 3.5	6.4	76	N.W.	0.00
22	29.94	+0.12, 41.	31.0, 18.5, 36.2	5.2, 3.7	8.1	78	N.W.	0.01
Mean	29.97	+0.15, 68.	36.2	25.4, 36.3	4.6, 3.3	74	S.W.	0.11

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BEST QUALITY.
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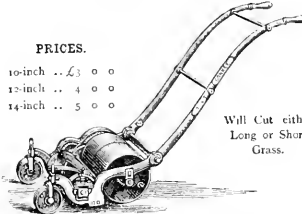
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To cut 10 inches wide	£3 10 0	To cut 19 inches wide	£8 0 0
To cut 12 inches wide	4 10 0	To cut 21 inches wide	8 10 0
To cut 14 inches wide	5 10 0	To cut 23 inches wide	9 0 0
To cut 16 inches wide	6 10 0		

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12-inch ..	4 0 0
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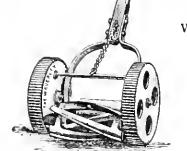


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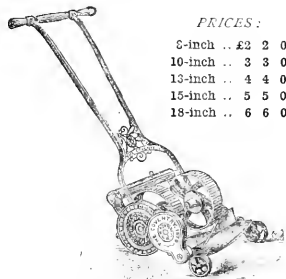
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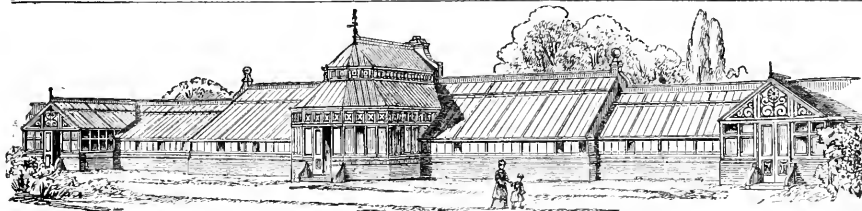
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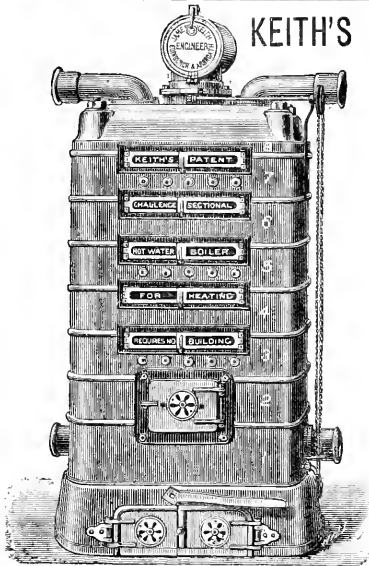
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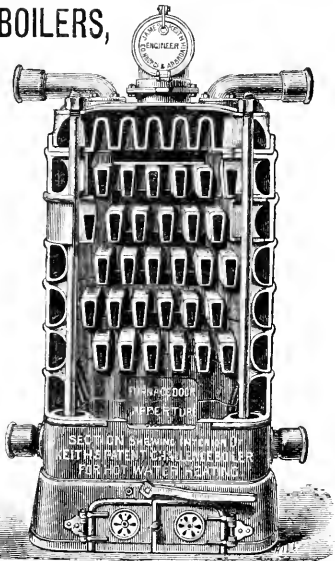
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Wholesale Russia Mat Merchants. **MARENDAZ and FISHER**, James Street, Covent Garden, W.C., have received a special imposition of new **RUSSIA MATS**, also a large consignment of **PETERSBURG MATS**, **MAT BAGS** and **RAFFIA FIBRE**.

FRESH ARRIVALS OF ARCHANGEL MATS, best colour and quality, also **ST PETERSBURG MATS** and **RAFFIA SEED BAGS and SACKS**, **NETTINGS** and **SHALING**, &c. Prices on application.—**W.M. PETERS**, 4, Foster Street, South, London, E.

TANNED GARDEN NETTING, 12 per square yard. **SCRYM**, **TIFFANY**, **ELASTIC NETTING**, **SECOND-HAND HUNTING**, &c. Sample Book, 2s. stamped.

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Prices in Panels of the undermentioned sizes only, without Stakes:
6 feet wide, 3 feet high ... 21. 6d. each panel.
6 " " 4 " " ... 32. 6d. " "
6 " " 4 1/2 " " ... 45. 6d. " "

The above engraving shows the arrangement of the panels tied to ordinary wood stakes. Improved Framed Standards for ditto, galvanized, 22. 6d., 25. 0/1, and 32. each.

J. T. THOMAS & CO., 287, QUEEN VICTORIA STREET, LONDON, E.C.; 285 and 362, EDGWARE ROAD, LONDON, W.

GARDEN NETTING.

S. A. SANDS (Successor to J. W. Haythorn), Manufacturer of **HEXAGON and CHISWICK GARDEN NETS**.

Warranted to Protect Blooms from Frost, Winds, Hail, &c., and Fruit from Birds, Wasps, &c.

Patterns and Prices Free per Post. Address—**S. A. SANDS**, 20, CLUMBER STREET, NOTTINGHAM.

TANNED NETTING, 2 yards wide, 1 1/2 per yard; 4 yards wide, 3d per yard; 2 yards wide, 10s. per 100 yards; 3 yards wide, 20s. per 100 yards. **NEW TWINE NETTING**, 1 inch mesh, 1 yard wide, 2d. 2 yards wide, 4s. 4 yards wide, 8d. per yard. **HEXAGON GARDEN NETTING**, seventy-six meshes to the square inch, 6d. per pole. **RABBIT NETS**, **BAT-FOLDING NETS**, on bamboo poles, 20s. **CLAP NETS** for birds, 30s. complete.

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Protect your Glass from Frost and Cold Winds, by using a Strong Woolen Material, called **FRIGI DOMO**, which can be obtained from all Nurserymen and Florists, or from **BERNARD JAMIN EDGINGTON**, 2, Duke Street, London Bridge, S.E. **FRIGI DOMO** is a registered article, with all Trade Marks and rights.

45s.—CUCUMBER or MELON FRAMES—45s. GREAT REDUCTION IN PRICE.

TWO-LIGHT BOX and BASKETS, 8 feet x 6 feet. Painted and Glazed (Holroy's Patent Method), with 20-oz. Glass. CATALOGUES free. **M. E. and E. HORLEY**, Horticultural Works, Fiddington, Beds.

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No. 2 size ... 8 ft. long ... 6 ft. wide ... £4 15 0
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These Frames give greater height in the centre. They are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Screens are provided for ventilating. Are made of the best hard red deal, all painted four coats of best oil colour, the lights are glazed with best 24-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales, also to Edinburgh and Dublin.

Estimates for Garden Frames, Pit Lights, Sashes, &c. Mr. Henry McCosker, having had 6 ft. of the No. 74 Frame, he considers it very satisfactory.—*Forwarded, Dumfries.*

BOULTON & PAUL, NORWICH.



Cucumber Frames. **R. HALLIDAY and CO.** desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England, also Dublin and Belfast:
2 light frame, 8 feet by 6 feet ... £ 3 10 0
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6 light frame, 24 feet by 6 feet ... " 10 10 0

The glass is heated and putted in. Lights and framing for brick pits at proportionately low prices.

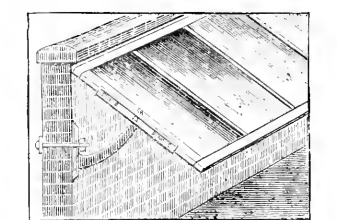
R. HALLIDAY and CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.



GARDEN BOXES and LIGHTS are generally kept in Stock, and **WOODEN HOUSES** suitable for Store-houses, Tool-houses, &c.

Illustrated Sheets sent, post-free, on application.

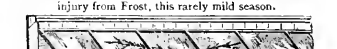
WRIGHT & HOLMES' PATENT PORTABLE GLASS COPING.



Supported by strong Iron Brackets, 2 feet wide, 23. per running foot.

For further particulars apply to **WRIGHT & HOLMES**, Horticultural Builders and Hot-water Engineers, 333 1/2, MOSELEY ROAD, BIRMINGHAM.

Wall Fruit Trees are more than usually liable to injury from Frost, this rarely mild season.



Make a crop certain by using **W. PARHAM'S PATENT GLASS WALL COPING**, which has proved itself for the last nine years so safe a protection. Price in painted Iron Framing, with 20-oz. Glass and Rods for Curtain, 2 feet wide, 21. 6d.; 3 feet wide, 35. 0d. per foot run. Prospectus with testimonials free by post.

W. PARHAM, Northgate Works, Bath; and 417, Oxford Street, London, W. Specimens may be seen at either address.

SAVE YOUR FRUIT CROP BY USING



W. RICHARDSON & CO.'S WALL-TREE PROTECTOR.

THE CHEAPEST and MOST EFFICIENT MADE. 2 ft. wide, 1s. 10d. per ft. run; 3 ft. wide, 2s. 6d. per ft. run. Carriage Paid for orders over £5.

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W. H. LASCELLES HORTICULTURAL BUILDER, 127, BUNHILL KOW, LONDON, E.C.

Special DESIGNS and ESTIMATES given for Ornamental CONSERVATORIES, without charge, and for all Horticultural Work of all kinds.

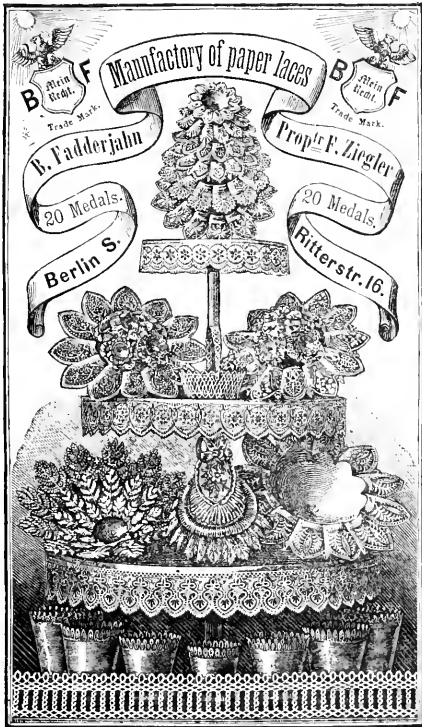


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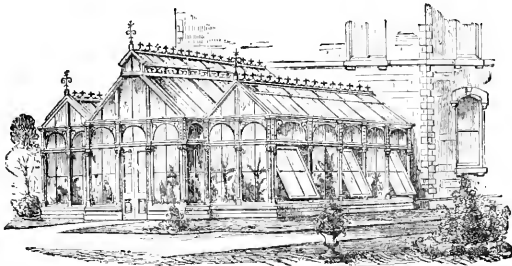
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For full particulars, see Price List.

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MESSENGER & COMPANY, MIDLAND HORTICULTURAL BUILDING & HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH.



Horticultural Buildings erected on MESSENGER & CO.'S Patent Method of Construction are very strong, most durable, light, elegant, amply ventilated, perfect efficiency for intended purpose is guaranteed, are economical in cost and maintenance, combine the peculiar advantages of Wooden and of Iron Houses, without their disadvantages.

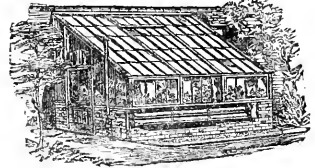
MESSENGER AND CO., from their long experience, and having large Works exclusively devoted to the Construction and Heating of Horticultural Buildings, are in a position to execute with despatch, in the best manner, the Orders with which they are entrusted. Only thoroughly well seasoned timber used.

The Plans of Landscape Gardeners, Architects, and Others carried out.

Plans and Estimates forwarded free on receipt of Particulars by Post. Gentlemen invited on.

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AMATEURS' GREENHOUSES.



A LEAN-TO or SPAN GREENHOUSE, 12 feet long by 10 feet wide, £15 14s. delivered. Made of thoroughly well-seasoned Red Deal, heights 2 inches thick, ventilators at top and in front, painted two coats, and glass cut to size; door with lock and key, guttering and down pipe. Makers of the "G" GUINEA GREENHOUSE, size 10 feet by 6 feet. These houses are made in lights, have all been erected in our own ships, and can readily be put together again. Many sizes in stock ready for despatch. Full particulars and illustrations and prices on application. See also advertisement elsewhere in this work. MESSENGER AND CO. Loughborough, Leicestershire.

Advertisement for BOULTON & PAUL, Manufacturers, NORWICH, Poultry Appliances, &c. Includes illustration of a poultry house and text: 'ILLUSTRATED CATALOGUE FREE BY POST'.

Advertisement for GLASSHOUSES & HEATING, B. WATKINS & SONS, HIGHGATE ROAD, LONDON, N.W.

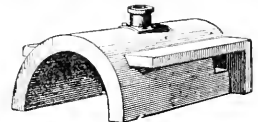
HOSE—HOSE—HOSE.

PATENT RED-RUBBER GARDEN HOSE.

Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary India-rubber Hose. Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use. A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever." Private Customers Supplied at Trade Prices.

Sample and Price of MERRYWEATHER & SONS, Manufacturers, 63, Long Acre, W.C.

Silver Medal, 1874. First-class Certificate, 1867. Highly Commended, 1873. First-class Certificate, 1875.



Mr. W. THOMPSON, Tweed Vineyard, has written the following letter to a gentleman who inquired respecting this Boiler:—"Galashiels, February 4, 1881."

"The Terminal Saddle Boiler is BY FAR the best one we have used, and we have had all sorts. It does its work well, and with less fuel than most Boilers. It is the most economical and efficient Boiler we have, and has not cost sixpence since we fixed it some eight years ago."

Illustrated Prospectus Post-free.

THOS. JONES, Temple Street, Manchester.

A POWERFUL APPARATUS for TRANSPLANTING TREES.—Apply to Mr. CHARLTON, Tunbridge Wells; Messrs. WEDLAKE, Horchurch. Price, complete £2 7s. 6d. £3 15s. 6d. Exhibited at 142, Regent Street, London, W.C.

The Best System of Heating is by Hot Water. The Best Hot-Water Joint is Jones' Expansion Joint.

JONES & ATTWOOD ENGINEERS & IRONFOUNDERS, STOURBRIDGE.

Advertisement for THE BEST EXPANSION JOINT, HOT-WATER JOINT. Includes illustration of the joint and text: 'THE BEST EXPANSION JOINT. HOT-WATER JOINT.'

Metal Awarded, Horticultural Show, Aston, 1875.

Advertisement for SIMPLE, DURABLE, NEAT, CHEAP. Includes illustration of a boiler and text: 'SIMPLE, DURABLE, NEAT, CHEAP. Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.'

Illustrated CATALOGUE: Also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES, or COILS, on application.

THE GARDENERS' CHRONICLE.

SCALE OF CHARGES FOR ADVERTISING.

Table with 4 columns: Line number, Rate per line, Total rate, and Additional charge. Includes rates for 4, 6, 8, 10, 12, 14 lines and charges for additional lines and columns.

GARDENERS, and OTHERS, WANTING SITUATIONS. 26 words 12. 6d., and 6d. for every additional line (about 9 words) or part of a line.

IMPRESSIVE NOTICES.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

BIRTHS, DEATHS and MARRIAGES, 5s. each insertion. Advertisements for the current week must reach the Office by Thursday noon.

All Subscriptions payable in advance. THE UNITED KINGDOM: 12 Months, £1. 10s.; 6 Months, 12s.; 3 Months, 8s.

FOREIGN (excepting India and China): including Postage, £1. 6s. for 12 Months; India and China, £1. 8s. 6d. P.O. to be made payable at the King Street, Covent Garden, Postoffice, W.C., to W. RICHARDS.

PUBLISHING OFFICE and OFFICE FOR ADVERTISEMENTS, 41, Wellington Street, Strand, London, W.C.

PAINT.—Large quantity for Sale, especially prepared for Horticultural Buildings, Greenhouses, &c. Wm. Rankin and Sons, 19, Carlton Place, Glasgow.

JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS, of superior quality.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainest sorts are specially suited for KITCHEN and BATH GARDENS, as they harbour no Slugs or Insects.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Kitchens, Baths, &c.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pit to any Railway Station.

FLINTS and BRICK BURKS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Kitchens, Baths, &c.

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FLINTS and BRICK BURKS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above. N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

HORTICULTURAL WINDOW GLASS, 15-oz. and 21-oz., in Boxes containing 200 feet. Carriage Paid to any Railway Station in England.

ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 8, Pentonville Road, London, N.

T. MILLINGTON AND CO., 43, Commercial Street, E. PLATE, SHEET, CROWN GLASS.

Horticultural and all kinds of Glass having so much advanced, we are compelled to reduce the prices, but on receipt of application the prices will be forwarded, but will be only from day to day until the market is in a more settled state.

Advantages. Are not POISONOUS. Are not affected without PHOSPHORUS. Are perfectly harmless to the OPERATOR'S EMPLOYED. Are very Durable. Are not liable to Spontaneous Combustion. Light only on the Box.

BELGIAN GLASS FOR GREENHOUSES, &c.

Can be obtained in all sizes and qualities of BETHAM & SON, 9, LOWER THAMES STREET, LONDON, E.C.

HORTICULTURAL SHEET GLASS.

21 oz. Foreign, of the following sizes, in Boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in Stock:—

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VIRGIN CORKWOOD, for Ferneries, Rockeries, and Ornamental Work in Gardens.

W.M. RANKIN and SONS, 19, Carlton Place, Glasgow, and Lisbon, Portugal. Shippers direct from Lisbon at special quotations.

Systematic and Descriptive Botany. DECAISNE and LE MAOUT'S GENERAL SYSTEM OF BOTANY, translated by Mrs. HOOPER, with Additions by J. D. HOOPER, C.E., F.R.S.

LE MAOUT'S ENCYCLOPEDIA of PLANTS: comprising the specific character, description, culture, history, application in the arts, and every other desirable particular respecting all the plants found in Britain.

MR. S. WOOD'S GARDENING BOOKS. GOOD GARDENING; or How to Grow Vegetables, Fruits, and Flowers.

MULTIUM-IN-PARVO GARDENING; or How to Make One Acre of Land Produce £500 a year.

THE LADIES' MULTIUM-IN-PARVO FLOWER GARDENING, and Amateur's Complete Guide.

THE FORCING GARDEN; or How to Grow Early Fruits, Flowers, and Vegetables.

SUN FIRE and LIFE OFFICES, Theobald Street, E.C.; Charing Cross, S.W.

Assurance against Accidents of all Kinds.—Assurance against Railway Accidents alone.—Assurance against Fatal Accidents at Sea.—Assurance of Employers' Liability.

RAILWAY PASSENGERS' ASSURANCE Co., Limited. The oldest and largest Company, insuring against Accidents of all kinds.

ROBINSON & CLEAVER'S (BELFAST) CAMBRIC. Children's 2/6, 3/6, 4/6; Ladies' 4/0, 5/0, 6/0.

POCKET HANDKERCHIEFS. The Irish Cambrics of Messrs. Robinson & Cleaver have a world-wide fame.

EIGHT PRIZE MEDALS. BRYAN & MAY'S MATCHES.

Advantages. Are entirely free from SMELL. Are not POISONOUS. Are not affected without PHOSPHORUS.

Are perfectly harmless to the OPERATOR'S EMPLOYED. Are very Durable. Are not liable to Spontaneous Combustion.

Light only on the Box.

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

WANTED, a HEAD GARDENER, in the neighbourhood of London; must be thoroughly efficient in Stone Plants, Violets, &c., and all other branches of Gardening.

WANTED, at Blackheath, a clever HEAD WORKING GARDENER, where two are kept, and extra help in summer.

WANTED, as GARDENER, in Hertfordshire, about the middle of April, a married man, without encumbrances, wages 25s. per week with baby.

WANTED, a good WORKING GARDENER; must thoroughly understand Gardening in all its branches.

WANTED, at ONCE, an active young man as SECOND GARDENER, inside and out; must be well recommended.

WANTED, as SECOND GARDENER, a steady, industrious, and thoroughly trustworthy single man.

WANTED, a thorough practical, first-rate PROPAGATOR and GROWER, under Glass, of Roses, Strawberries, Tomatoes, Cucumbers, Melons, Chrysanthemums, Cut Flowers for Market, &c.

WANTED, an OUTDOOR FOREMAN and PROPAGATOR—Apply, with references, to G. AND W. YATES, Market Place, Manchester.

WANTED, TWO young MEN, from Market Nurseries, to assist in the Houses, to Grow Stove and Greenhouse Plants.

WANTED, a MAN well up in Growing Plants for Covent Garden; also a young MAN, about 18, who has been used to the Market Trade.

WANTED, a young MAN, used to Nursery Work, good Potter, &c. None need apply unless used to the Business of FRAYLEY, American Nursery, Hanley Road West, Upper Holloway, N.

WANTED, a married MAN, with not more than two children, to Work in Garden.—Must be competent to do a little Road Painting, Whitewashing, &c.

WANTED, a quick, active, young MAN (about 18 or 20 years of age), to attend to Fires and Tying for Market, and to make himself useful.—The Parade, High Road, Lee, S.E.

WANTED, as IMPROVER and SECOND SHOPMAN, an active young man (about 19), who has had some experience in the Seed and Plant Trade.

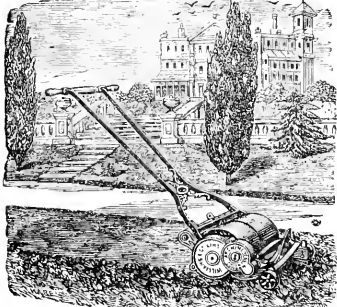
WANTED, at ONCE, a young Woman, as BOUQUETIST (Flower Seller), and to assist in Shop.—Stanton Terrace, Bridge.

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

Scotch Gardeners. LITTLE and BALLANTYNE, NURSERYMEN, Carlisle, have exceptional opportunities for assisting Noblemen and Gentlemen in securing the services of first-class GARDENERS, UNDER GARDENERS, BALDERS and FORESTERS.

B. S. WILLIAMS begs to intimate that he has at present a vacancy in the situation of HEAD GARDENER, BALDERS, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send their names and special solutions for the different capacities will be made.—Holloway, N.

"ARCHIMEDEAN"
AMERICAN
LAWN MOWERS.



HIGHEST PRIZE
At the PARIS EXHIBITION, 1878;
And the Jury, in their Report, say:—"The 'ARCHIMEDEAN' did the BEST WORK of any Lawn Mower exhibited."

At SYDNEY EXHIBITION, 1879-80,
AND AT
MELBOURNE EXHIBITION, 1880-81.
OPINIONS OF THE PRESS.

"Far superior to any of ours."—*Vale The Field.*
"Remarkably easy to work."—*Vide Gardener's Magazine.*
"The quickest, most simple, and most efficient mower ever used."—*Vide Gardener's Chronicle.*
"We feel bound to recommend it to our readers as one of the best mowers we have as yet made acquaintance with."—*Vide Floral World.*

Prices from Twenty-five Shillings.
Delivered Carriage Free to all Railway Stations in Great Britain.

WILLIAMS & CO. (Limited),
Manufacturers and Patentees.

SELLING AGENTS:
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OLD SWAN WHARF, THAMES ST., LONDON.
WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD, LUDGATE HILL,
LONDON; and BACHELOR'S WALK, DUBLIN.

Oil Paint No Longer Necessary.
HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.
Sold in Casks of about 29 gallons each, at 15. 6d. per gallon at the Manufactory, or 15. 3d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.
"Pierrefield Park, June 24, 1876.—SIR.—I have this day forwarded from Chepstow to your address, a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Pierrefield Park, Chepstow.—I am, Sirs, yours respectfully, Wm. Cox."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the Kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.
Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to
HILL AND SMITH, Brierley Hill Ironworks, Staffordshire;
118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.

Geometrical Mosaic and Encaustic
THE PAVEMENTS, for Conservatories,
Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.
MAW AND CO., Benthall Works, Broseley, Shropshire.

THE "AUTOMATON."

Sizes, 8 to 24 inches.
THE BEST GENERAL PURPOSE MACHINE.

The "AUTOMATON" Lawn Mowers are thoroughly strong, well-made, and durable machines, and the best suited for general work and Gardeners' use. They cut the grass perfectly, leave no ribs, but produce a smooth velvety surface on the Lawn, and are light in draught.

The "AUTOMATONS" have front rollers for general work, and side rollers for cutting long grass, or when it is unnecessary to roll the grass in front of the cutters. They have the best machine made gearing, the best self-sharpening knives of steel and iron rolled together, and automatic silent drivers.

R. H. & J. also manufacture
"REVERSIBLE" Lawn Mowers for Small Gardens and Borders, and
"HORSE-POWER" Lawn Mowers for Large Lawns, &c.

THOUSANDS IN USE.
SENT CARRIAGE PAID.
MONTH'S TRIAL ALLOWED.
NO CHARGE FOR PACKING.

RANSOMES' LAWN MOWERS ARE THE BEST.

MELBOURNE EXHIBITION, 1881, THE HIGHEST AWARD.

COMPLETE PRICE LISTS FREE BY POST.

STOCK KEPT IN LONDON at Arch 92, Spitalfields Station, Bethnal Green, E., and Machines may be ordered from any respectable Ironmonger.

Ransomes, Head & Jefferies,
ORWELL WORKS, IPSWICH.

THE "WORLD."

The "WORLD" (date "GLOBE") Lawn Mowers are intended for cutting long grass; and, whilst similar to the Lawn Mowers imported from America, have the special advantages of the more accurate fitting and general durability of English manufacture and perfect adjustment.

The "WORLDS" will cut wet, dry, long, or short grass without clogging, and cut off almost all the "heats." They leave the surface smoother than similar machines, and are well adapted for getting over a large amount of work with little labour.

Sizes, 8 to 24 inches.
FOR CUTTING LONG GRASS.

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NEW IMPROVED FRAME, AWARDED Silver Medal by Royal Horticultural Society, "See Gardener's Chronicle," June 26, 1881.

FROM THE
"GARDENERS' CHRONICLE"

PRICE LISTS on application. CATALOGUES, 1s. each. Established 1841.

THE THAMES BANK IRON COMPANY

Hot-water Boilers,
PIPES
and Connections,
and all Castings for Horticultural purposes.

Their New Illustrated CATALOGUE, 12th Edition, now ready, price 1s.

UPPER GROUND STREET, LONDON, S.E.,
Have the largest and most complete stock in the Trade to choose from.

NEW HORIZONTAL TUBULAR BOILER,
made from 6 to 14 feet long.

Hot-water & Hot-air APPARATUS erected complete, or the Materials supplied.

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Carnations and Picotees.

CHARLES TURNER'S Descriptive CATALOGUE of all the sections of these beautiful flowers is now ready and may be had post-free. The plants are very strong and in unusual fine health.

CHOICE SEED POTATOS. Very low prices.

50 tons Schoolmaster, 20 tons Flukes, 50 Gordon Victoria, 20 Redden Flourball, 50 Myatt's Ashleaf, 20 Royal Beauty of Helron, 30 Improved Peach Flower, 10 International, 30 Early Show, 10 Tropaeol, 20 Gloucester Kidneys, 10 Early Rose.

JOSEPH NAPOLEON BAUMANN, Ghent, Belgium, has a splendid stock of the above to offer, from £1 to £20 per pair.

LOBELIA CARDINALIS (the Cardinal Flower), makes a grand bed during late summer and autumn, wet or dry; LOBELIA SYMPHILICA, LYTHRUM ROSEUM, HELIANTHUS MULTIFLORUS PLENUM, ACHILLEA PTARMICA, NEW ZONALS of 1881, SINGLE DAHLIAS, DAHLIA WATKINS.

VERBENAS.—Strong, healthy, well-rooted Cuttings, perfectly free from disease, of White, Purple, Scarlet, and Pink, 6s. per 100, 50s. per 1000; 100 stems rooted Cuttings of twelve most splendid varieties. First-year Flowers, for 8s. Terms cash.

SPECIAL OFFER. TEREBENTHINE, reliable American. LILIBUM CHALCEDONICUM. LONGIFOLIUM, imported from Japan.

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SPECIAL OFFER FOR CASH.—10,000 GERANIUMS, from single pots at 1s. extra strong 18s. per 100, 47s. and 48s. per 1000; Bronze Beauty of Laiderdale and Marshal McMahon, 14s. per 100, 6s. per 1000; Scarlets at 7s. per 100, 43s. per 1000; CALCEOLARIA, Golden Wonder, 6s. per 100, 50s. per 1000; CARNATIONS and PICOTEES 6s. per dozen. Choice varieties from single pots. Package free, but cash must accompany all orders.

HARDY EXOTIC FERNS.—Having received several very large consignments of NORTH AMERICAN FERNS, in splendid condition, strong Crowns, well rooted, fine for Outdoor Ferneries, we offer many varieties at 6d. each and upwards. LISTS on application.

NEW and Rare Orchids, and RARE JAPANESE MALES, &c. (Importations of C. H. BENTLEY, GENT, OBTONGLOSSUM, DENDROBES, &c.)

THE NEW PLANT and BULB COMPANY beg to announce that their SPECIAL LIST (which is just published) contains the above it contains a List of beautiful Bulbous and other Plants for present planting. Post-free on application. Lion Walk, Colchester.

THOMAS S. WARE begs to announce that his Hardy Series Flower CATALOGUE is ready, and may be had upon application. It includes in addition to the above complete lists of Antirrhinums, Delphiniums, Pansies and Violas, Penstemons, Pyrethrums, &c.

JOSEPH NAPOLEON BAUMANN offers the following varieties of POTATOS for seed: Myatt's Ashleaf, Gordon Victoria, Early Rose, Snowflake, Early Goodrich, Beauty of Helron, Fortifield, Dalmahoy and other leading varieties of JERUSALEM ARTICHOSES.

Three Specially Fine Potatos. QUEEN of the VALLEY POTATO.—A regular winner. This huge specimen weighed 2½ lbs. The largest of all Potatos; of fine quality. First-class Certificate Royal Horticultural Society.

ADIRONDACK POTATO.—The Beauty of the Season. First-class Certificate Royal Horticultural Society. Per lb., 12s. 6d.; 7 lb., 9s.; Half-bushel, 25s.

MATCHLESS POTATO.—One of the finest flavoured most perfect in form, and very productive. First-class Certificate Royal Horticultural Society. Peck, 5s.; bushel, 16s.

THE SECRET OF HIGH CULTIVATION IN POTTS: How to Grow Soft-wooded Plants to the Highest possible State of Perfection, FUCHSIAS in particular, and other invaluable information, amongst which, how one can build their own Greenhouse (Illustrated). The two, post-free, 1s. 6d.

JOSEPH NAPOLEON BAUMANN, Ghent, Belgium, has a splendid stock of the above to offer, from £1 to £20 per pair.

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Advertisement for Carter's High Pure Class Seeds. Includes an illustration of a bird and the text: 'IN USE THROUGHOUT THE WORLD'.

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WILLIAM BATHMAN offers the following named all in healthy well-rooted young plants: GERANIUMS, Scarlet, White, Pink, Salmon, &c. FUCHSIAS of sorts. LOBELIA, Blue, in 2000 strong plants. BLUE AGERATUM. CRIMSON-LEAF IRESINE LINDENII. GERANIUMS, Silver and Gold Variegated. TROPEOLUM, true dwarf Vesuvius. CHRYSANTHEMUMS, all the best. MRS. POLLOCK, and other Tricolors. BRONZE GERANIUMS, best sorts. DAHLIAS, all the finest in cultivation. SHOW and FANCY GERANIUMS. ZONALS and DOUBLES, in variety. TEA ROSES, including M. NIEL.

YEWS, Irish, 2½ to 3 feet, 35s. per 100, £16 per 1000. THUYA AUREA, 10 inches, 9s. per dozen, 70s. per 100. EUNONYMUS JAPONICA, 8 to 10 inches, 16s. per 100. LILAC, Purple, 1 to 3 feet, 7s. per 100. RHUS COTINUS, 2 feet, 12s. per 100. GULDRENS ROSE, 3 to 4 feet, 16s. per 100. PICEA NORDMANNIANA, 2½ ft. transplanted, 50s. per 1000. PINSAP, 2½ ft., 25s. per 1000. GARLIE'S MITCHELL, Nurseryman, Stranraer.

Scots Fir Seed (true native). HOWDEN AND CO., Inverness, N.B., offer the above. Price on application.

ABIES DOUGLASSII, 2½ yr., 6 to 8 inches, 30s. per 1000; 1½ to 2 feet, 25s. per 100; 2 to 3 feet, 35s. per 100; 3½ to 4 feet, 45s. per 100. CHESTNUTS, Spanish, 1½ yr., 45s. per 2000; 2 to 2½ feet, 30s. per 1000. LARCH, 3½ yr., 45s. per 1000; 15 to 24 inches, 15s. per 1000; 2 to 2½ feet, 20s. per 1000. SPRUCE FIR, 2½ yr., 45s. per 1000; 10 to 15 inches, 8s. per 100; 15 to 20 inches, 12s. per 100. HAZEL, 1½ yr., 2s. per 100; 2½ yr., 4s. per 100; 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 18s. per 1000. OAKS, English, 1½ yr., 45s. per 1000; 15 to 24 inches, 12s. per 1000. AUSTRIACA, 1½ yr., 45s. per 1000; 2½ yr., 45s. per 1000. LARICIO, or CORSICAN, 1½ yr., 25s. per 1000; 2 to 2½ feet, 30s. per 1000; 2½ to 3 feet, 35s. per 1000. THORN, 1½ to 2 feet, 10s. 6d. per 1000; 2 to 2½ feet, 12s. per 1000; special supply, 10s. 6d. per 1000. GARLIE'S MITCHELL, Nurseryman, Stranraer.

NEW ROSES of 1882.—The above are now ready, all the best varieties, Lists of which may be had on application. The plants are very strong and healthy, in fact, better plants could not be wished for—certainly could not be obtained.

Special Offer.—7,000,000 GEE'S superior CABBAGE, KALE, SAVOY, CAULIFLOWER, and other PLANTS, and BEDFORDSHIRE-GROWN SEEDS, POTATOS, &c.

GEE is prepared to supply the above in any quantities for cash with orders as follows: CABBAGE PLANTS, which are this season splendid, strong, healthy, fibrous-rooted, sprig, grown from his far-famed selected stocks, comprising Early Enfield, Early Nonpareil, Early Dwarf York, Imperial, Troutdam, and extra large Dunmeads, all 3s. per 1000 of 1000. Very fine plants can also be supplied of above kinds, which are not grown from F. GEE'S own stocks, but which he selects and grows at 2d. 6d. per 1000, or cheaper in larger quantities. Very fine Red Dutch or Ficking ditto, at 5s. per 1000. SAVOYS, large Drumhead and Green Curled SCOTCH KALE, and BRUSSELS SPROUTS, all at 2s. per 1000. LETTUCE, true Old Brown Cos and Hardy Hamstrun-slate, fine plants, at 4s. per 1000.

CAULIFLOWER PLANTS, splendid transplanted stock, Veitch's Autumn Giant at 20s. per 1000, 2s. 6d. per 100; Early London and Walcheren, 15s. per 1000, 2s. per 100. SPARAGUS, FINE, the true French variety, in large French Market sort, magnificent healthy stock (recommended for making New Beds), 3s. per 100; 25s. per 1000. SEAKALE, 3s. per 100; 25s. per 1000. RHEUBARB ROOTS, Early Scarlet, Prince Albert, and Victoria, 2s. 3s., and 4s. per dozen, from 20s. per 100. SAGE and COMMON THYME roots, at 8s. per 100, 2s. per 1000. DAISIES, choice sorts, Bacchus' Dark Scarlet, and others, at 2s. 6d. per 100, 20s. per 1000.

W. L. FLOWERS, choice Bark Early, Blood-red, 50,000 fine plants, at 1s. 2s., and 3s. per dozen, 7s. 6d., 15s., and 20s. per 1000. QUICKS, splendid root 3½-year-old stock, 8s. and 10s. per 1000. (See other Advertisement.)

Choice Seed Potatos, in any quantities, cheap and good. (See other Advertisement.) Superior BEDFORDSHIRE-GROWN SEEDS of all kinds for the Farm or Garden. Every requisite supplied. Large buyers (stating quantities required) liberally dealt with.

PACKAGES charged for, but which are returnable if sent back at once carriage paid and advised of. N.B.—Unknown correspondents to save delay, should accompany their order with a remittance (either P.O.O. or CHEQUE), payable to G. EEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

To the Trade.—Seed Potatos. H. AND F. SHARPE are prepared to make very low offers of the following varieties of SEED POTATOS, all grown specially for Seed purposes from the best selected stocks. The quality is very fine, and free from disease.

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

CEDRUS DEODARA.—"The Indian Cedar."—Beautiful specimen trees, frequently transplanted and well-rooted, offered at the undermentioned low prices to effect a clearance: 5 to 6 feet, 45s. per dozen; 6 to 7 feet, 60s. per dozen; 7 to 8 feet, 82s. per dozen.

ABIES DOUGLASSII.—One of the most noble trees grown, well-rooted specimens: 6 to 7 feet, 3s. 6d. each; 3½ to 4 feet, 4s. 6d. each; 4 to 5 feet, 5s. 6d. each; 5 to 6 feet, 6s. 6d. each. The above-named Trees are highly suitable for Avenues, Lawns, Shrubberies, or Woods, and the opportunity of purchasing such terms rarely occurs. RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

WEBB'S PRIZE COB and other FILBERT TREES, Seed Gardens, near Reading. Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

A SEED LIST

and as full as can be desired of useful and reliable information on Garden and Flower Seeds, yet without any unnecessary costliness, post-free on application. Such a catalogue as this is deemed to be most of necessity conducive to economy, both as respects a purchaser and vendor.

BEST NOVELTIES

Every endeavour is made to supply Seeds of the Finest Quality and of the Best Varieties at a Moderate Price, to attain which desirable object neither trouble nor expense are spared in the procuring and proving of the Seeds.

THE GUINEA COLLECTION

(Carriage free), for the Amateur's Garden, has been much approved, and contains a most valuable and useful assortment of Vegetable Seeds.

RICHARD SMITH & CO.,

Seed Merchants & Nurserymen, Worcester. (ESTABLISHED 1804)

- CEDRUS DEODARA, 4 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen; 7 feet, 30s. per dozen. PICEA NORDMANNIANA, 3, 4, and 5 feet, 24s., 30s., and 35s. per dozen. NOBILIS, 4 to 4 feet, 48s. per dozen. LANTICARPA, 4 feet, 72s. per dozen. APRES ORIENTALIS, 4 feet, 60s. per dozen. CRYPTOMERIA ELEGANS, 4 to 4 feet, 48s. per dozen. THUYOPSIS DOLABRATA, 3 to 3 1/2 feet, 40s. per dozen. KETHINOPORA FLUMOSA, 2 1/2 feet, 20s. per dozen. CUPRESSUS MACROCARPA, 4 feet, 12s. per dozen. Finest specimens, and will remove with safety. GARKLES MITCHELL, Nurseryman, Stranraer.

Orchids—Orchids—Orchids.

PHALENOPSIS TETRASPIS.

See Gardeners' Chronicle, April 30, 1881. J. HOUSE, Eastgate Nurseries, Peterborough, having received fine healthy Imported Plants of this superior PHALENOPSIS, is prepared to make special offers. In every case value will be given. Size and price on application.

FOR SALE, a few extra fine PEACH and VEGETARIAN TREES, in Pots, getting too large for Fruit-house. WANTED, Oval-leaf PRIVET. W. TROUGHTON, Nurseryman, 4, Church Street, Preston.

Special offer to the Trade.

MYOSOTIS ELEGANTISSIMA, the beautiful silver-edged blue flowered Forget-me-Not, one of the very best of all edging or Spring garden plants. Fine tufts just coming into bloom, per 100, 12s. 6d. RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application. LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and price on application. W. HOWARD, Southgate, N.

SEED POTATOS.

To Clear Out we Offer:—WOODSTOCK KIDNEY, INTERNATIONAL KIDNEY, JOHNSTON'S DUNSHIRE, SNOWFLAKE, SUTTON'S MAGNUM BONUM, MANHATTAN, VICAR OF LALEHAM, RED-SKIN FLOURBALL, and many other kinds, 1s. per peck each; 1s. per bushel; 5s. per cwt. Terms cash with order. All delivered free on Rail, Norwich.

DANIELS BROS.,

Seed and Potato Growers and Merchants, Norwich.

WORMLEIGHTON'S SEEDLING

(Or, IMPROVED MAGNUM BONUM).

The True Stock Guaranteed.

3s. per peck; 12s. per bushel; 24s. per sack of 168 lb.

DANIELS BROS.,

SEED GROWERS and MERCHANTS, NORWICH.

SEEDS:

VEGETABLE, FLOWER, and FARM.

RICHARD SMITH & CO.

Spare neither expense nor trouble in obtaining the finest quality, and they invite a comparison of their prices with those of any other firm.

LISTS free on application.

RICHARD SMITH & CO.,

SEED MERCHANTS and NURSERYMEN, WORCESTER.

CHEAP LILIES and ORCHIDS.—The

following beautiful Lilies are offered at very low prices:—LILIAM AURATUM, the golden-yellow Lily from Japan, size No. 1, 6d.; No. 2, 9d.; No. 3, 1s.; No. 4, 1s. 6d. L. ALBUM KRAEIZERI, one of the best pot Lilies and the easiest to grow; Bulbs, certain sizes, 6d. each, or 12s. per dozen. Cheap ORCHIDS are my speciality, and are now easily grown in most plant-houses. The following will be sure to give pleasure to those who make them, and the best prices then with their of every one:—

Table listing various plants and their prices, including Acrida virus, Dendrobium aggrega, and Odontoglossum Alexandrinum.

Verbenas—50,000 Now Ready for Sale.

S. BIDE can now supply really good strong spike-stemmed plants of Purple, Scarlet, and Pink VERBENAS at 6s. per 100. Good exhibition variety, 8s. per 100. Packages free for cash with order. Also strong healthy cuttings of same about half price free by post.

S. BIDE, Alma Nursery, Farham, Surrey.

SEED POTATOS at REDUCED PRICES.

—Foster's Excelsior, Early Rose, Extra Early Vermont, Pink Pearl, Triumph, Gramillon, Imported Pink Blow, Prince Arthur, Omega, Trophy, Cluster Kidney, Radstock Beauty, Lady Harrington, International, 5s. per cwt.; Early Purple, Queen of the North, Mammoth Pearl, Matchless, Fine's Perfection, Henderson's Profit, 6s. per cwt.; Magnum Bonum, 4s. per cwt., 6s. per cwt.; Schoolmaster, 8s. per cwt. Terms of each variety on application. THOMAS FERKINS AND SONS, 24, Drapery, Northampton.

CABBAGE and LETTUCE PLANTS.—

—Enfield Market, Sugarloaf, and Robinson's Champion Drumhead (true) 3s. per 1000; Red Pickling, 4s. per 1000. Brown Cos, Hardy Great Cos, and Grand Admiral LETTUCE, 4s. per 1000. The above are healthy and well-rooted plants. To be had in any quantity. Cash or reference with order from unknown correspondents. W. WIRGO, Womersley Nurseries, Guildford, Surrey.

JERUSALEM ARTICHOKEs.—Price per

Bushel or Cwt. sent on application. JAMES JACKHOUSE AND SON, York.

ANTHONY WATERER

respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock:—

- BOX, Green and Variegated, many thousands, 4s. 5, 6, 7, and 8 feet high. YEWs, Common English, 5, 6, 7, and 8 feet high, many thousands. Golden, many thousands, 3, 4, 5, to 10 feet high. Golden, the Golden Tree, Nursery stock quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the perfection of the above and well-rooted plants. Irish, hundreds of fine specimens, 6, 7, and 8 feet high. HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 feet high. LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high. Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high. Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high. Silver, in variety, 4, 5, 6, to 10 feet high. Waterer's, as Standards and Pyramids, the finest plants in the Trade. CHINESE JUNEPERS, 6, 7, 8, to 10 feet high; hundreds. PICEA PIN-APLE, 6, 7, 8, to 10 feet high; hundreds. NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds. CEDRUS DEODARA, 4, 5, 6, 7, and 8 feet high. PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880. SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well budded, and fully rooted. CUPRESSUS LAWSONIANA ERRECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a pleasure to be met with in no other Nursery. GRACILIS, 4 and 5 feet high. ARGENTEA, 4 and 5 feet high. LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants. LIROCEPUS DECURRENS, 5, 6, and 7 feet high. PINUS CEMBRICA, 4, 5, 6, and 7 feet high. RETINOSPORA FISIFERA, 1000s., hundreds of fine plants, 3, 4, and 5 feet high. THUYOPSIS DOLABRATA, 4, 5, 6, and 7 feet high. ABIES ORIENTALIS, 4, 5, 6, 7, 8, 10, and 12 feet high; splendid specimens. THUYA WAREANA, an immense quantity of fine specimens up to 10 feet. AUREA, 2, 3, and 4 feet high. SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference. RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high. Standard, the finest Plants to be found in any Nursery. ALEXANDER, Hardy, of the best kinds, 3, 4, 5, and 6 feet high. The Plants referred to in this Advertisement have all been recently transplanted. Knapp Hill Nursery, Woking, Surrey.

GENUINE SEEDS ONLY.

ALL WHO HAVE A GARDEN should send their Name and Address for

BRINKWORTH & SONS'

CATALOGUE, Beautifully Illustrated, 3d. Post-free.

IT CONTAINS ALL THE

Choice and Popular Vegetable Seeds and New Potatos for 1882, at wonderfully low prices, carriage free.

Market Gardeners and Others will save 20 per cent.

BRINKWORTH & SONS, SEED GROWERS, READING, BERKS.

N.E.—A very fine stock of DAY'S EARLY SUNRISE PEA for Sale. Warranted true, 45s. per bushel.

GRASS SEEDS

FOR LAWNS,

Of the finest clover-growing Evergreen kinds, 1s. per lb. Special preparations for all purposes, soils, and situations. Advice gratis.

Unsolicted Testimonials:—

"Knowing how difficult it is to obtain pure stocks of grasses, even when price is a secondary consideration, I write to say the supply I obtained from you for our new terrace lawns has given the greatest satisfaction. "Please send me three bushels of the very best Lawn Grass Seeds, suitable for an exceedingly hot upland soil. The seed I have had of you has been the only one which has been able to resist the influence of the sun and drought upon my thin, gravelly soil."

FARM SEEDS

Of all kinds, which have given unqualified satisfaction. See Illustrated and Descriptive LIST, free on application.

RICHARD SMITH & CO.,

SEED MERCHANTS and NURSERYMEN, WORCESTER. (ESTABLISHED 1804)

SIXTY THOUSAND SNOW AND FANCY

PANSIES.

Strong healthy, clean Plants, in 400 of the finest and most approved varieties in cultivation, my selection from 20s. per 100. Also the most superb and carefully selected collections extant, of PHLOXES, PENSTEMONS, ANTIKIRINUMS, MIMULUS, Single and Double, DAHLIAS, VIOLAS, VERBENAS, STOVE and GREENHOUSE PLANTS, &c. Descriptive Price List CATALOGUE for 1882 free on application.

JOHN FORBES,

NURSERYMAN, HAWICK, N.B.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants. Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants, 636, KING'S ROAD, GREENSEA, LONDON, E.W.

POLYANTHUSES, PRIMROSES, HEPATICAS, and AURICULAS.

Apply to MR. COOPER, F.R.H.S., CALCOT GARDENS, NEAR READING, BERKS.

WHITE ELEPHANT POTATO.

THE MOST WONDERFUL CROPPING POTATO IN THE WORLD.

For this splendid Cooking variety we received Certificate of Merit from the Royal Horticultural Society, November 3, 1881.

The True Stock 6d. per pound; 7 lb., 3s.; 14 lb., 5s.; 56 lb. 18s.; 112 lb., 34s.

TESTIMONIALS:

From Mr. E. CLARK, King's Langley, Herts, October 29, 1881.

From Mr. KERRY, Halton Holegate, Spilsby, October 27, 1881.

"From the one pound of WHITE ELEPHANT POTATO I have lifted 205 lb. weight."

"The one pound of WHITE ELEPHANT has turned out very fine. I have lifted 220 lb. from it."

DANIELS BROS.,

ROYAL NORFOLK SEED ESTABLISHMENT,
NORWICH.

MONDAY NEXT.

IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, April 3, at half-past 12 o'clock precisely, by order of

Messrs. SHUTTLEWORTH, CARDER & CO.,
191, PARK ROAD, CLAPHAM, S.W.,

An importation of BATEMANIA BURTII, CYPRIPEDIUM SCHLIMMI ALBUM, ODONTOGLOSSUM PESCATOREI, O. CRISPUM, O. VENILLARIUM, MASDEVALLIA SHUTTLEWORTHII, M. TROCHILUS, CATTLEYA AUREA, and C. GIGAS, &c.

The above, all in good condition, may be viewed the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NATIVE GUANO,

SUITABLE FOR ALL CROPS.

Price, £3 10s. per Ton, in Bags, at Aylesbury.

A single cwt. Sample Bag sent, Carriage Paid, to any Railway Station upon receipt of Post-office Order for 5s.

This valuable Manure, prepared from Sewage by the "A B C" process, has been extensively used, for several years, by Farmers, Gardeners, and others, whose reports testify to its fertilising properties:—

EXTRACTS FROM LAST SEASON'S REPORTS:—

WILLIAM CRUME, *Gr. to Duke of Marlborough, Blenheim Palace Gardens, December 12, 1881.*

"Used for Vines, Peach trees, and other fruit trees, also Potatos, Carrots, Parsnips, Onions, &c. Results: satisfactory. Fruit trees assumed rich dark green foliage, increased vigour, whilst the fruit swelled up to a very fine size. Potatos came out in splendid condition; other roots too were benefited by its application. No other manure used with Native Guano. Undoubtedly a valuable fertilising agent, and I shall lose no opportunity of recommending it to gardeners and others."

A. BLAKE, *Head Gr. to H. Calverton, Esq., The Lilies, Woodon, January 3, 1882.*

"Used for Peas, Potatos, Onions, Cabbage, Cauliflowers, Celery, Vines, Cucumbers, &c.; Chrysanthemums, Primulas, Geraniums, Fuchsias, &c. Results: Onions, Cabbage, Cauliflowers, and Peas good; Cucumbers, first-rate. Potatos, a good crop, and I consider it a good manure for pot plants. I think the Native Guano only requires to be more known to the public to be largely used."

Sixteen Prizes awarded at Birmingham Show, 1881.

The Annual Show of Farm and Garden Produce, grown with Native Guano, will be held at Aylesbury in October next. Schedules and Prizes and all particulars, together with testimonials, &c., may be obtained upon application to

The Native Guano Company (Limited), Aylesbury, Bucks.

New Ready.
The Best GUIDE for the PROFESSIONAL or AMATEUR. CARTER'S PRACTICAL GARDENER. An enlarged and entirely new edition. This is not a Seed Catalogue. Price 1s. at all the Book-stalls, or post-free 12 1/2d. from CARTER'S, The Queen's Seedsman, 237 and 238, High Holborn, London, W.C.

CALCEOLARIAS, CARNATIONS, PICOTEES, DAHLIAS.
CALCEOLARIA GOLDEN GEM, fine autumn-struck plants, which have been once transplanted, 5s. per 100, 40s. per 1000.

CARNATIONS and PICOTEES, finest named exhibition varieties, strong and well established, 7s. per dozen plants, 12s. per dozen pairs.

PANSIES, the finest Show or Fancy varieties, all named, 3s. 6d. per dozen, fifty for 10s. 6d., 100 for 20s.

DAHLIAS, all the finest Show, Fancy, Bedding, or Bouquet varieties to name, 3s. per dozen, fifty for 10s., 100 for 18s.

All the above our selection. See New CATALOGUE, W.M. CLIBRAN and SON, Oldfield Nursery, Altrincham.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

LAPAGERIA ALBA.—Best variety, well established Plants for 10s. 6d. to 6s. each. Many of the above have flowered freely during the past season. Cultural instructions will be sent (when required) with each order. Trade price per dozen on application.

R. H. V.'s Collection of Double CINERARIAS are now in full flower. Inspection invited.
R. H. VEREGANS, F.R.H.S., Chad Valley Nurseries, Birmingham.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., with general remarks, free for a penny stamp.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

HYBRID GREEN HOLLY,

"Pyramidal."
6 to 10 feet, 6s. each; 60s. per dozen.
7 to 10 feet, 7s. each; 72s. per dozen.

The above are vastly superior to the ordinary Green Holly, and will remove with safety.

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P Y R E T H R U M S .

DAHLIAS—Pot-roots, 300 sorts. CATALOGUES to be had free of KELWAY and SON, Langport, Somerset.

Cabbage Plants for Sale.

S. BIDE can offer good strong Drumhead or Cattle CABBAGE, Early Battersea, Enfield Market, Imperial and Nonpareil, at 3s. per 1000 for Cash with Order. Packages free.

BIDE, Alma Nursery, Farnham, Surrey.

CYTISUS RACEMOSUS.—Splendid plants, in 48-pots, will be a mass of bloom by Easter, 12s. per dozen. Boxes and packing free. Cash with order.
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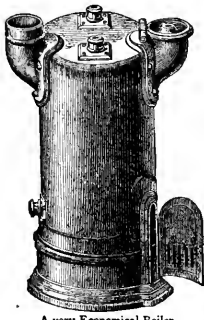
CHRYSANTHEMUMS, best sorts, 2s. 6d. per doz., 10s. per 100. **COLEUS,** best sorts, 1 doz., 2s. 3d.; 2 doz., 4s.; 3 doz., distinct varieties, 6s. **ALTERNANThERA AMENA** and **MAGNIFICA,** 5s. per 100; 100, 22s. All the above, good rooted plants, sent post-free. Catalogue one stamp.
W.M. ETHERINGTON, Manor House, Swancombe, Kent.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London great Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. The Trade supplied.
JOHN LAING and CO., Seedsmen, Forest Hill, S.F.

ONE HUNDRED THOUSAND GERANIUMS.—Special offer. Extra strong, from 5s. per 100. **CALCEOLARIA Golden Gem,** 3s. 6d. per 100. All autumn-struck. **LOBELIA,** 2s. 6d. per 100. Cash. Priced LIST free.
B. R. DAVIS, Yeovil Nurseries, Yeovil.

No. 43.
DOME TOP BOILER.



A very Economical Boiler.

STEVEN BROS. & CO.,

IRONFOUNDERS AND MANUFACTURERS OF HOT-WATER APPARATUS,
35 and 36, UPPER THAMES ST., LONDON, E.C.

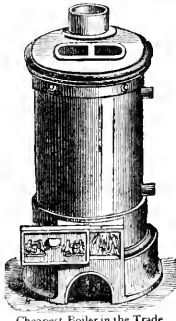
GARDEN ROLLERS,
Single and Double
Cylinders, with
Wooden Handles.



GARDEN ROLLERS,
Single and Double
Cylinders, with
Wooden Handles.



No. 51.
STAR BOILER.



Cheapest Boiler in the Trade.

THURSDAY NEXT.

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 6, at half-past 12 o'Clock precisely, by order of Mr. F. SANDER, St. Albans, a grand Importation of

CYPRIPEDIUM SPICERIANUM and C. SPICERIANUM MAGNIFICUM,

Just brought home by Collector. The variety magnificent has a very broad violet band and a distinct violet hue towards edge at back part of dorsal sepal, front being pure white with best very broad band. The lip is yellowish-brown, centre purple, the lateral sepals being much brighter than in the ordinary form and totally different colour. Collector states that they are yellow, with one or more purple stripes. The plants are in grand condition. See dried flowers.

PHALÆNOPSIS TETRASPIS.

We are pleased to be able to offer, at last, a really sound lot of this lovely Phalænopsis. Repeated efforts have been made to introduce it in a fine state; hitherto it has baffled all our energy—four consignments having arrived with scarcely a living plant among them. Those now offered have been brought home overland, under the care of Collector, and are sound and very fine.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

BOULTON & PAUL, Horticultural Engineers, NORWICH.

CONSERVATORIES, ORCHARD-HOUSES, PEACH-HOUSES, GREENHOUSES, &c. Illustrated Catalogue, Twelve Stamps; Illustrated Lists, Post-free.



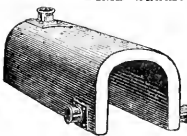
Independent Slow Combustion Boiler for Small Greenhouses.

TO HEAT BY HOT WATER, REQUIRING NO BRICKWORK. Specially adapted for small greenhouses; for quick heating or slow combustion. Quite portable, and will heat properly for twelve hours. Made with strong wrought-iron cylinder set in a cast-iron base, with fire-bars and sliding door. Only one-tenth the cost of heating by gas, and much more effectual. Fitted with two 2-in. cast sockets, door for feeding, and socket for smoke-flue.

Cash Prices—Carriage paid.

of Boiler complete, as shown in illustration, but exclusive of piping—

Size.	Total Height.	Diameter.	To heat 4-in. Piping.	Price.
1	27 in.	16 in.	40 ft.	£3 10 0
2	30 in.	16 in.	40 ft.	4 0 0
3	33 in.	16 in.	80 ft.	4 10 0
4	36 in.	16 in.	100 ft.	5 0 0

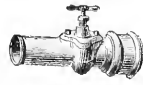


Plain Saddle Boiler.

Plain Saddle Boilers are generally used for heating from 100 feet to 300 feet of 4-in. piping; above that quantity it is more economical to use our Check-end Boiler, as one of these, 3 feet long, will heat double the quantity of piping of a 3-foot Plain Saddle will.

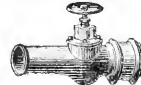
Size of Sockets.	Size of Boiler inside arch.			Heating Power for 4-in. Piping.	Prices on application.
	Length.	Width.	Height.		
Fitted with three 2-in. Sockets.	18 in.	12 in.	10 in.	100 ft.	
	21 in.	12 in.	10 in.	125 ft.	
	24 in.	12 in.	12 in.	150 ft.	
	27 in.	14 in.	14 in.	200 ft.	
	30 in.	14 in.	14 in.	250 ft.	
	36 in.	16 in.	16 in.	300 ft.	

The Perfect Throttle Valve.



2 in.	105. 6d.
3 in.	122. 6d.
4 in.	155. 0d.

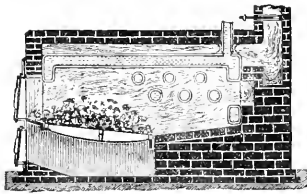
Screw Valves. Tight under any Pressure.



2 in.	152. 0d.
3 in.	208. 0d.
4 in.	252. 0d.

The whole of the working parts of these valves can be removed without disturbing or cutting the pipes.

Patent Check-end Saddle Boiler.



Check-end Saddle Boiler, simple and durable.

No.	Outside Length.	Outside Width.	Outside Height.	Cross Tubes.	Heating Power for 4-in. Piping.	Price: Boiler only.
1	30 in.	20 in.	16 in.	1	300 ft.	£8 10 0
2	36 in.	20 in.	15 in.	1	500 ft.	10 10 0
3	42 in.	22 in.	15 in.	1	750 ft.	11 0 0
4	48 in.	24 in.	20 in.	1	1000 ft.	16 0 0
5	48 in.	27 in.	20 in.	1	1250 ft.	20 0 0
6	54 in.	27 in.	22 in.	2	1500 ft.	23 0 0
7	54 in.	30 in.	22 in.	4	2750 ft.	26 0 0
8	60 in.	33 in.	24 in.	6	3000 ft.	30 0 0

The Phoenix Slow Combustion Boiler.

We claim for our Phoenix Upright Boiler the following good qualities, viz.—It is made of the best materials; has no parts that are liable to failure; is provided with a flue that cannot be choked with fuel; will heat effectually the quantity of pipes stated with the smallest amount of fuel; can be easily regulated; and will hold fuel sufficient for keeping up the proper heat twelve hours; requires no brick work, and takes up the smallest space of any boiler of its power.

Sockets can be placed in any position.

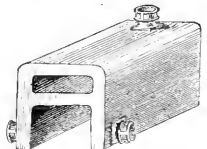
Cash Prices—Carriage paid.



Size.	Total Height without Feed Hole.	Diameter of Boiler.	Heating Power for 4-in. Piping.	Price.
1	26 in.	16 in.	150 ft.	£6 0 0
2	29 in.	16 in.	200 ft.	7 0 0
3	30 in.	16 in.	300 ft.	8 10 0
4	32 in.	18 in.	400 ft.	10 0 0
5	36 in.	18 in.	500 ft.	12 0 0

The Terminal End Saddle Boiler.

This Boiler is much used, and is one we can confidently recommend.

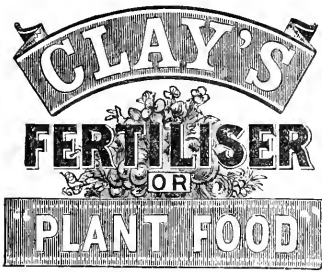


Total Length.	Size of Boiler Inside the Arch.		Outside Measure.		Heating Power for 4-in. Piping.	Prices on application.
	Width.	Height.	Width.	Height.		
39 in.	16 in.	16 in.	22 in.	27 in.	500 ft.	
36 in.	16 in.	16 in.	22 in.	27 in.	750 ft.	
42 in.	18 in.	18 in.	24 in.	27 in.	1000 ft.	
48 in.	21 in.	18 in.	27 in.	30 in.	1300 ft.	
54 in.	24 in.	18 in.	30 in.	30 in.	1600 ft.	
60 in.	24 in.	18 in.	30 in.	30 in.	2000 ft.	

Boilers made to suit any position for Baths, Harness Rooms, Lavatories, &c., &c.

All sizes of Boilers given in this Advertisement are kept in stock, and are rated to effectually heat the quantity of Piping named with a minimum amount of fuel.

All Orders amounting to 40s. Carriage Paid to any Railway Station in England and Wales, also to Edinburgh, Glasgow, Dublin, and Belfast.



Is now being used extensively by all the principal Nurserymen, Market Growers and Gardeners throughout the United Kingdom with the most remarkable success, and has established a reputation never obtained by any other Manure.

- FOR FARM CROPS,
 POTATOS,
 KITCHEN GARDEN CROPS,
 VINE BORDERS,
 FRUIT TREES,
 STRAWBERRIES,
 CUCUMBERS,
 TOMATOS, MELONS,
 LAWNES,
 ROSES, CAMELLIAS,
 GARDENIAS, FERNS,
 FINE-FOLIAGED PLANTS,
 AND ALL SOFT-WOODED PLANTS.

In Packets, 1s.; and in Bags,

1/2 Cwt. 1/2 Cwt. 1 Cwt.
 7s. 6d. 12s. 6d. 20s.

Special Quotations by the Ton.

MANUFACTURED BY

CLAY & LEVESLEY,
 TEMPLE MILL LANE, STRATFORD,
 LONDON, E.

CAUTION.—It having come to our knowledge that some unprincipled persons have been substituting other Manures for Clay's Fertiliser, we beg to state that we guarantee the genuineness of none except in our bags, marked:—



NOTICE.—SELLING OFF OF NURSERY STOCK.

Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz.:

- 15 per Cent. for Cash with order.
- 10 per Cent. for Cash within One Month of date of invoice.
- 5 per Cent. for Cash within Three Months of date of invoice.
- After Three Months no discount can be allowed.

They hold the following in great quantity and of the finest quality:—

- ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 5s. per dozen, 63s. to 100s. per 100, £28 to £40 per 1000.
- .. Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 1000.
- NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
- .. French Varieties of 1880, 18s. per dozen, 130s. per 100.
- CURRANTS—Black, good bushes 000 stems, 3s. to 6s. per dozen, 20s. to 30s. per 100; cheaper by the 1000.
- NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6s. to 9s. per dozen, 40s. to 60s. per 100, £18 to £27 per 1000.
- HERES of many kinds, 3s. to 6s. per dozen.
- PLUM (Prunus)—Variegated, common (P. domestica variegata), a very striking and easily grown variegated tree, 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.
- ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
- POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
- WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
- .. Carrulean, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet 4s. per doz., 25s. per 100; 10 to 12 feet, 6s. per doz.
- ASH—(Fraxinus excelsior) atrovarius, 3 to 4 feet, 12s. per dozen, 100s. per 1000; 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
- .. speculatis, an exceedingly fine Ash, which grows with extraordinary vigor, 3 to 4 feet, 12s. per dozen; 4 to 6 feet, 15s. per dozen; 6 to 8 feet, 22s. per dozen; 8 to 10 feet, 24s. per dozen.
- BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen; 6 to 8 feet, 24s. per dozen.
- .. Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen; 8 to 10 feet, 36s. per dozen.
- .. Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen.
- .. Purple-leaved, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 75s. per 100; 5 to 6 feet, 18s. per dozen, 120s. per 100; 6 to 8 feet, 24s. per dozen.
- .. Weeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
- CHERRY PLUM (Prunus Myrobalana)—Early flowering and very ornamental, fine Standards, 2s. and 2s. 6d. each, 18s. to 24s. per dozen.
- HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
- .. Scarlet-flowered, 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
- ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
- .. Giant or Huntingdon (macrophyllus), 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
- .. Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
- .. Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per dozen; 12 to 15 feet, 36s. per dozen.
- MAPLE—Norway (Acer platanoides), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen.
- WILLOW—Scarlet Palm, a Willow of extraordinary vigor. The bark of the young wood is of a deep purple-brown in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
- EUONYMUS—radicans argenteus variegatus, a very useful plant for edgings, must be cut, 5 to 6 feet, 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 16s. per 100.
- ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
- .. cut-leaved—a handsome lacinated form, and, like other Elders, extremely useful for ornamental planting close to the sea. 6s. per dozen, 40s. per 100.

A slight extra charge must in most cases be made for packing. Where cash in payment of goods is sent with the order, the amount for postage may be forwarded in stamps after despatch of goods. All the above prices are subject to the discounts named at head.

THE GENERAL AUTUMN LIST
 will be forwarded Gratis and Post-free to all applicants.

N.B. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.



THE
Gardeners' Chronicle.

SATURDAY, APRIL 1, 1882.

CUCUMBERS BY "EXPRESS."

AN express mode of growing Cucumbers! "Where?" "There," said our guide as he opened the door of a low small house, and almost pushed us in before him into a semi-suffocating atmosphere, filled with heat and reeking with steam. It nearly took our breath away, though we stayed long enough to note that the temperature was 95°, the air at the point of saturation, the plants strong and healthy, the leaves green and large, the fruit plentiful and in all stages of development, the largest being somewhat slim in girth to their length—most of them, however, being so straight and uniform in form as if they had been run in a mould, and all as crisp as glass and as green as Leeks. The sort, though, that, as explained, was immaterial to the system, was Tender and True, without doubt a very desirable variety. The soil was composed of rough pieces of fibry loam without any addition whatever—no, not so much as an atom of rotten manure, nor a handful of leaf-mould.

"I do not believe in mixtures," exclaimed our guide; "they may be all very well under slower methods of procedure—and there is no denying that good Cucumbers have been grown in the most extraordinary medleys of soil ever dreamt of; but mixtures are mere obstructives—absolute hindrances—and express modes of cultivation. Why, sir, before the roots have elected what to pick or choose out of the mixture, their opportunity for growth may have gone past recall. It is certain that they avail themselves of the pure loam at once. It is all of uniform quality, and the roots only concern themselves about permeating and exhausting it." The whole mass was so filled, overrun with roots, that hardly any soil was visible at the time of our visit. The surface was literally covered with a white network of white vigorous roots.

And yet we were assured the roots had been top-dressed less than a week before, and that so rapid was root-growth under express culture that top-dressing every week or ten days becomes a necessity. But the top-dressing was also peculiar. Instead of covering all the roots a few clouds of loam were scattered over the surface, hiding perhaps a half of them. Our guide assured us that he never liked to lose sight of his roots. He liked to see them to know what they were doing and what state they were in. Under the express system he assured us the roots were nearly always in sight: cover them to-day they are over the surface to-morrow. Besides he does not approve of covering them all at once. "Thin top-dressing and often" was his motto, also tentative dressings. Hence the surface of his soil was most irregular—a series of miniature mounds and dells. "At the next dressing the relative positions of the hills and the holes will be reversed."

These seemed small matters in details but the result was important: the whole of the root run was filled, and its entire surface whitened over with vigorous healthy roots. This

development and constant renewal of root force is much relied on in the express system. To our remark that his loam seemed poor our guide replied "No matter. It tends to the production of roots, and keeps them in a healthy state. That is all I ask of or from the loam. Give me roots in plenty and of sufficient size and vigour, and I will manage to feed them"—leading us towards a water-barrel, which he stirred up with an old mop, till from thence there arose such indistinct odours as might have drawn all the sanitary inspectors to the spot for miles round. "There," he said, "that is the liquid—true British guano—I feed them with; a strong half-and-half of pigeon-dung from the dovecot, and the other from cake-fed bullocks—cake fed, please to note. The barrel is emptied and re-filled every three weeks, and a quart of this, strong and clear, is added to each gallon of water given at the roots, the whole being applied at a temperature of 80°." "Nothing else—no nitrate of soda or other salts? The plants look so green that one would naturally think so." "No, no—nothing of that sort, nor artificial, nor salts of any kind, only the essence of the excrements named. Now, as to these, they never want for this, nor are they allowed to flag. Dry roots and dry air are fatal to express culture. We use evaporators or damp moss over the pipes, but chiefly depend for vapour and a deluging or vertical overhead plunge-bath every afternoon about 4 P.M.; after that, for an hour or two, you may almost see and hear the plants and the fruit grow. No matter if the thermometer reaches to three figures, it will not harm either the plants or the fruit. The oblique rays of the afternoon sun will neither scorch nor scald, but they can and do force growth in a most marked and extraordinary manner."

The growth, too, seems to continue all right, though the temperature may sink by dawn to 65° or 70°. The stimulus afforded by the extra heat and moisture in the afternoon and evening is like the momentum applied to carriages at rest on an inclined plane—they gather speed as they go, that enables them even to climb a steep hill at the further end of their journey. So it seems with Cucumbers grown by express. The accelerated growth at eventide carries them through the long night at express speed until the light and heat of the rising sun gives them a fresh push along the lines of growth and production. Light clean and strong is essential to this mode of culture; it gives the plants the vigour that enables them to stand up against the rapidity of their growth. But air is almost ignored; none is given during the earlier stages of growth, nor during cold weather. Of course this phrase, like so many more startling statements, covers a fallacy. No glass-house is air-tight. Besides, the greater the disparity between the internal and external atmosphere, the more like a sieve this heat-glass-house becomes; for the permeability of any closed structure to air may be said to be measured by the difference of the heat of its two sides. Hence, no doubt sufficient change of air takes place under express culture, though no ventilator be opened. But our guide has little faith in direct ventilation unless when excessive heat compels it, he gives none. He laughs at those who talk of air as food, and points to his extemporised mure tank. As for the air being exhausted, worn out, or rendered effete, he cares not, as long as he can see and feed plentifully his white network of roots.

Notwithstanding his vigorous growth, however, nothing is wasted. He boldly declares he does not believe in pruning Cucumbers. His plan is to lead all growth into productiveness. Hence no more is allowed to be made than is really wanted. Each shoot is stopped a leaf in advance of the fruit. By this simple

expedient the overcrowding of leaves and of shoots is prevented.

He is also careful not to overcrop, he assured us; though few visitors as they stood under the Cucumber roof, literally alive with fruit in all stages of growth, but must receive this grave statement with a smile of incredulity. We confess that for the moment we felt that after all the views of Cucumbers in fruit in the trade catalogues were not the exaggerations, born of puff, that they are generally assumed to be. The whole house seemed hidden with Cucumbers, young and old. No; there were no old ones, and herein lies one of the great secrets of success in Cucumber growing by express. The fact was, and is, the whole are cut when they get about three-quarters of their possible size. In that state they are far better to eat than when full grown; besides it is the last stage—the attempt, abortive or otherwise, to force or ripen seeds—that exhausts the plants, and the system of treatment adopted, though favourable to growth, is not so to maturation.

Under the express system seed bearing is indeed rendered impossible by the removal of every male blossom as soon as formed, and the fruit are cut before the exhausting stage of growth is reached. The result is that three Cucumbers at least are produced where one only would be grown under cool treatment, and it is claimed that the three are grown in a third of the time necessary to produce the one. But we dare not quote all we have seen or heard on the question of time saving by the express mode of culture. If one half that has been told in regard to this be true it would almost seem as if time or space would no longer be needed for the production of Cucumbers, but rather that they might be called forth by heat, moisture, and electricity as easily and rapidly as the transformations in fairy tales, or the Presto, change! of the modern juggler. With the most liberal allowances for exaggeration there can be no doubt that Cucumbers and other vegetable products are now produced in little more than a tithe of the time that they used to be. Without, therefore, assuming the responsibility of the so-called facts and statements advanced in this article we would invite the attention of our many practical Cucumber growers to them. We shall also gladly open our pages to short reports of what any of our readers have done in the way of Cucumber growing, and of the time that may have elapsed from seed-sowing to fruit cutting, and also the number or weight of fruit that may have been cut from a given area in a given time.

In this age of hurry and bustle, when even the importance of the husbanding of vital and other force and the conservation of energy are in danger of being lost sight of in a mere scramble and scurry, such facts and statements as these have a special interest and importance. Vegetable life is probably strong enough to take care of itself, and the more urgent and immediate duty of cultivators—a duty that becomes more pressing day by day—is how to force plants to produce the most produce of the highest quality in the least time and at the least expense.

THE THAMES.—Investigations undertaken by the City authorities show that even now the condition of the river is anything but what it should be. At Teddington there is little to complain of, but at London Bridge it was found to be "charged with sewage," the charge becoming greater down the river, and, of course, much more marked at the outfalls at Barking and Crossness—a sample taken at the former place on November 23 being reported to have contained one-fifth of its volume of sewage. Below these points the river becomes purer, till at Tilbury it is said to be practically uncontaminated with sewage. No fewer than 300 outfalls for sewage, it appears, still discharge into the river within the limits above mentioned. It is frightful to think of this continued defilement of a noble stream with all that that defilement implies, while the wasteful method of disposing of the sewage is indeed "a disgrace to our vaunted civilisation."

New Garden Plants.

ADIANTUM VICTORIE (*n. n. h. ?*)

The peculiar and distinctive features of this new Fern, which was exhibited at South Kensington on Tuesday last, and was awarded a First-class Certificate, are as follows:—

Habit dwarf and densely tufted; fronds ovate, bipinnate, with about one pair of compound pinnae, and four or five simple pinnae above; pinnales (or pinnae of the upper part of frond) bluntly conical from the straight or truncate base, or sometimes subrhomboidal, large, deeply lobed, the sterile lobes serrate, sori at the apex of the lobes oblong or reniform.

We have here a very distinct Maidenhair Fern, which will be invaluable for pot-culture for decorative purposes, and a most acceptable plant for the market grower. The plants exhibited, some half-dozen of them, were dense tufts about 4 inches high, and spreading to a diameter of 8 inches, the fronds densely packed, and forming close cushions of velvety-green, and we were informed that the parent plant is very little larger. The stipes and rachides are slender, wiry, ebeneous, and the general outline of the fronds shortly ovate, with a bipinnate mode of division. On the largest specimen before us, some 6 inches long, the lowest pinna, which has a clear stalk-like base of three-fourths of an inch, is 2½ inches long, and divided into five pinnales; the next pinna is barely 2 inches long, with three pinnales, and a shorter stalk; the rest of the frond consists of five large pinnales, of which the upper one is sub-rhomboidal, and measures 1½ inch in its longest, and 1 inch in its shorter axis, the others being long-stalked and nearly equal-sided with a straight-cut or truncate base and a short bluntly conical outline, the margin being deeply lobed, and the sterile portions of the lobes finely serrate. The sori do not appear to be very freely developed; in this case they occupy the apices of some of the principal lobes, and are usually oblong, sometimes reniform, or occasionally shorter, and almost circular. The young fronds are faintly tinged with red, and the whole aspect of the plant, dwarfed as it is, is strongly suggestive of young specimens of *A. farleyense*.

This novelty was raised by Mr. Bause, at the Melbourne Nursery, Anerley, and was shown by him on behalf of the General Horticultural Company (John Wills), Limited. Mr. Bause regards it as a possible hybrid raised between *Adiantum decorum* and *A. Ghiesbreghtii* (scutum), and there is considerable resemblance to the latter to be seen in the plant. The influence of *A. decorum* on the progeny, unless it be in imparting a dwarfer habit of growth, is not very evident; but, nevertheless, Mr. Bause fully believes in its hybrid origin, and the several distinct forms which he has originated—*e.g.*, *A. Bausei*, *A. Lathomi*, and now *A. Victorie*—certainly give some weight to his opinion, as it can hardly be supposed that all these should have been mere sports from the spores. However this may be, the *débutant* certainly will deserved the certificate awarded to it, as it will certainly be extensively grown. We have affixed to it, at Mr. Bause's suggestion, a name which at once is an estimate of its worth and an augury of the popularity which it will enjoy amongst Fern growers when more widely known. *T. Moore.*

ARUM PALESTINUM, Boiss.*

This fine species was, I believe, first introduced into cultivation by Messrs. Veitch & Sons, with whom it flowered in 1865, and from their plant it was figured in the *Horticultural Magazine*, at t. 5509, but probably it soon died out. Two years ago, however, it was reintroduced, and is now in the hands of Messrs. Heath & Son, Exotic Nurseries, College Road, Cheltenham, from whom I have recently received a specimen, and to whose kindness I am indebted for much of the information here given.

If I am right in the conjecture that the plant is not in cultivation from Messrs. Veitch & Sons' importation, it is somewhat surprising that it should be so, since *A. palestinum* is certainly one of the finest and

* *A. palestinum*, Boiss., *Diagn. sin.* p. 6; Schott, *Synop. Arid.* p. 5; *Prod. Arid.*, p. 79; Engler, in *DC. Monog. Phanog.* ii. p. 585; *Bot. Mag.* t. 5509.

most striking species in the genus, and as it is half hardy, easily grown, and the inflorescence, according to Messrs. Heath & Son, lasts from two to three weeks, and is scentless, it ought certainly to find favour with some; and there is no reason why it should not be used for decorative purposes, since, as it comes into flower about the same time as *Richardia ethiopia*, or at any rate could be made to do so, if mingled or grouped with that plant, its velvety-black inflorescences, which stand well above the foliage, would make a very effective contrast with the white inflorescences of the *Richardia*. No doubt if required it could be easily grown indoors as a window plant, only it will require to have a season of rest, during which it should be kept nearly dry.

At one time there was a craze to produce a black

11 inches long, tube obliquely campanulate, limb lanceolate, gradually attenuated to the acuminate apex, at first bent back and spirally twisted, afterwards opening out nearly flat; outside of spathe pale green on the tube, with some suffused purplish spots or blotches, dark dirty green on the limb; inside of spathe of a rich velvety black, except at the base of the tube, which is yellowish-white. Spadix considerably shorter than the spathe; ovaries light green, dark purple on and around the stigma; anthers very dark purple-brown; neuter organs black, subulate from a bulbous base, not rugulose, the lower series in from two to five cycles, the upper series in one or two cycles; appendix jet black, fusiform, subacute, with no distinct stipes, $\frac{1}{2}$ inch thick at the middle. Odour none. A native of Syria. *N. E. Brown, Herbarium, Kew.*

Joseph Hooker's *Rhododendrons of Sikkim Himalaya*, tab. xiii.

AZALEA SERPYLLIFOLIA, *A. Gray*.*

This is a low-growing species, with slender wiry branches covered with appressed lanceolate brownish scales. The leaves are small ($\frac{1}{2}$ — $\frac{3}{4}$ by $\frac{1}{2}$ inch), obovate apiculate, tapering to a short stalk, dark green above, paler beneath, with only two or three pairs of primary nerves, and thinly sprinkled with simple appressed strigose hairs. The flowers are in terminal tufts, each with a very short pedicel covered like the ovary with shining white scales, and springing from the axil of deciduous brownish setose scales. Corolla white, about $\frac{1}{2}$ inch in diameter, rotate, with a very short glabrous tube and a fat limb with five oblong, somewhat irregular lobes. Stamens five, about the

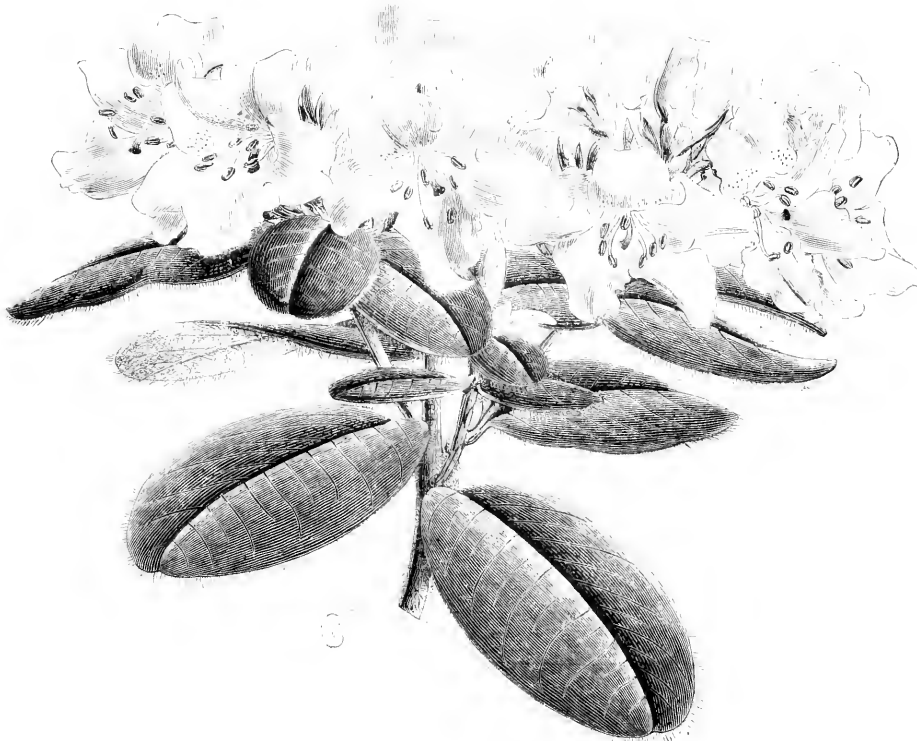


FIG. 65.—RHODODENDRON PENDULUM: FLOWERS WHITE.

Hollyhock; but here is a plant ready made with an inflorescence as black as any one could wish for. As *Arum palatinum* has never been fully described, and has been placed in a wrong section of the genus by both Schott and Engler, by which one is apt to be misled in determining this species, as I was at first myself, I here give an amended description of the plant.

The tuber, according to Messrs. Heath & Son, is long, flat at the apex, not perceptibly different from that of *Richardia ethiopia*. Leaves four or five to a plant, petioles 12 to 18 inches long, stout; lamina triangular-hastate, acute, a little constricted just above the basal lobes, which are half as long as the front lobe, ovate-elliptic in outline, and very obtuse; the lamina varies in size from 6 to 14 inches in length, and from $\frac{3}{4}$ to $7\frac{1}{2}$ inches in breadth, dark glossy green above, paler beneath. Peduncle longer than the petioles, sometimes rising 8 or 9 inches above the leaves, pale green, terete, $\frac{1}{2}$ inch thick. Spathe 7 to

RHODODENDRON PENDULUM (fig. 65).

By the side of the magnificent trosses of *R. grande* (argenteum), recently shown by Mr. Mangles, this little species may seem to some insignificant. A true plant-lover will not acknowledge any such adjective, however, and many a cultivator whose space at command is not sufficient for the larger kinds, may be glad to grow this. In its native country, Sir J. D. Hooker describes it as pendulous from the branches of tall Silver Firs, such as *Abies Webbiana* and *Brunonia*, growing in gloomy forests, at an elevation of 9000—11,000 feet. It may possibly be hardy here, therefore, in sheltered situations. The foliage, as will be seen, is not unlike that of *R. ciliatum*, ciliate but never scaly. The corolla is white, regularly bell-shaped, with fine spreading obtuse lobes. Our illustration was taken from a specimen obligingly put at our disposition by Mr. Mangles, who has so successfully cultivated the plant that its blossoms are nearly double the size of those figured by Fitch in Sir

length of the corolla, filaments glabrous, anthers minute, purplish. Style white, exerted.

This forms a charming little bush for a rockery or fernery under glass, its dwarf straggling habit, neat foliage, and pretty white flowers rendering it suitable for such purposes. Probably in the south and west it might be found hardy. The plant from which our notes were taken was shown by Messrs. Veitch at a recent meeting of the Royal Horticultural Society. Botanically, it falls into the genus *Rhododendron*, and into the section *Tusia*, to which the Indian *Azaleas* belong, on which account and for general convenience and garden purposes we retain the name originally proposed by Asa Gray of *Azalea serpyllifolia*. *M. T. M.*

* *Azalea serpyllifolia*, A. Gray, ex Maximowicz, *l. c.*, et in Herb. Kew: *Azalea serpyllifolia*, hort. Vench: *Rhododendron serpyllifolium*, Miq., *Prodr.*, p. 57, ex Blasimowicz, *Rhod. Asia Orient.*, Mem. Acad. Imp. Sc. St. Peterb., 1870, p. 42 (S. Tusia).

STANSTEAD PARK NURSERY.

THIS well-known nursery establishment, the property of Messrs. John Laing & Co., which has long been famous for its collections of florists-flowers and general nursery stock, is easily reached from Forest Hill station on the Brighton line, and from which it is distant but a few minutes' walk. The nursery also enjoys the advantage of being located a healthy distance from the noxious vapours proceeding from the metropolis, and it enjoys the further distinction of being within short distance of the Crystal Palace, where visitors from all parts of the globe find their way at some time or other during the season. But the nursery is not, indeed, dependent upon extraneous attractions to render a visit to it interesting or enjoyable at any period of the year. It is an establishment in which great numbers of the most popular plants are grown, including tens of thousands of the single and double tuberous-rooted Begonias, for which the nursery is now celebrated. The nursery, too, like the roots of a healthy tree, is ramifying, and extending itself in other directions. There are the branch establishments, Rutland Park, where ornamental shrubs, fruit trees, and Roses, are grown, and "The Vineyard" (the latest addition to the Messrs. Laing's business), where Grapes, cut flowers, Grape-Vines for planting, and fruit trees in pots are grown in large quantities. Such important additions, in what are commonly called times of depression, speak for themselves.

Returning, however, to the parent nursery in the Stanstead Road, the visitor will find the seed warehouse and other offices within the gates of the nurseries. The glass-houses occupy a clear open situation at the back of these, and are of modern construction, affording abundance of air and light to the thousands of plants which they contain, all of which are, from the nature of the system, under which they are cultivated in the best of health. One could not indeed even mention the different species of plants which are here so well represented, but it is noticeable that popular favourites are everywhere predominant—tree Carnations, a whole house of them; the charming *Alcagatère*, so favourably known for winter flowering; also *La Belle*, *Gloire de Nancy*, *Souvenir de la Malmaison*, *Miss Jolie*, and, among a great many others, *Favonia*, a beautiful variety for cutting, being a free bloomer, with delicate lilac stripes in petals of pale rose. A half specimen of the variety *Alcagatère*, with short sturdy growth, proves what can be done with these plants by cultivation. Zonal Pelargoniums and forced Roses are grown in a span-roofed house without rafters, where it is needless to say, they are in fine condition; and a few miscellaneous plants are dotted about by way of giving variety, among which plants of *Begonia recurva* have a good effect. What charming plants these are for house furnishing, and how seldom we see them used. I may just mention the stock of bronze and tricolor Pelargoniums, occupying a whole house by themselves, with which Mr. Laing's name has been so long and so successfully identified. Why have we turned the cold shoulder upon such lovely plants?

The collection of Camellias, Azaleas, and New Holland plants will be found very interesting upon inspection. The house in which they are arranged is a large span-roofed structure, the tall Camellias and Azaleas occupying the centre stage. Other plants of interest comprise a collection of the beautiful *Azalea mollis*, *Erostemon pulchellum*, *Taconias* (in suitable sizes for planting out), *Boronia teranora*, specimen hard-wooded Heaths, small plants of *Erica perspicua* nana, *Acacia lophantha*, *Eurya latifolia*, and many others. On the south side of this house there is a block of seven span houses, running east and west. No. 1 is the famous *Begonia*-house, which was under repairs at the time of my visit. No. 2 contains a general assortment of plants, comprising *Stephanotis floribunda*, *Bomarea Cardeii*, a large batch of *Areca speciosa*, *Tuberoses* in quantities, *Begonia undulata*, and other plants suitable to meet the demands of the day. The third house of the block is an important one, being filled with a grand collection of Palms, consisting of very fine specimens of *Areca lutescens*, *A. Verschaffeltii*, *A. sapida*, *Lantana borbonica*, and good supplies of *Jacaranda mesocephala*, *Fassioflora quadrangularis*, *Cleorodendron Balsamiflorum*, *Cissus discolor*, *Bougainvillea glabra*, *Lapageria alba* and *rosea*, *Couypha australis*, and others. No. 4 is filled chiefly with

Ferns, of which *Adiantum cardiophyllum* is very fine, as also *A. Basei*, *A. Hendersoni*, *A. fulvum*, *Davallia Mooreana*, *Selaginella cæsia arborea* (the tree moss), and other interesting subjects of the same genre.

House No. 5 contains over 40,000 young plants of tuberous-rooted Begonias, and, as showing the immense demand that the Messrs. Laing have for these plants alone, it may be mentioned that over 100,000 young plants have been already pricked off this season. But still better things are expected, and a richer display and greater variety of colour is confidently looked forward for in this lovely class of plants than has at any former time been brought under the notice of the horticultural public. So much for quantity, but the reader may inquire which are a few of the prettiest and latest novelties. Of singles the Hon. Mrs. Brassey (intense crimson), *J. W. Ferrand* (bright vermilion), *Arthur G. Snares*, *exoniensis*, *Mrs. Robert White*, and *Scarlet Gem* will be found exceedingly handsome; and of doubles *Bernice*, a variety bearing immense crimson flowers; *Clovis*, *Davis*, *hybrida fl.-pl.*, said to be double as a *Kanaculus*, *Dina felix*, *Duchesse de Cambacérès*, *Duchesse de Galiera*, *Eugène Lequin*, *Gloire de Nancy*, *Louise Bochet*, *Madame Renard*, *Marie Bochet*, *Marie Lambert*, *Wm. Beatty*, *Dr. Duke*, *Glory of Stanstead*, and *Mrs. Captain Thomson* are among the latest and finest novelties. *Caladiums* are only second in importance to the Begonias in this establishment, and of these *Anna de Condeixa*, *Candida* (which obtained a First-class Certificate at the meeting of the Royal Horticultural Society on June 14, 1881, and also at the Royal Botanical Society on July 6, and is said to be a splendid variety), *Cardinal*, *John K. Box*, *Salvator Rosa*, *Souvenir de Madame de Bernard*, *Ludemann*, *Sanchoanathum*, and *Verdi* are among the very best.

The next house contains a large stock of *Phoenix rupicola*, *Areca* in a young state, and *Cocos Weddelliana* by the thousand. Also *Asparagus plumosus nanus* and *Codium Irvingii*, certificated at South Kensington and Regent's Park last year—a long narrow-leaved variety of a bright golden-yellow suffused with crimson. Another novelty worthy of mention is *Illya glabrosa Hugginii*, certificated in April, 1880—a very handsome species with large thick leaves, and bearing flowers of a bright scarlet colour which are freely produced. *Lantana rubra* and *aurca*, *Cyperus laxus* and *Begonia metallica* are shown in quantities in the same house. The stock of show and fancy Pelargoniums and Azaleas, in fine health, fill a whole house of themselves, and no better examples of cultivation could be desired. The plant stove contains a well grown collection of stove plants and Orchids, *Palms*, *Dæceas*, *Aralias*, *Fitcher-plants*, *Anthurium Waiocuanum*, with immense leaves and in grand health, as indeed may be said of the whole collection. Other specimens, especially well grown, are *Campylobotrys Giesbreghtii variegata*, *Medinilla magnifica*, *Anthurium crystallinum*, *Curcigo recurva striata*, *Phenacophorum sechellarum*, and *busts* of others; while a mixed house is filled with *Palms*, *Ficus*, *Gloxinias*, and *Lilies of the Valley*. By-the-way, the Messrs. Laing have a large stock of *Gloxinias*, and I will just mention half-a-dozen of the finest named kinds, viz., *Duke of Albany*, *Eclipse*, *Leviathan*, *Rehnetem*, *Queen of Koses*, and *Queen Victoria*.

From the stove the visitor proceeds to the *Cineraria*-house, a structure unusually interesting at present, owing to the fine display of double *Cinerarias* which it contains. The plants are healthy and well grown, and in a short time will be at their best. The sorts that struck me most are *Chad Valley Beauty*, *Rowena*, *Mr. Thomas Loyd*, and *Fairy Queen*. No one can really form a just and accurate estimate of these plants until—to use a common phrase—the flowers are full-blown, at which period only they are seen in their full beauty. Heated pits are filled with *Solanums*, soft-wooded Heaths, *Genistas*, *Lachenalias*, *Hollyhocks*, *Pelargoniums*, and *Cytisus*, while hardy plants in cool pits and plunged out-of-doors may be counted to infinity. These comprise *Clematis*, *Tea Roses*, *Charles X. Lidacs* for forcing, and *Syringa rubra* de *Morley*, the French forcing *Lilac*; *Carnations* and *Picoetes* (all *Dodwell's* best), *Chrysanthemums*, *Pentstemons*, *Pansies*, and herbaceous and alpine plants generally in all the leading varieties. The novelty of the season in *Pansies* is *Master Ralph*, and of *Carnations*, *The Governor* and *W. P. Miner*.

The *Vineyard*, lately acquired by Messrs. Laing & Co., lies between Perry Hill and Calford Bridge Station, and is less than 5 minutes' walk from Stan-

stead Park. The glasshouses here are extensive, consisting of four ranges, each 150 feet long. The Vines that are planted out have done remarkably well, and include the staple kinds for yielding a supply of Grapes through the greater part of the year, viz., *Hamburg*, *Muscata*, *Alexandria*, *Madresfield Court*, and the favourite late black kinds. *Strawberries* are successfully forced, and in large numbers; *Figs* are fruited in pots, and several thousands of *Grape Vines* are grown from eyes this season, and a healthy promising stock they look. A general stock of fruit trees in pots and saleable Vines in variety are also in stock and in excellent condition. One of the ranges is exclusively devoted to *Rose* growing, in which every variety that is worth growing for supplying cut flowers in the winter and early spring finds a home, and a congenial home too, if one may form a judgment from appearances. The rambling kinds, such as *Marchal Niel* and *Gloire de Dijon*, are trained upon trelliswork, and the dwarfier growing kinds are planted out in the borders. *Niphetos* and *Madame Falcot* are two favourite kinds for supplying buds. Anent *Roses*, I may add that a plot of ground is being deeply trenched and heavily manured in which *Tea Roses* are to be planted out and which are to be covered in with heated pits in order to obtain a supply of *Rose buds* in winter when other sources fail to supply them. In addition to the stock already mentioned in this branch propagating and plant growing is also carried on of *Marguerites*, *Grevilleas*, a grand stock; *Primulas*, an excellent market strain; *Cinerarias*, *Aspidistra lurida variegata*, *Richardias*, *Palms*, &c.

The Rutland Park nursery is, as has been already stated, set apart for the cultivation of choice Conifers and other ornamental shrubs, fruit trees, *Roses*, and forest trees. There are acres of pyramid *Pears*, "double worked" *Apples* and all other kinds of fruit trees in greater or less quantities. Trained *Peaches*, *Apricots*, and *Nectarines* are exceedingly fine—one-year-old cut-backs with from five to seven shoots to each, models for wall training. *Roses* and *Rose stocks* are counted by their thousands, some in dormant bud, others ready for planting; of the former the stock of *Belle Lyonnoise* and *Gloire de Dijon* is unusually vigorous and promising. Messrs. Laing have a *scuteler* for dressing *Brier stocks*, which I believe is not commonly used. It is fitted into a framework standing upon four legs, and works by cog-wheels which gives the instrument great power and enables an ordinary handy workman to dress 1200 stocks in a day (figured at p. 72 of our volume for 1872). The best appliances are used in this nursery by competent workmen, yielding results which cannot fail to be satisfactory to all concerned. *Reporter*.

THREE INTERESTING PLANTS FROM BRITISH GUIANA.

It is a collection of dried plants made by Mr. G. S. Jenman in British Guiana, and sent by that gentleman to the National Herbarium at Kew in January of this year, are contained many interesting plants, and among them a fine specimen of the plant described by Mr. Baker from imperfect material in the *Gardeners' Chronicle*, 1880, vol. xiv., p. 243, as *Cordylina micrantha*, but which, now that more ample material has come to hand, turns out to be, not a *Cordylina* at all, and which does not even belong to the order *Liliaceae*, but to the *Bromeliaceae*, and is thought to belong to the little known genus *Brocchinia*; it will, I believe, shortly be fully described by Mr. Baker under the name of *Brocchinia cordylinoides*, along with another new *Bromeliad* contained in the collection. This fine arborescent *Bromeliad* is represented in the foreground of the illustration that accompanies the description on p. 241 of the volume of the *Gardeners' Chronicle* above quoted. It appears to be confined to the savannah above the Kaieteur Fall in the Potaro river, and is inhabited by another very handsome and interesting plant, viz., *Utricularia Humboldtii*, which finds a home in the water held in the axils of the leaves of the *Bromeliad*. Mr. Jenman states on the label sent with the *Utricularia* that it is "aquatic, confined to the water contained in the axils of the leaves of *Cordylina micrantha*, which is always copious. The stems rise up and flower above the leaves of the *Cordylina*. Very common. It appears to be strictly confined to the *Cordylina* [*Brocchinia*]."

If the *Bromeliad*—together with its dependent, the *Utricularia*—could be successfully introduced into cultivation they would form very striking and interesting objects. *Utricularia Humboldtii* is very different in appearance from either *U. montana* or

U. Endresii, and is one of the finest species of the genus; the petioles of its leaves are from 1½ to 2 feet long; the leaf-blade is cuneate-reniform in outline, and from 2 to 5 inches broad; the flower-stem apparently grows to about 3 feet in height, and the flowers are about 1½ inch in diameter.

Mr. Jenman's remark, that it appears to be strictly confined to the Iromelid, may be correct, so far as that region is concerned; but Schomburgk, who discovered *Utricularia Humboldtii*, states, in his *Races in British Guiana*, p. 1086, that he collected it on the southern declivity of Roraima at an altitude of 6000 feet, growing in boggy grassy places along with *Helleophora*, *Cypripedium*, &c.

Another plant contained in the collection that appears to be of interest is one of the *Gesneriaceæ* (No. 1067, *Codonanthe*, sp.?) which, according to Mr. Jenman's note, he found "growing in ants'-nests upon bushes and trees." Is this really the case—that is, does the plant grow in the earth which the ants have carried up into the trees to construct their nests with? Or can this be one of those interesting plants of which certain ants make use of the base of the stem for a nest, making galleries through it in all directions, and causing an enlarged development of that part of the stem, so that it resembles a tuber traversed by sinuous passages, as in the well-known cases of *Hydnophytum* and *Myrmecodia*? In fact, does or does not the ants' nest in this case form part of the plant? The specimen does not show this, and the question is worthy of inquiry, as I believe that no ants'-nest plant of this character has yet been recorded as occurring in America. *N. E. Brown*.

GLADIOLUS.

Of all so-called bulbous plants *Gladiolus* are, I think, the most showy and beautiful, sending up, as they do, long spikes clothed with lovely gay flowers. For growing in beds and borders they are quite unrivalled, and they are equally valuable for pots, as they may be got on early, and they come admirably for dropping in among other plants on a stage, where a few of them brighten up a whole house by their presence. One of the most showy among them is the old *G. brechleyensis*, the blooms of which are of a large size and fiery scarlet in colour. Corms of this kind may be had at a cheap rate, and if potted or planted at once will make a grand display in the autumn. The finest, however, that can be obtained are the hybrids that have been raised from the above-named, which embrace almost all shades of colour, the delicate ground and the superb markings of some being rich in the extreme. Spikes of these are simply magnificent, and the numerous varieties of *G. gandavensis* are also very showy and well adapted for border work, and if planted at intervals from now till the middle of May will yield a long succession of bloom. The earliest flowering kinds are those of the ramosus section, which are much dwarfier than the others, and so hardy that they may be left undisturbed in the ground, where, if the soil is light and suits them, they gain strength, and flower with great freedom. For affording cut blooms these sorts are invaluable, as, the spikes and blossoms being small, they are just the thing for vases, where they dress well, and last long in water.

The best way to grow the different kinds of *G. ramosus* outdoors is to prepare a narrow border or bed in a warm, sheltered part, and there plant the bulbs, and allow them to remain undisturbed. To ensure them against decay there is nothing like sharp sand, a good sprinkling of which should be scattered over the corms before covering them up. Managed in this way, the soil does not come in immediate contact with them, and they remain snug and dry for the winter, as the water cannot lie, but drains freely away. To keep out frost, leaf-soil is the most serviceable, as it lies light, and acts as a top-dressing without shutting out too much of the air, or souring and injuring the soil. If grown in pots, a purpose for which the ramosus section of *Gladiolus* are specially adapted, the pots should be well drained, and from three to five corms placed equidistant in each 6-inch pot, and covered about 2 inches deep. Sandy loam that has been well enriched suits them the best, and when potted they should be stood in a cold pit or frame, and kept without water till the leaves begin to appear, when they should have just enough from time to time to keep the soil moist. When the pots get full of roots liquid manure will

be a great help, and will enable the plants to push up fine heads of bloom.

The hybrids of *G. gandavensis* and *brechleyensis* being so much larger, require bigger pots, if more than one are grown together; but if singly, 6-inch pots are sufficient. The same kind of soil, potting, and treatment recommended for the others will suit these; but the thing with both, after flowering, is to avoid them every encouragement to form and mature their corms. This may be done by plunging them in ashes or other material out in the open, where they can be duly attended to with water, so as to keep the foliage healthy and green till the time comes for it to ripen and die away naturally when no longer of use to the roots. When grown in beds or borders it is necessary to trench the ground deep, but in doing this the subsoil should not be brought to the top, but have plenty of manure worked in, which answers better than having it nearer the surface, as *Gladiolus*, being planted deep, would be injured by touching it. In cases where the soil is heavy and unsuitable, it is a good plan to dig out holes in borders and refill them with turfy trimmings from the roadside, in which material *Gladiolus* always do well.

The way they look best and make the most show is by planting three in a patch at about 6 or 9 inches apart, and in beds, the rows a foot from each other, and the same distance from plant to plant. The spikes being very heavy, when in flower they should be securely staked and tied, or the wind will soon carry them over. The proper time for lifting *Gladiolus* is towards the end of September, but it is a mistake to dry and store them quickly, as some do, as by so doing they sustain much loss of vital power on account of the corms shrivelling before they are ripe. Instead of the drying process it is much better to place them in pots of sand and stand them in a light house or pit where the tops can die away slowly. The sand, too, is good for them to winter in, as it keeps them in a more uniform condition, and corms stored in it will always be found more plump and sound in the spring. The place for wintering should be very cool, as otherwise roots are formed before they ought to be emitted, and get injured or destroyed in the moving and planting. *J. Sheppard*.

THE VEGETABLE PRODUCTS OF PARAGUAY.

THE following notes, gathered from a recent report by Mr. E. H. Egerton, on the above subject, will give an idea of the character of the economic plants of that country. Paraguay, we are reminded, is but very slowly recovering from total collapse, the result of the depopulation and financial ruin caused by its great war. Two sugar-mills are reported to have started work. The Paraguayan sugar-cane is said to contain more saccharine matter than the Tucuman cane. On this subject, however, Mr. Egerton says:—"Though my opinion is not worth anything, the rich alluvial soil of Tucuman seemed to me more suitable for the cane, which certainly grows thicker and more luxuriantly there than in the Paraguayan red sandy soil, fertile though the latter be.

"Paraguay will find it hard to find a market for her sugars, as in Monte Video and the Argentine Republic there are heavy import duties, so that I cannot believe much production of sugar, beyond that for home consumption, will take place in Paraguay."

Tobacco is grown everywhere, but the better quality comes from near Villa Rica. Cigars prepared like Havanas are made there, and there may be considerable increase in the export of these. The taste of nearly all Paraguayan Tobacco is somewhat strong and bitter, which will prevent it fetching high prices. Of undressed Tobacco large quantities are sent to Bremen and other ports of Europe from Asuncion, *via* Buenos Ayres and Monte Video.

Of oil from the indigenous *Coco Palm* a fair quantity is made. There might be a considerable increase in this article, as there are vast quantities of this tree in the neighbourhood of Asuncion. A quantity of ground-nut oil is produced. It is known as "Mani." It is used as a substitute for Olive oil. The Castor-oil plant, which grows well in Paraguay, is recommended for more extended cultivation in consequence of the oil being valuable for lubricating purposes.

Enormous quantities of Oranges are sent from Asuncion to Buenos Ayres, Paraguay having a reputation for the excellence of its Oranges, which are much superior to those of Corrientes. Most of the

gardens contain Banana trees, and there is some export of the fruit. Coffee is grown on a small scale on the northern side of the hills; its flavour is very good, though somewhat strong and bitter. No Wheat seems to be grown, but the native bread, made from the *Mandiocora* root (*Manihot utilissima*), an excellent and wholesome substitute. At present, the newer valuable produce of the country is the Yuba Maté (*Ilex paraguayensis*), of which increasing quantities are yearly exported. The Paraguayan Maté, though better than the Brazilian, is not equal to that of the Upper Argentine Misiones.

The wealth of timber is immense, all the hills—and the whole country is hilly—being covered with splendid trees, and all the marshy shores of the Paraguay are a vast forest. When more *Isaques* and *Italians* arrive the timber trade may become important, and barges full of valuable hard woods may be floated or towed down the river for export. Such hard work as felling or dressing trees is not very congenial to the native Paraguayan.

Of medicinal plants "Jaborandi" (*Holcarpus* sp.) is referred to as being one of the most important, and a plant, of which the native name "Yambayú" alone is known, is considered by the Indians as a cure for asthma. *Ipacacanha* is grown in large quantities, but it is said to be distinct and inferior in quality to that from the Brazilian province of Matto Grosso.

Of dyes that obtained from *Eupatorium tinctorium* is said to be very similar to indigo, though perhaps a little darker. It is a very good dye, and is the blue colour that has long been in use by the Indians. A small sample of this dye lately sent to France for trial is stated to have realised 12 francs, when Indian indigo was sold for 15 francs. The Central American blue dyes have generally been beaten from the field by the Indian indigo; it seems, however, that this Paraguayan shrub is so remarkably prolific and vigorous that it can be stripped of its leaves four times a year without injury to the plants. As it requires but little care or cultivation this dye plant may some day compete in the European market with that of Indian indigo.

Regarding fibre plants there are many that yield large crops and fibre of good quality. "But," Mr. Egerton says, "by far the best fibre of the country is that of the *Caragatá ibérica*, a *Bromeliaceæ*, which is something like the Pine-apple plant, and which is very abundant in Paraguay, the Misiones, and the Chaco. It is very long and silky, and has long been used by the Indians, and much money has already been spent in endeavours to find some practical machine for the economical preparing of this fibre. I am assured that the desired result has now at length, after a long series of experiments, been attained by a French machine, invented for the purpose, which has just been set up not very far from Asuncion, the process being a simple one without previous maceration. Should this invention prove a success the *Caragatá* fibre will become an extremely important article of export, and if half I hear of it be true should compete with advantage against Jute. I am assured, but I cannot vouch for the assertion, that there is immense superiority in the quality of the Paraguayan fibre over that of the Chaco and Misiones *Caragatá*."

This plant is referred to in the *Kew Report* for 1877, p. 37, as a paper material upon which Mr. Routledge had remarked that "Fibre when abstracted no doubt will make good paper." It is also stated in the report to have been determined at *Kew* to be "one of the singular South American species of *Eryngium*, which have before flowering quite a *Bromeliaceous* habit." *J. A. J.*

SHADING ORCHIDS.

THIS is a subject of the greatest importance in Orchid culture, and one that is often overlooked until it is too late—the mischief being done. What is required is a strong durable material that will wear well, and, where rollers are used, stand the strain upon it. It must also be understood that shading does not consist of merely daubing upon the glass some opaque material, such as paint, "summer cloud," whitening, or the like, which, though all very well as palliatives in positions where rollers cannot be used, such as at the ends and sides of a house, are greatly to be deprecated as a shading for the roof, for this reason, that in our English climate we are so subject to sudden changes of the weather that were such a permanent shading to be used we should frequently—

especially during dull weather—have our plants in comparative darkness when they should be getting all the light possible. This cannot fail to lead to bad results, and produce a sickly growth.

Some growers use thick canvas; indeed we have done so ourselves many years ago, but, by experience, we have found out the ill-effects of it, for when we employed this kind of shading we found the plants under its influence became weak and sickly, producing small puny flower-spikes. A lighter shading was then employed, and the difference was marvellous; the plants assumed quite a different aspect. It was at this time that we were exhibiting at Chiswick the fine specimens of East Indian Orchids—*Aerides*, *Saccolabium*, *Vandas*, *Dendrobium*, and many others—such as we seldom see equalled now. Since then we have used thinner shadings with the best results. Our *Vandas* thus treated have always been strong and healthy, with broader foliage, producing their flower-spikes as often as three times a year, with the flowers of a good colour, lasting a long time in perfection; in fact we are never without flower, always having a good display. We refer more particularly to the *suavis* and *tricolor* section of the genus. Some people imagine *Vandas* do not flower till they attain a large size, but such is not the case if they are properly grown, and thin shading is used.

Our experience leads us to the belief that all Orchids, with a few exceptions, require a thin shading—that is to say, one that, while warding off the direct rays of the sun, will allow the light to enter through it. To arrive at this result we use a strong, durable, cotton netting, woven in small squares, close enough to exclude the rays of the sun, while the light penetrates it with but little interruption. This netting stands exposure to the weather much longer than canvas, and on that account is cheaper in the long run. We have used this material for some years; in the case of cool Orchids, Mexican, and East Indian kinds, with the best results, the netting being attached to rollers with appropriate gear. For the cool Orchid houses we employ raised blinds, upon which we hope to speak further shortly. The blinds can be managed with but little trouble. In the winter we take them off the house and put them in a dry place until they are required again in the ensuing spring. *E. S. Williams, in the "Orchid Album."*

AN AGARICUS-BOLETUS.

SEVERAL references have been made of late years in the *Gardeners' Chronicle* to the occasional curious abnormal resemblance of some fungus to another fungus of a totally different order or even family. Such was the case in the remarkable example of *Agaricus furfuraceus* mentioned in the *Gardeners' Chronicle* for March 4. Resemblances of a similar nature may be useful to some animals and plants, but we cannot see that any good end is served amongst fungi. A great number of *Agarics* extremely resemble in colour the dead autumn leaves amongst which they grow; other examples, less common, stand out in contrast against the brown and russet dead autumnal leaves. A recent sharp observer, Mr. C. B. Plowright, has called attention to the fact that Mushrooms, by their white tops, stand out in strong contrast against the green pasture grass; he indicates no benefit to the plant in this, but if Mushroom spores are really benefited by passing through the stomach of a herbivorous animal—which some persons assert, but which we greatly doubt—the fungus is clearly benefited by its colour attracting the ox or sheep to eat it [while the Mushroom-loving bipeds can the more easily find materials for their *ragouts*. Ed.].

One of the commonest funguses of hedge-sides and open places in woods is *Paxillus involutus*, illustrated in the upper figure of fig. 66. It is deep yellowish-brown in colour all over, clammy to the touch, of the shape shown in the illustration, and in every way a "regular Toadstool." It belongs to the order *Agaricini*, and therefore in typical examples the under-surface of the cap is (or should be) furnished, as in the Mushroom, with gills radiating from a central stem. Fungologists have noted that in some examples, but by no means in all, the gills of this plant anastomose near the stem and form little pores of a *Boletus*-like character, as shown at base of the gills in the upper figure. Sometimes these pores occupy one half the space of the gill-surface and the fungus at once becomes half an *Agaricus* and half a *Boletus*, these two genera being members of two widely separated orders. But as far

as we know, no one has yet called attention to the fact that the under surface in *Paxillus involutus* is sometimes wholly porous and in every way a true *Boletus*, as in the lower of the two figures, *b*. In some districts this *Boletus* form is quite frequent, and we have many times had it sent on to us as a *Boletus* not to be found in fungus books. The fungus therefore is clearly sometimes an *Agaricus* and sometimes *Boletus*. The Rev. M. J. Berkeley, who has written so much and so exhaustively of fungi, says of this plant in the *English Flora*, 1836, p. 101, "The gills of this species separate from the pileus like the pores of a *Boletus*." This is of course quite true, the gills naturally separate from the pileus because (as in *Boletus*) there is no trama, so that Fries in his *Eporis*, 1836-8, p. 315, removed the plant from the genus *Agaricus* and termed it *Paxillus* with the generic character of "Trama in genibus nulla."

No question is more frequently asked by beginners in fungology than "What is a trama?" The trama

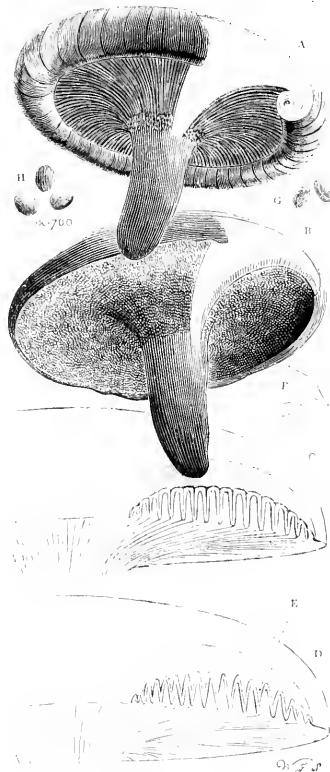


FIG. 66.—PAXILLUS INVOLUTUS.

can easily be explained by the two lower outline figures of fig. 66. Both represent part of the cap of a Mushroom with a slice obliquely cut off showing the gills in section. The upper of these two outlines, *c*, shows a fungus with no trama, and the lower outline, *d*, a fungus with a trama. The trama is the part of the flesh in the immediate centre of the gills, so that when the skin of the gills is peeled off (not always an easy piece of work) the inner substance of the gills (trama) is left exposed like a second and internal series of gills, *d*. The trama is shown at *e*. The section at *c* shows a fungus with *Paxillus* characters, and here it will be seen that if the gills are peeled away the under-surface of cap will be left quite plain, as in *Boletus*, for there is no trama or inner substance of the gills. Nyländer and Hofman say they have seen a trama in *Paxillus involutus*.

No doubt the presence of a trama is an important character in the higher fungi, but it is an unfortunate

fact for systematists that some *Agarics* have a trama when growing in some positions, and are totally without one in others. Such is the case with the edible *Agaricus peronosatus*. This species ought to have a trama to suit the views of writers on books about fungi; it commonly has a very decided trama, but it is equally certain that it is frequently without one. Sometimes this plant, then, is an *Agaricus*, and sometimes a *Paxillus*, and *Paxillus* in its turn is capable of becoming a genuine *Boletus*. Fries saw this difficulty, and in his elaborate *Monographia Hymenomycetum Suecicæ*, vol. iii., p. 310, advocated the placing of *Agaricus peronosatus* under *Paxillus*. But then a good *Paxillus* should have red spores, whereas *Agaricus peronosatus* has white ones. Fries therefore put it under a section of *Paxillus* named *Lepista*, a small company with dirty white spores. Such a state of things seemed very incongruous, so the writer of this notice once proposed that *Lepista* should be a genus instead of a sub-genus; and so *Agaricus peronosatus*, *alias Paxillus peronosatus*, became for a time *Lepista peronosata*, and at this time so stands in Cooke's *Handbook*. But Fries, in his latest work on Fungi, replaces this *Paxillus* or *Lepista* in its old place in *Agaricus*. Fries deserves great credit for this; he knew he was not above error, and he was not ashamed to confess that his views in 1874 were not quite the same with those of 1838. In original scientific work it does not follow that because a man thinks a certain thing at one time, he must of necessity think the same thing at another, or indeed that any original observer thinks and believes to-day exactly as he did yesterday.

Now if we return to *Paxillus* and its trama, and take up another species, as *P. patouides*, *Fries*, we shall soon find that this plant has got a distinct trama, then why a *Paxillus*? It must belong to *Hygrophorus*, and it would be found under *Hygrophorus* if it had white instead of yellowish or brownish seeds or spores. Fungologists say every *Hygrophorus* must have white spores—why? Fries once thought that the spores in *Paxillus* might be either white or brown; then why not in the neighbouring *Hygrophorus*? The answer simply is, there are really no generic or specific bounds to any of these things; they branch and have affinities in every direction; there are no hard outlines by which they can be compassed.

A strong generic character is undoubtedly found in the curious shape of the spores in *Boletus*; they are usually (uniform, as in *B. parvius*, Bull (f, fig. 66), or lanceolate, or ovato-acuminate, whereas in *Paxillus* the spores are almost round: herein then, there surely is a difference. But in *Boletus bovinus*, Linn. (g, fig. 66), the spores are oval, and in *B. rubinus*, W. Sm. (h, fig. 66), they, though really oval, are almost spherical, and indeed, just the same with *Paxillus involutus* itself. It will be seen, from what has now been written, that every character that separates *Agaricus* from *Paxillus* and *Paxillus* from *Boletus* is liable to break down.

After these notes were written, and long after the illustrative drawings were made, we wrote to a correspondent from whom we remembered having received specimens as *Boletus* many years ago, and to whom we at the time replied that his plant was no *Boletus* at all, but one of the *Agaricini*, viz., *Paxillus involutus*. Mr. J. Aubrey Clark, of Street, Somerset, is this correspondent—a keen observer, and a gentleman who has added many new fungi to our flora. His reply to us is curious, and shows how strongly he believed the plant to be a *Boletus*. He says: "I don't myself believe it to be *P. involutus*, but of course I may be mistaken—Mr. Cooke suggested it might be a variety of *B. bovinus*. Mr. Berkeley thought it might be the *Boletus* form of *Paxillus involutus*." Mr. Clarke placed it under a "round-spored variety of *Boletus bovinus*, B. seaber," as he marked his drawings "according to his own, perhaps erroneous, judgment."

Writers like Mr. Charles Darwin have long taught us that there is really no permanence in species, and if there are no definite boundaries to species there cannot be to families. Young botanists are always squabbling about What is an alga?—what a fungus? what a lichen?—is *Saprolegnia* a fungus or an alga? They never seem to think that quite possibly *Saprolegnia* is neither one nor the other—that it may have the characters of a fungus at one time and of an Alga at another. Such is indeed the fact. It may occupy a perfectly distinct place between fungi and algae, and may not belong to either. Then they say, Is it a parasite or a saprophyte?—does it grow on living things or on dead ones? They never dream that an organism may be capable of growing upon both living and dead, and of being a parasite and a saprophyte at the same time or at different times. Indeed, if one ventures to express an opinion of this nature to some young men of the present day one gets looked upon (by them) as little better than a lunatic. The beginners, although they are now fast enough in discarding fixed limitations to species, they stick like grim death to them when they apply to habits of plants or animals or to their own fancies. *W. G. Smith.*

Orchid Notes and Cleanings.

LYCASTE FLAVESCENS.—Visitors to metropolitan shows are apt to be critical, and some are apt to despise whatever does not strike their fancy. Only the other day we saw a well known connoisseur pass with a shrug of profound contempt the very elegant drooping spikes of a *Pendrochium*, merely because it did not suit his taste. A wider knowledge, even if less deep and special, would have prevented such an outburst of questionable taste. A similar narrowness—the narrowness of a specialist—prevented some from admiring the magnificent plant of *Lycaste flavescens*, (fig. 67), when exhibited lately by Mr. Bowring. The colour of the flowers is, indeed, dull, and they are overshadowed by the overarching leaves; but see what a sheaf of blooms there are—255 all told; see how noble the foliage—and the plant itself 5 feet across. It is only professional beauties who like to be always *en evidence*, more modest beauty

the lovely *Epidendrum bicornatum* should see the condition the stock is in here. The big fat bulbs which the plants make are an evidence of rude health; in a number that are blooming one has three strong spikes. *Vanda Parishii* is coming into flower. The true *Lelia furfuracea*, often mistaken for *L. autumnalis*, is doing finely, as also *L. cinnabarina*. *Plumina fragrans* grows like a weed, almost every spike bearing three to four flowers. The greatest rarity of all is a couple of plants of the true *Masdevalla Schimii*, only four of which we understand survived out of an importation of 6000. It is described as bearing six to eight flowers on a spike, in form and colour like the Humming-bird *Masdevalla*, *M. trochilus*.

DENDROBIUM NOBILE VAR. NOBILIUS.—With reference to the notice of this new *Dendrobium* at p. 366, allow me to state a few additional facts as to its history, which Sir Trevor Lawrence does not seem to have quite remembered. The plant was bought by me at Stevens' Rooms, in a bundle of twelve, which cost 12s., and it is rather remarkable that two grand things turned up together—the fine variety of *Dendrobium Brymerianum* exhibited on March 14 at South

hills as the localities; but he says the diameter of the expanded flower is only 3½ inches. The figure in the *Gardeners' Chronicle* indeed represents a flower 4 inches in diameter, but I never saw one smaller in Burmah, though many larger—5 inches is by no means an unusual size. Call it "a variety" or not, the simple fact is, that the plant grows more freely and luxuriantly in Burmah than elsewhere, for all the *D. formosum* there found is of the larger size. Large basket-loads are being continually brought into the town of Moulmein for sale, as it is a great favourite with the Burmese, both for house decoration and for offering at their pagodas. They call it *gayway-ban*, or "silver flower." C. P.

NOTES FROM BELGIUM.—In one of your numbers we read that *Cymbidium eburneum* thrives well under cool treatment. We know that this plant is rather difficult to flower, and after some experience, we think that the cool end of the East Indian-house is still too warm for it. We have a very nice plant of this species, of which we hoped much, but unfortunately the bud did not develop into flower. We did not know that this plant could be grown in a cold temperature, until Mr. Norman told us through your number



FIG. 67.—LYCASTE FLAVESCENS: FLOWERS PALE BUFF.

charms the more by contrast and retirement. In any case, Mr. Bowring's plant was a wonderful specimen, and as such we are glad to give its portrait.

ORCHIDS AT THE PINE-APPLE NURSERY.—Amongst the large and varied collection of Orchids grown at this nursery, there was recently a plant very rarely seen in bloom—*Eulophia scripta*, bearing a panicle of over 100 flowers; the plant has stout cylindrical fleshy pseudobulbs, 9 or 10 inches long, almost as thick as those of a small *Cyrtopodium*, but much shorter. The individual flowers in shape and size are not unlike those of *Oncidium sarcodeis*; the ground colour is pale yellow with a faint olive-green tinge, heavily spotted and blotched with brown. There is here also a quantity of the new Madagascar *Phaius Humboldtii*, with *P. Henryi*, and *P. tuberculatus*; these are growing well. Another rarity which Mr. O'Brien has managed to save out of an importation, almost the whole of which we believe perished, is *Grammatophyllum Rempelianum*; this is from Madagascar, and said to be almost an aquatic. *Lasia acuminata peduncularis* is in quantity in fine healthy condition. *Cattleya Elderado* and *C. Wallisii* are in excellent order. Those, and they are not a few, who have found a difficulty in managing

Kensington from the collection of J. Southgate, Esq., of Streatham, being included in the same. The little plant of *Dendrobium nobile var. nobilius* produced two flowers, the first year on the imported growths, and they were exhibited at South Kensington. It was sold to Messrs. Rollisson on February 13, 1877, for five guineas. It was then grown on, and flowered just in time to be taken to the International Exhibition at Ghent as *Dendrobium Rollissoni*, where it was killed at the base. Then when the sale took place I bought back the plant for £3 5s., and succeeded in raising six plants from the old pseudobulbs, five of which have been distributed. *H. James, Castle Nursery, Lower Norwood.*

DENDROBIUM FORMOSUM.—My attention has been drawn to a figure of *Dendrobium formosum* in *Gard. Chron.*, p. 360, and the appended remarks. If the figure be intended, as I presume it is, to represent the full size of what gardeners call "the large variety," it certainly does not do the flower justice. It is, in fact, rather a small specimen than otherwise. The Eastern Himalayas, too, are given as its home; I would claim Burmah rather for its habitat. *D. formosum* appears to have been first discovered in the East Himalayas, as Roxburgh gives Silhet and the Garrow

of February 11 last; we have since placed our plants in the Odontoglossum-house, and hope we shall succeed in flowering them. We have often read in your columns that amateurs of great renown thought much about *Odontoglossum Alexandræ* having two spikes, with twelve to fourteen blooms on each spike; we noticed that when speaking of such plants they meant specimen plants, which had been for years under cultivation. [Oh dear, no. Etc.] We have much pleasure in telling you that a great many plants of our *Odontoglossum Alexandræ*, which are grown in an ordinary greenhouse, with a temperature of 38° to 42° are, or have been flowering with two spikes, with ten, twelve, and fourteen blooms on each spike. All our Alexandræ are only plants which were imported in May, 1880, and they had then only two or three small bulbs. We have always cultivated them very cool, and we think that our very cool treatment has much to do with the result. *E. Vercaut & Co.*

THE ORCHID-HOUSES AT CLEVELANDS, SOUTHPORT, the residence of R. P. Percival, Esq., are at the present time most interesting to any one who has an interest in this class of plants. A few days ago I had an opportunity of inspecting the plants, and found

that a great many additions have been made since I saw the plants just two years ago; then Orchids were certainly coming to the fore, but many other decorative plants were grown likewise. Now, however, Orchids are in the ascendant. I shall not attempt to go through each house and describe its occupants, but shall just notice a few of the special plants as they came under my notice. For a more complete description of this establishment, I would refer to your vol. xv., No. 389. Entering the large Cattleya-house there described, a grand display of Cattleya Triane in bloom meets the eye. I must confess I never saw such a large number of varieties, and such a quantity of bloom; every conceivable shade of colour that has hitherto been found in this species is here represented. Scores and scores of dark forms where rose-coloured sepals and petals are associated with a deep rosy-purple lip and orange-coloured throat. In some specimens, the colours of the labellum are clearly and sharply defined, in others the purple and orange so gradually cease in one case and commence in the other, that a quite distinct and different variety is produced by the quiet blending of the colours. In other forms the pure white sepals and petals, with slightly pink labellum reminding one of *C. Warscewiczii* deliata, are to be met with. Arranged as those plants are with, I think, only one plant of *Cymbidium eburneum* in flower amongst them, an effect is produced not often matched. Numerous other Cattleyas and Lælias are here in the best of health; large masses of *L. purpurata*, with from eight to twelve leads; *L. elegans*, in quantity and of large size; *C. Warscewiczii*, with six to eight flowering shoots; these latter are very strong and showing flower-sheaths very freely. *L. anceps* is also represented by scores of masses, some a yard across; some were in flower, and had produced four flowers on a spike. Here, too, I saw a remarkable plant of *C. Skinneri*, such a one as, I should say, cannot be matched anywhere. It was in a pot about a yard across, and had thirty flowering-balls, many of these last growths being finer than any on the plant. Of *C. labiata Percivaliana* it is almost needless to say there were some grand specimens, whilst the distinct *C. Sanderiana* with its stout bulb and thick leathery leaves, was rooting and breaking very strong. Besides the large number in pots growing or flowering as described, there were over a hundred large pieces of many of the species described that have been imported this spring and are hanging round the stages until they commence rooting and breaking. *D. crassimida* was here in flower in capital form; so, too, was a fine variety of the old *D. repidatum*. Amongst a lot of imported *D. Wardianum* was one flowering with blooms 4½ inches across. *D. chrysotoxum* was a grand plant nearly a yard through. Grand, however, as are the Cattleyas and Lælias—and numerous too, without—they are followed closely by the *Odontoglossums*. The *O. vexillarium* are a sight worth travelling miles to see; over a hundred plants, the greater part large plants with six or eight or more leading growths, with foliage perfectly clean, each leaf erect, with that slight purple tinge upon them so indicative of noble health: when these are in flower they will be a display worth seeing. The *O. Alexandre*, *O. Pescatorei*, *O. Hallii*, *O. cirrosium*, too, are here by hundreds in the best of health, and flowering very freely and strong; some splendid varieties of each are now in bloom, as well as some fine hybrid forms in the way of *O. mutus*, *O. heliconium*, *O. Andersonianum*, &c.: in these latter forms this collection is particularly rich. A fine lot of *Odontoglossum Rossi* majus in baskets were full of flower; among these were several unusually dark varieties. *Oncidium macranthum* was here doing well, showing flower-spikes of great length. There are many others that might be mentioned, all growing freely, many showing spikes; these, however, will give some idea of the fine collection now being got together at this place. Mr. F. Bellows, who has charge of the whole in managing them well, and deserves much credit for the excellent condition in which everything is kept. The worthy proprietor, too, will gradually have presented to his view such a feast of chaste floral beauties that few even of those who have made this class of plants their special study will ever have had the opportunity of beholding. *W. Swan, Falmouth.*

Notices of Books.

The Gardeners' Dictionary, &c., edited by G. W. Johnson; with a Revised Supplement, including all the New Plants and Varieties to the End of the Year 1880, by N. E. Brown, of the Royal Herbarium, Genl. Bell & Sons. 1882.

The utility of this well-known book has been materially enhanced by the copious supplement prepared by Mr. Brown. The body of the work is, we presume, a mere stereotyped reprint; at any rate, on referring to some of the articles we found them wholly out of date, as, for instance, the article *Pea*, where most of the varieties mentioned have long been superseded by others. The supplement, so far as we see, does not include the newer varieties of cultivated fruits and vegetables, and is in so far defective—a deficiency which is an unfortunate thing for the gardeners who purchase the book, for neither in the body of the work nor in the supplement will they find recent information of this character. What they will find in the supplement is the fullest and best list of recently introduced plants that we know of. It has evidently been compiled, not by a mere haphazard consultation of catalogues and garden lists, but with knowledge and judgment; the consequence of which is that the very numerous duplicate references, unnecessary synonyms, and errors of commission and omission that deface some similar productions have to a large extent been avoided. The very first article, *Abies*, shows how Mr. Brown has endeavoured to bring his part of the work into conformity with the latest and most authentic information. Other instances occur in the articles on plant diseases, such as clubbing in Cabbages, the diseases of Potatoes, Gladioli, and Auriculas, the *Phylloxera*, the Cucumber disease, in which the compiler has managed to give the substance of the most recent information in small compass. In reference to the Cucumber disease, however, we have not found any mention made under that or any other heading of the diseases of other plants caused by nematoid worms of the same general character as that which induces the disease in Cucumbers.

It is to be hoped that this valuable supplement is not stereotyped, so that it may be revised and extended from time to time as may be required. In this hope we point out a few oversights that have attracted our attention in turning over the pages, by no means with a view to unfavourable criticism, but simply for the purpose above stated. *Arbutus* should be *Arbutus*. *Aristolochia Duchartrei* is truly the same plant as *A. Ruiziana*, but the latter should be the adopted name, the former the synonym. The *Kelepinoras* of gardens are referred to *Chamecypris*, but it is pretty certain that they are only forms of *Thuya*. *Davidsonia pruriens* is no mere garden name for an undetermined plant, but one applied by Baron von Mæler to a remarkable and rare name *Saxifragaceae* plant (see *Gardener's Chronicle*, vol. vi., p. 510), introduced by Mr. Bull. *Vetchia japonica* is well known to have been founded on a shoot of a Spruce deformed by an insect in the same way as our common Spruce Fir so often is, and should have been deleted. All that we need say further is to wish that as much care could have been expended on the revision of the body of the work as has been devoted to the supplement.

Cassell's Concise Cyclopedia.

A good cyclopedia is indispensable, and certainly no garden library should be without one. Messrs. Cassell are now bringing out one which has the merit of cheapness. It is too early to pronounce definitely on its merits, but if we are to take the few botanical articles in the part before us as samples we may venture to suggest to the compiler that in a cyclopedia, even a concise one, accuracy and utility are the main things to be aimed at. The article *Aconite* is vague, not technically accurate, contains some things that are nearly useless to the ordinary reader, while matters of much greater importance are omitted. So in the case of *Allspice*; some information is given, but no mention whatever is made of the part of the plant which furnishes the spice. Under *Alge* not a word is said as to their reproductive organs. The article devoted to the Alder is similarly meagre.

—The *Scientific Kall* (Bradbury, Agnew, & Co.).

—The last issued part contains the continuation of the essay on the relation between solar phenomena and climatic cycles, by Prof. Archibald. A very useful index is given with the present part. The importance of systematised notes, with an index like that now given, must render this publication very valuable to busy workers. At present only matters relating to climate are dealt with.

The Kitchen Garden.

ASPARAGUS PLANTING.—Notwithstanding all that has been written for our information by those conversant with the French system of growing Asparagus, the home productions cannot yet be said to have attained the standard of excellence which distinguishes the French "grass." The French growers, as is well known to most of our readers, allow a greater area for the development of the individual plants than has hitherto been given them by English growers; and this may have been an important agent in the production of the splendid examples of Asparagus which are sent to London in the season by the growers from the neighbourhood of Paris. And with this object in view we shall at once proceed with the French *modus operandi* of planting the roots. The ground having been trenched as previously recommended, open trenches 4 feet from centre to centre, 9 inches deep, and 15 inches wide, in the centre of which make little hillocks a couple of inches high and 3 feet apart, on which lay the roots of the plants, spreading them out equally in every direction, and then cover them with a few inches of fine soil, and subsequently with a little well-decomposed manure, which will tend to preserve the roots in an equable condition, and afterwards water through a rose to settle the soil about the roots. For this purpose we prefer one-year-old plants, which we plant as soon as the young shoots appear through the soil in the nursery beds, pressing the soil moderately firm around the roots with the hands at the time of planting. After which a small stick should be put to each plant, to which to tie it for support later on. In addition to the trenches we still plant in beds, but in a modified form, for instead of planting three longitudinal lines in each 4-foot bed we plant two only. The beds, as already stated, are 4 feet wide, with alleys 2 feet wide between them, and are marked out for two rows of plants in each bed at 9 inches on either side the centre; drills are then drawn about 3 inches deep, and in these the roots—taking half of them in one hand and half in the other—are placed, with the crowns in an elevated position 18 inches apart in the row, and the soil pressed about the roots with the hands; the plants are then staked, and the surface mulched, as recommended above. To supply plants for forcing the fourth year after planting we plant in drills, as above recommended, 15 inches asunder, and the same distance from plant to plant in the row, and in such a way that the plants in the second row stand angle-wise to those in the first—this remark also applies to those in beds, these being planted in consecutive drills—and so on with each succeeding row, which gives the individual plants more room to develop themselves than if planted opposite. In the meantime rows of Cauliflower, Cabbage, or Broccoli can be planted between the Asparagus trenches, which are 4 feet asunder, without in any way interfering with the growth of the latter.

PEE-SLEED SOWING, &c.—Sow the main crop of Beet (*Prime-Appl* Short-top, when obtained true to name, is the best variety) in good open soil, in drills 15 inches apart. A sowing of Osborn's Early Forcing and Canadian Wonder French Beans should now be made out-of-doors in a warm border, where provision can be made for protecting them from late frosts when the plants appear through the soil. Slugs and grubs are not unrequently very troublesome and destructive to freshly planted Cauliflower, Cabbage, and Lettuce plants; the latter should therefore be looked over every morning with a view to destroying these depredators, and tilling up the blanks which they may have made, until the plants have established themselves, when they will be better able to resist the attacks of these pests. When the roots and stems of plants have been eaten away by the grub the drooping leaves indicate the fact, and the former, as above stated, should then be hunted for and destroyed before making good the blanks. If young Lettuce plants, together with seedling Turnips, Cabbages, &c., just as they are appearing through the surface of the beds and drills are dusted over when the leaves are damp with a mixture of lime and new dry soil, it will not only effectually check the ravages of slugs, birds, and flies, but—the application being persisted with when necessary—will entirely prevent their being

ALTERNANTHERA PARONYCHOIDES AUREA.—This should be noted as a most desirable carpet-bedding plant for summer work. The leaves take a fine yellow hue, unlike any we have in any other bedding plant. It also appears to colour well when in the sun or in the shade, or whether the weather be dull or gloomy. All the *Alternantheras* do best in an open sunny position, with a free rich soil at their roots and an abundance of water.

interfered with by the latter. Carrots and Turnips will require being thinned out to a couple of inches in the rows, to be finally thinned out a few weeks later, which, in case of mishap to the plants when young, will be the safer mode of procedure. And ply the Dutch hoe freely between the rows, as also between those of Onions, which have with us come up nicely.

GLOBE ARTICHOKE.—Now that the plants have made sufficient growth to admit of offsets being taken off to make good any deaths that may have taken place during the winter, and also for the purpose of making fresh plantations, our plan—and doubtless that of many others—is to destroy a few rows of the oldest plants every year, at the same time saving therefrom enough of young plants wherewith to plant an equal number of rows, which are planted in clumps of three plants set triangularly, in rows 4 feet asunder, and at the same distance from clump to clump, in rich well-prepared ground. When planting the soil should be made firm around each plant with the hands, after which they should be watered, to settle the soil about the roots, and the ground between them should be subsequently mulched with a few inches thick of well-rotted manure. These plants will yield a good supply of Artichokes late in the autumn, and long after those which have been planted a year or two previously have ceased to bear. The manure that was put on as a surface-dressing and protection to the roots of the plants late in the preceding autumn should now be forked in, the blanks, if any, having been previously filled up.

THE HERR BORDER.—If not seen to, as recommended in a previous Calendar, no time should now be lost in doing so, as in many establishments the demands for its produce are large and frequent. Therefore, in order to maintain a young and plentiful supply, it will be necessary to make fresh plantations of the respective kinds, amongst which the following varieties will be most sought after—viz., Tarragon, Mint, common and Lemon Thyme, Sage, &c. These are readily increased by division of the roots and slips, and which should be planted in rows at from 10 to 15 inches asunder. And this, like all other departmental work, should be performed neatly.

FORCING DEPARTMENT.—Seeds of February Tomato which were sown the last week in February for planting out-of-doors in May should now be potted off singly into large 60's, and another pinch of seed sown to raise plants for the main crop. Another batch of French Beans should also be sown in pots, to be transferred to pits later on, and see that those at present in vinerias and Peach-houses are kept free from red-spider by giving them plenty of water at the roots, and syringing the plants a couple of times a-day overhead.

PITS AND FRAMES.—See that Celery plants, together with Brussels Sprouts, Cauliflower, Cabbage, and Lettuce plants, as they increase in growth, have the lights taken off on warm days, and tilted up at night, preparatory to being planted out shortly, and that they have sufficient water at the roots. *H. W. Ward, Longford Castle, Wilt.*

Peaches and Nectarines.

WHERE roots and borders are all right, with plenty of good drainage, Peach trees in early houses will be making rapid growth. The fruit may now be finally thinned, as all that are inclined to drop during stoning will have done so before this. Leave the finest and best placed fruit from 9 to 12 inches apart all over the tree, if possible. Pay close attention to watering at the roots, and to syringing the trees well with tepid water. Succession-houses will require constant attention as regards disbanding and tying down. They also may now have a good mulching of rotten manure, and afterwards a thorough soaking of tepid water.

Late houses will now be in full bloom—at least ours are, and very full indeed they are; but I have had them well thinned, pulling off all the blooms on the underside of shoots, and reducing doublers and trebles down to one, leaving the strongest and best placed bloom, which fertilise according to directions already given, and keep the houses as cool as possible. *J. Wallis, Keele Gardens.*



Plants and their Culture.

STOVE CLIMBERS.—These will now be growing away freely, give them therefore every encouragement, regulate the young growths, and watch closely against the inroads of insects. These kinds of stove plants, especially of the flowering section, are always valuable for cut purposes. A great deterrent to their more extensive cultivation is, no doubt, to be found in the harbour which they afford to insects, thereby causing many a fine plant to become unpopular from unfair causes. Of these plants the Stephanotis is an accepted favourite, plants that were treated (as advised in last season's Calendar) to a good thinning-out of the weaker wood, and securing a good autumnal growth, will now be either in flower or very nearly so, under the ordinary treatment of the stove. For some weeks to come these will prove useful, and be succeeded by Passion-flowers, Clerodendrons, and Dipladenias, &c., during the summer. Climbers will generally succeed best if they can be turned out of pots into a bed of soil; Dipladenias, however, should be kept in pots, and Alamandias also, otherwise the latter will grow too luxuriantly. *Hoya impenalis* is a grand stove climbing plant; it is some years since I saw this in good condition. We intend to place it on the roof here as soon as our plant is large enough. Where room can be afforded the *Aristolochias* will be found interesting as well as curious, but beware of their enemy, the red-spider.

BEGONIAS.—Of these the shrubby and evergreen varieties, generally classed as stove plants, will be found to do better in an intermediate-house. From now onwards for some months *B. nitida* and its white variety, *B. n. odorata*, also *B. aesculens*, will all give a good display. Two other good flowering kinds are *B. metallica* and *incarnata purpurascens*, both of which have also handsome foliage. We grow *B. nitida odorata* somewhat extensively; though of straggling habit it is very useful for grouping in the summer among other plants in the conservatory, lasting a long time in flower under these conditions. The ornamental foliaged kinds will now be pushing up new growth; any that have become overcrowded in the pots they are now occupying should be divided. I find a few pots of these are very handy in the conservatory during September and October. The tuberous rooted kinds will now in most cases show signs of activity; finish potting these if not yet completed. For want of better accommodation we grow ours in a Peach-house. They succeed there very satisfactorily, the liberal ventilation and cool night temperature suits them, neither do they seem to mind the wetting they receive from the trees being syringed, the only drawback being that we cannot keep them so close to the glass as we would like to do. Seedlings of these from seed sown this spring should be pricked off into pans when they are large enough to handle.

GREENHOUSE AND PITS.—Some of the *Acacias* and *Cytisus* will now be in flower, and others fast advancing towards that stage. Keep them well supplied with water; if allowed to suffer long now, they will fade much sooner. These and *Chorozemas* in flower will be prolonged in the flowering stage if a slight shading can be given during very bright sunshine. *Tetrathecas* (*Tremandra*) *cricifolia* and *verticillata*, I think, always look best when the sun is shining upon them, so also do the *Aphelaxis* and *Phenocomas*. Both of these latter class of plants must not on any account be wet overhead when expanding their blossoms, or they will soon turn mouldy. Young stock of *Pteronia elegans* should be kept pinched frequently to get a well-furnished bottom. If any of these are becoming pot-bound a shift would be beneficial, using good fibrous peat and silver-sand; if the peat is not exactly what can be desired, add some small pieces of charcoal, or the same of broken crocks—this will help to keep the soil open. Some cuttings put in now of the *Statice*s will be found to strike freely. *S. profusa* is one of the best, and ought to be grown in quantity. Plants of *Agaves*, *Bonaparticas*, *Dasylirions*, and

Yuccas, that have been kept on the dry side during the winter months, should now have a good soaking of water; after which, any that may require potting should be seen to before the roots become too active. These will all succeed well in a soil consisting of about equal parts of sound turfy loam and fibrous peat with all the finer particles extracted. Add to this a good proportion of silver-sand, and also some charcoal if at hand. Take pains in potting these plants, working the soil firmly around the old ball. *Liliums*, as *auratum*, *longiflorum* (unless wanted for early bloom), and the varieties of *speciosum* will do well in cold pits. Imported bulbs of the first-named are with me just pushing their young growths above the soil. *James Hudson, Gunnersbury House, Acton.*

The Drangery.

If the fruit is well set and swelling, and the trees clean as well as in good condition, the cultural requirements henceforward will be very simple. The night temperature should be about 60° to 65°. If the trees are plunged in pots they will not require nearly so much water as those exposed all round to the atmospheric conditions of the house. If the house is shut up close all night a little air ought to be admitted at the highest part when the trees are syringed in the morning, and as the temperature increases by sun-heat add more air. If the temperature by sun-heat reaches 80° it will be high enough. The water applied either to the roots or leaves of the trees ought to be warmed by standing over the hot-water pipes. It is a good arrangement in moderate-sized houses of any kind that are used for forcing to have a small galvanised iron tank, to hold from 20 to 40 gallons of water, placed over the hot-water pipes; and whenever any water is taken out of it replace it at once, so that there will always be plenty of tepid water when it is needed. Frequent syringing of the trees is conducive to healthy development, and occasional watering with weak liquid manure is desirable when the soil in the pots is exhausted. If there is any black fungus on the leaves it ought to be washed off with a sponge and warm soapy water. Scale must also be removed by hand washings; and if by any chance mealy-bug has got on to the trees this must be removed in the same way. If anything like success has to be attained it can only be by keeping the trees clean. In other respects no fruit is easier grown. *J. Douglas.*

Apiary.

THE WILLOW FOR BEES.—I am not now going to write about the white Willow (*Salix alba*), nor the Bedford Willow (*Salix Russelliana*), nor yet of the crack Willow (*Salix fragilis*), any one of which, planted in a suitable situation in quantity, will purchase a horse, while most other trees will only buy his saddle—nor am I going into a long account of the black, green, and golden Osier, all of which we have woven into useful baskets when the weather rendered outdoor work impracticable; but I write to call attention to the Goat Willow (*Salix caprea*), which was known and planted as early food for bees 2000 years ago. Virgil says—

“The Willow hedge which parts your neighbour's land
To bees of Hybla yields untiring store
Of sweetest nectar, and with constant hum
Invites repose.”

And yet, strange to say, few persons are now aware that the catkin of this Willow is the very first food which our honey-bee gets. Some ten or twelve years ago I had a capital opportunity to plant several hundred yards of this Willow simply as early food for the bees in the garden; the situation was somewhat damp, and they have now grown 15 and 20 feet high. The blossom this fine season has been remarkably marvellous, and all day long and every day during the month of March the trees have been literally swarming with bees, and at the hives as busily carrying in their stores as if it were flowery May or leafy June. There is no need to speak of the value of bees in field and garden, they unquestionably help to fertilise our fruit trees, and indeed I look upon them as part and parcel of the garden. Willows of all kinds are of all things the easiest to grow, and no water-courses, stream, river, or lake is perfect without the Willow being associated with it, and it is this tree which yielded the Palm used by our forefathers at this season of the year. *J. Kest, Zetrig Castle.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	April 3	Sale of Imported Orchids, at Stevens' Rooms. Floral Exhibition, in the Town Hall, Main Chamber.
TUESDAY,	April 4	Sale of Established Orchids, &c., on the Garden Nursery, Newmarket, by J. Horthcote & Morris. Spring Show at Newcastle upon Tyne.
WEDNESDAY,	April 5	Sale of First Portion of the Life Mr. Russell's Orchids, at Stevens' Rooms. Meeting of the Linnean Society, at 8 P.M.
THURSDAY,	April 6	Sale of Imported Orchids, at Stevens' Rooms.

NO stranger who visited the rooms of the ROYAL HORTICULTURAL SOCIETY on Tuesday last could have imagined that the old Society was suffering from the shocks of adverse fate. True, the arcades presented their customary appearance of dust and dilapidation, and were possibly a trifle worse than usual from the well-meant, but, in this case, not successful, attempt of the Smoke Exhibition authorities to cleanse the air of the locality. Whatever may be the ultimate outcome of the efforts of the anti-smoke agitators, it cannot be said that they have improved the arcades, while their experiments in the great conservatory have been such that the anti-vice-insectors, were they not just at present too much pre-occupied with the fate of a mouse or two, might be called on to remonstrate over the injuries and loss inflicted on noble Tree Ferns and secular Cycads. But arcades and conservatory, Cycads and Ferns, we presume, are no longer to be considered as the property either of the Society or the debenture-holders. Money was borrowed to be expended on the buildings, which are handed over, not in part, but wholly, to the landlords, who will, in the face of their recent legal victory, probably laugh at any claim, on the part of their tenants, for unexhausted improvements. Some understanding will, however, it is to be hoped, be made between the two bodies—the Society on the one hand and the Commissioners on the other—as to the future of the Society. Overtures to this effect are we believe being made, and it was announced on Tuesday last that a circular explanatory of the present state of affairs will shortly be sent to every Fellow. We are quite unable to forecast the probable action of the Council, but we may with confidence bespeak on their behalf the earnest support of all who are interested in horticulture. We do this from the knowledge that the Council never contained so large an infusion of *bonâ fide* horticulturists as at present, men devoted to its pursuit and earnest in their endeavours to promote its welfare and that of the Society of which they are the administrators. The way in which Chiswick has been maintained throughout these troublous times, and the manner in which the committees have been kept together are sufficient to show that the Council have done their best under difficult circumstances, and this is further shown by the manner in which month after month throughout all these years the exhibitors have rallied round them. It is difficult to suppose that such continued support would have been given by this class of well-wishers, if there were not a well rooted feeling that the vitality of the sorely tried Society was proof against even greater trials than it has yet passed through, and that, taken for all in all, the Council have done their work untiringly and well. Even the general public, who have often been strangely unappreciative of the excellent exhibitions provided for them, seemed on Tuesday last to have waked up to the fact so well known to horticulturists that the exhibitions are worthy their inspection, for, on the day in question, they mustered in such considerable numbers that circulation in the conservatory was not an easy matter. What with the extensive and attractive display alluded to in another column, and what with the number of persons present, it was, as we have said, difficult to appreciate the fact that the old Society was

passing through perhaps the most intense of its many crises, one feature of which is entirely in its favour—we mean the extinction of the debenture debt.

The Commissioners hold public money in trust for the benefit of the people, especially in matters of education, science, art, and culture. It may well be considered, therefore, part of their duty to encourage horticulture, which does so much to enhance the physical welfare and increase the refinements and enjoyments of life. It is to be hoped that they will see the matter in this light. It may add to their resources to build a new street in their property, but in the public interest it is much more important to keep an open space, not only for health-sake, but for the protection of the Natural History Museum, the Albert Hall, the South Kensington Museum, and their priceless contents. It is clear that the interests of the public are bound up with those of the Royal Horticultural Society, and this fact will, it is to be hoped, be duly weighed by the Commissioners.

— CRAGSIDE.—In our number for September 11, 1880, we gave a description of the finely situate residence of Sir W. ARMSTRONG; that we were not unduly laudatory the illustration (fig. 68) we now give may serve to show. We need not recapitulate what has been already said as to the reclaiming of the moorland, the plantations of Scots Pines, the gardens, the rockeries, the ferneries, the collection of alpine plants and other matters for which Cragside is famous. To some extent and in varying degrees these features may be seen elsewhere, but it is only natural to expect that here mechanical genius shall show itself in such matters as hydraulic rams, and that falling water shall be made the source of light—water at one end brilliant light at the other, in between the two the mechanical force of the descent of the water, a whirling of giant magnets one over the other—a stirring up of force, led by a ductile wire to a series of fairy lamps throughout the house. We should be glad to hear that Sir WILLIAM, who is a lover of his garden, was following the example of Dr. SIEMENS and instituting further experiments on the potency of the electric light in the culture of plants.

— THE SHOW AT THE ROYAL HORTICULTURAL SOCIETY on Tuesday was unusually interesting. The truly wonderful *Coryanthes* shown by Sir TREVOR LAWRENCE, with its large yellow flower-segments, in shape like elephant's ears, and its extraordinary bucket-shaped, purplish lip overhanging by two horns where nectar is distilled into the cavity of the bucket, and the marvellous adaptation of its singular mechanism to the purposes of insect fertilisation is more curious and interesting than the elephantine Jumbo, and should elicit an equal amount of enthusiasm—that is, if enthusiasm meant the something as knowledge and appreciation. Of other Orchids there were some splendid varieties exhibited, but, though rich in colour, not presenting the same interest as the *Coryanthes*. Again there was sent from Kew a leaf and a portion of the inflorescence of the stately *Doryanthes Palmeri* figured in our last number, and a climbing plant from Borneo, sent by Messrs. VEITCH, and fine enough in the bronzy colour of its pinnate foliage and its silver-striped leaflets to be mentioned in the same breath with *Cissus discolor*, to which Lee is allied, but to which, however, it is scarcely equal. Mr. MANGLES' splendid *Rhododendrons* compelled the admiration of all who saw them, while the facts elicited in the course of his descriptive account of them at the Scientific Committee are of great interest to hybridisers and present problems for solution. Why, for instance, is a cross between two species possible when the pollen of one species of *Rhododendron* is dusted on to the stigma of another when the reverse cross between the same two species is impossible? The different appearance of the Malayan and the Himalayan species of *Rhododendron* affords a reason for their mutual sterility—a sterility, however, not due to differences of locality, seeing that the Chinese *R. Fortunei* crosses with the Himalayan Thomson. The Society is doing a more important and valuable duty by eliciting such observations as these, made by a careful and reliable experimenter, especially when backed up by the exhibition of such noble results, than by awarding First-class Certificates to plants of minor interest, which are the fashion of the hour—here to day and

superseded to-morrow, because they have nothing but superficial prettiness to recommend them.

— LINNEAN SOCIETY.—The President of the Society, Sir JOHN LUBBOCK, Bart., M.P., held a reception on Thursday evening last in the rooms of the Society at Burlington House. This is the first occasion in which a similar gathering has been got together since the Society entered upon its new quarters some years ago. The success of the *soirée* will, we hope, prove satisfactory to the President and Council, as indicative of the goodwill of the Fellows and their appreciation of the opportunity of paying respect to the President and of meeting together in familiar intercourse. The *soirée* was largely attended, and the contributions from the Royal Gardens, Kew, Messrs. VEITCH and WILLIAMS and others, attracted much attention. The cut *Rhododendrons* shown by Mr. MANGLES and the Hon. and Rev. J. T. BOSCAWEN also elicited much approbation. Mr. CHARLES WHITE's extensive series of pencil drawings of pollen grains were much appreciated, the prominent defect being that there was apparently no definite scale of comparison as to relative size.

— RHODODENDRON GLAUCUM HYBRIDUM.—Mr. BURKHIDE sends a very pretty variety under this name, sent out by Messrs. METHVEN & SONS, of Edinburgh. It is a dwarf variety with small oblong lanceolate leaves, thinly sprinkled on the under-surface with flat brown scales intermingled with yellow glands, which emit an aromatic fragrance. The flowers are borne in terminal trusses, each borne on a slender rather long stalk and with a short calyx with fine roundish blue leaves, and funnel-shaped corolla of a rosy-lilac hue with a five-lobed spreading unspotted limb, about 1½ inch in diameter. It is a charming variety for the rockery.

— LINNEAN SOCIETY.—The papers to be read on Thursday, April 6, at 8 P.M., are:—1. "On the Connection between Geotropism and Growth;" by FRANCIS DARWIN. 2. "Birds of New Guinea;" by R. BOWLER SHARPE. 3. "Note on a Negative Heliotropism;" by B. DAYDON JACKSON. 4. "Mollusca of the *Challenger Expedition*;" by the Rev. R. BOGGS WATSON.

— MR. J. FORSYTH JOHNSON requests us to state that he has opened a new office at 90, New Bond Street, W., to which place all communications respecting his business as a Landscape Gardener, should now be addressed.

— MAGNOLIA CONSPICUA.—The first specimen of the Chinese white *Magnolia* growing in the grounds of Gunnersbury House, Acton, has this season bloomed with more than its wonted freedom. The whole surface of the branches is literally covered with large pure white fragrant flowers that were unshapely much disfigured by the snow, frost, and cutting winds of the 21st and 22d ult. Notwithstanding that the tree is sheltered somewhat by the dwelling-house, it yet suffered, as might be expected. But it is a beautiful object just now, and, occupying the highest ground, the tree in the dim twilight stands out against the budding yet nude branches of Elm and Chestnut like a huge arboreal ghost. It is a rare characteristic in the tree that it flowers so early; but, alas! this early blooming is often the cause of great disfigurement of beauty.

— THE PARCELS POST.—The announcement made in the House of Commons on Monday evening last, of the intention of the Post Office authorities to establish a parcels post as soon as the co-operation of the railway companies is assured, will be received with satisfaction by the horticultural trade and by amateurs. Judging by what has already been done by both florists and seedsmen in the use of the post-office as a distributor of plants, cuttings, and seeds, we might indeed suppose that a parcels post would come to them as a great boon, for 12 oz. parcels have proved so small as to limit trade largely, whilst the expansion up to 7 lb. means not only seeds enough for a fair-sized garden, but plants of fair size by the dozen. Hitherto plants sent per post have not been quite as good as the purchasers might desire, or perhaps expect. The postal limits were too restricted to permit of good well-rooted stuff being sent; and thus where the recipient was without glass, and specially a little artificial heat, weary indeed was the time that had to elapse before the potted plants were established and presentable. With seeds also the limitation has told

injuriously. Quantities have been too small and kinds limited. Presently larger seeds of various kinds may be included, much to the benefit of both seedman and purchaser. The only serious argument put forth against a parcels post is the one that small shopkeepers in rural districts will suffer because their whilom customers will be able to get better commodities from large towns. That may or may not result, but if the public benefit, and trade generally

Go where one will, it is alike at home. Its bright yellow blossoms are probably not exceeded in brilliancy by any other shrub flowering at the same time of year, unless by *F. suspensa*. The plant which has suggested these observations is growing luxuriantly in an exposed situation in Gloucestershire, having upon one side a good plant, also in flower, of *Berberis Darwinii*, and upon the other a nice specimen of *Ribes sanguinea*. But the *Forsythia* is by far the most striking object in the

a spike, and is a remarkable specimen to be grown in a 9-inch pot. The flowers are creamy white, beautifully scented, and are nearly as large as those of *Magnolia conspicua*. Restriction at the root is the secret of its profuse flowering condition. The plant has been potted once in thirteen years!

— CHARCOAL IN POTTING SOILS.—The value of this article as an agent in keeping potting soils open

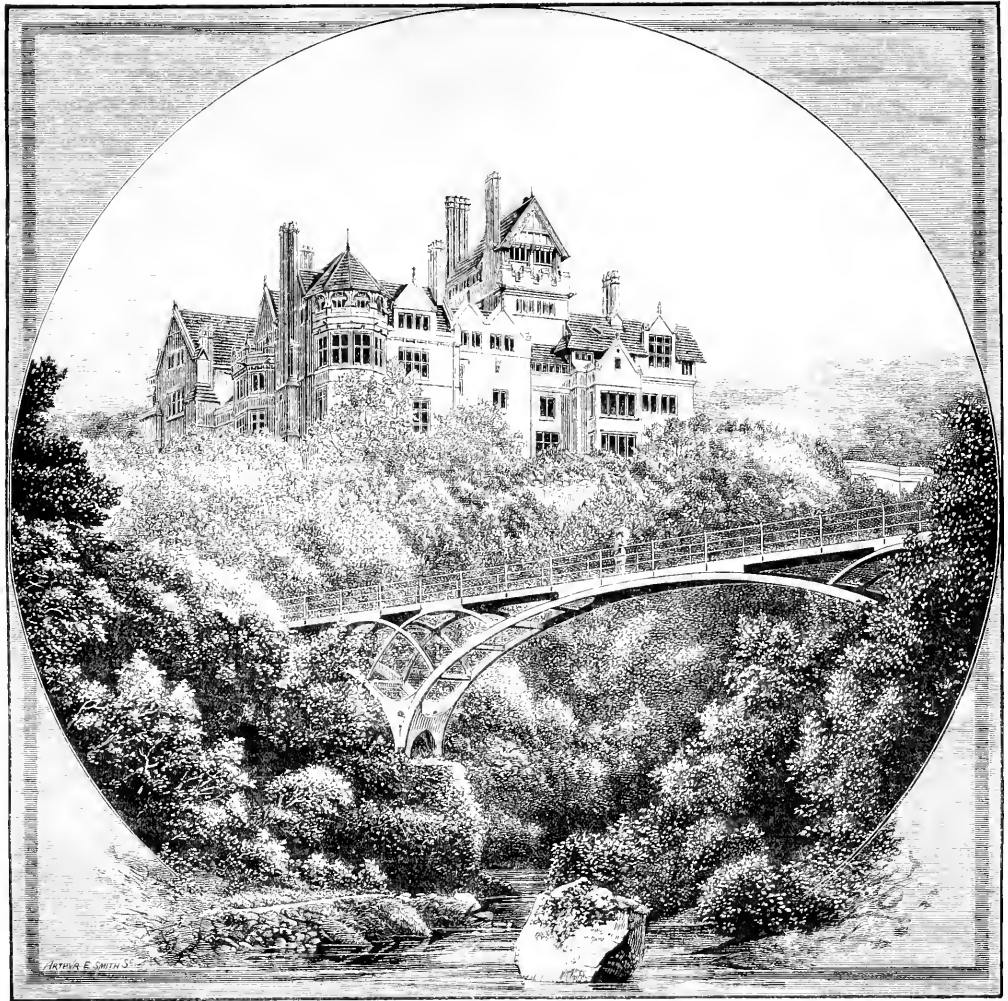


FIG. 68.—CRAGSIDE, NORTHUMBERLAND, THE RESIDENCE OF SIR WM. ARMSTRONG. (SEE P. 436.)

is increased, individuals must be content to suffer. What is much more likely to result, however, is that a new impetus will be given to trade in certain articles, of which plants and seeds may not be the least important. New vehicles for carriage means new wants supplied, new demands created and met. Those tradesmen will be the wisest who specially prepare for the newer forms of transit.

— FORSYTHIA VIRIDISSIMA.—Wherever planting is done with a view of having early spring effects, this elegant deciduous shrub should not be omitted.

distance, especially when a sudden flash of sunlight momentarily plays among its golden blossoms, which renders them still more beautiful. The plant in question has grown more freely than usual, and is by no means a formal shaped shrub, which adds still further to its charms as a shrubbery border plant.

— RHODODENDRON NUTALLI.—A very fine example of this variety is now in flower at Cote Hoase, Bristol, the seat of H. ST. VINCENT AMES, Esq. (Mr. BANNISTER, gardener). The plant has eleven flower-spikes with from three to five flowers to

and porous can hardly be too highly estimated; such prime Auricula growers as the Rev. F. D. HORNER, Mr. E. SIMONITE, Mr. S. BARLOW, and others use it largely in their composts, and with the best effects. It is not a mere mechanical agent like sand, but an active principle, having, as LIEBIG remarks, "a physical as well as a chemical effect on soils decidedly useful. It renders them, as far as it is present, light and friable, and gives additional warmth to them by its colour, which absorbs and retains readily the rays of the sun during the day; wherever charcoal has been applied rust never affects the growth of Wheat."

Those who use charcoal in Auricula soils find less losses among their plants than when sand is employed to give it a porous character, and the roots ramify more freely in it. The cost of charcoal as compared with sand is much heavier, but its operation is so beneficial as to compensate in a great degree for its extra cost. Then there is the labour of breaking it up small enough for potting purposes; if it could be hought reduced to finer particles it would be decidedly advantageous, and perhaps this boon will be allowed should the demand for it materially increase.

— MUSAS AS FLOWERING PLANTS.—A variety (unknown) imported from Madeira is now in flower at Cote House, Bristol, under the care of Mr. HANNISTER, who grows it at the cool end of the plant stove. The plant is furnished with long, rather narrow, drooping leaves, and produces a cone-like flower-spike of considerable length, consisting of a series of scarlet bracts tipped with orange, which gives the plant a striking appearance. It will be found a most valuable addition to our stock of furnishing plants.

— WILD FLOWERS.—A writer has been somewhat loudly lamenting in a daily paper the gradual demolition that is going on of wild flowers in their rural haunts, especially through the instrumentality of plant hawkers. That this is too true is painfully evident from the fact that only in the most secluded rural districts can Primroses now be seen growing on the roadside, and only in carefully preserved enclosures can these most charming of our indigenous spring flowers be found at all. The town dweller will buy anything presented in the shape of a flower, but especially delights in those which come fresh from the woodlands and pure country air. Thus Primroses, if they can be found by the industrious depredators, are when in bloom always profitable, and large breadths are cleared with surprising rapidity. The country is in fact becoming denuded of myriads of plants that are its most lovely of floral gems, not to satisfy some real want, but almost exclusively to gratify a natural but none the less an unreasonable sentiment, for these plants do but go by myriads to their death. What is true of Primroses is not less true of many other kinds, and specially of hardy Ferns, upon which the plant collector preys with marked avidity. If the Primrose trade is such a profitable one, it seems strange that growers do not save seed and raise them in vast quantities. Perhaps in a cultivated state and removed from the welcome shelter of trees and hedges, they will not seed freely, and thus their garden cultivation becomes difficult. Perhaps they can yet be obtained too cheaply from native habitats to make garden cultivation of them remunerative, but some day the Legislature, awakening to the fact that our hardy plants are disappearing from the face of the earth, may place them under the protection of the law, as it has done the wild birds, and render their destruction penal. Wild flowers add charms to rural life much as the stars add interest and beauty to the sky. Rural life without flowers in field and wayside would be as unendurable as the entire extinction of the feathered songsters would make it. We want the wild flowers preserved to us and to our posterity. To gather a handful of their pretty forms as the country rambler is taken is indeed a delight, but the wilful destruction of myriads, whether as roots to gratify the sentiment of the town dweller, or as flowers to secure prizes at flower shows, is objectionable and should be repressed.

— CAMELLIA LA CAMPACE.—In the Camellia-house of FRANCIS W. SAVAGE, Esq., Springfield, near Bristol, a well grown plant of the above named, a seedling from Florence, is now producing a fine display of flowers. The plant is in rude health, and as a consequence the leaves are of an oily green and the flowers well developed and of much substance. The flowers present a greater variety of colour than any other known kind; they are carnation-lake on a pale ground veined with bright carmine. The flowers have a distant resemblance to the well known kind, Jubilee, but of greater variety of colour.

— THE QUEEN AT MENTONE.—On Saturday last, March 25, the garden of Mr. THOMAS HANBURY, Islazzo Orengo, La Mortola, Mentone, was honoured by the visit of Queen VICTORIA and the Princess BEATRICE, accompanied by Lady CHURCHILL and the Hon. Miss BAILLIE. The Royal party remained about two hours, and expressed

great admiration of the varied views, HER MAJESTY sketching one of the most striking from Mr. HANBURY'S drawing-room window. The plants in flower more particularly admired were *Pteronia incana*, from Natal, with its delicious scent, like a ripe Peach; *Cantua dependens*, with its splendid clusters of drooping red flowers; the great *Echium*, from Mexico, *E. candicans* having a spike of white flowers over a yard in length; *Banksia marcescens*, with its huge bottle-brush heads; the delicate-tinted *Dryandra floribunda*, from Australia; *Altonia exensis*, with its elegant pink seed-pods; *Aloe Hanburyana*, with its splendid head of coral-like flowers; *Graya Sutherlandii* and *Bignonia venusta*, both flowering here for the first time; *B. caprolata*, *Akebia quinata* and *Stauntonia latifolia*, both from China, and having very sweet-scented flowers; *Bougainvillea Warszewiczii*, with its magenta bracts, now becoming common in gardens along the coast. Some of these flowers, presented by Mr. HANBURY'S children, were graciously accepted by HER MAJESTY. Curiously enough, Mr. HANBURY had just received from his friend Mr. FORREST, H.M. Consul at Amoy, in China, fine specimens of *Cycas revoluta*, which had been seen and admired there by the Royal Princes before being shipped off. The extreme mildness of the season also enabled Mr. HANBURY to present to HER MAJESTY a dish of the ripe fruit of the Loquat, *Eriobotrya japonica*.

— AUBRIETIA PURPUREA AND ARAIS ALBIDA.—These two spring flowering border plants, which are familiar almost to every one, are usually effective, and this season they are especially so. The object of these remarks is, however, to point out the cheerful effect which may be created by planting patches of both plants alternately. It is not necessary, nor even desirable, to plant the patches in mathematical order, as long as the two colours are approximating to each other, to produce the desired effect. The idea is practicable alike in the rocky as in the herbaceous border, and of the two situations perhaps the former would give the most pleasing effect.

— DOWNWARD GROWTH OF STEM.—Mr. JENNINGS sends us a bulb of a Hyacinth which has produced one flower-spike in the usual manner, and a second downward into the water of the glass in which it was growing. It would seem that the obstruction offered by the neck of the glass to upward growth of the bud in question made it reverse its usual direction.

— SEMPERVIVUM ARBOREUM VARIEGATUM.—Since carpet bedding has been so extensively carried out in the public parks and many private gardens, the different varieties of *Sempervivum* have taken a prominent place as decorative subjects for particular styles of flower gardening. Heretofore the stock of bedding *Sempervivums*, although beautiful in form and chaste in appearance, lack that attraction which is always centred in a variegated plant over one that is entirely green, however chaste the latter may be in habit or distinct in shape. In the above variety will be found a real gem for bedding out, a plant that will make a charming association with *Alternanthera* and other dwarf foliage plants.

— THE SEASON IN SCOTLAND.—A Midlothian correspondent writes:—"So far we have had an extraordinarily mild winter and spring, and vegetation is far advanced for the season. Appricots are set well, and are now the size of large Peas. Peaches are nearly as forward, and Plums are in full flower. Most sorts of Pears and Cherries will be in full flower in the course of a few days, and Apples are fast following. The earliest Gooseberries are about fit for tart, and even Strawberries are showing their flowers quite prominently. With the exception of Pears on walls, which are very thin of flowers, all kinds of fruits look most promising for a good crop, but it is rather too soon to speak with safety, as a frosty night may yet sweep all away. After such a season as 1881 was in this district we did not expect a crop of fruit this year, because, generally speaking, the wood and buds were not so well ripened as to lead us to expect the flowers to "set" in any numbers, but the fine weather since October has probably helped them, and the fruit is "set" as thick as we can wish it so far. Last week was rather cold, but we had no frost to hurt anything.

— STACHYRUS FRACOX.—Travellers who have seen this plant in its native haunts on the

Japanese hills, or cultivated in Japanese gardens, state that when fully in flower in March it presents a splendid effect, owing to the great abundance with which its racemes of blooms are produced. In colour these are greenish when young, changing to white as they grow older. There is, however, one drawback connected with them, and that is a somewhat disagreeable odour. In the winter garden at Kew there is a plant now in bloom. The species has been successfully grown in the open both at Paris and Angers, so under favourable conditions it would probably do well in many places in this country. The winters of 1870-50 and 1880-81 proved too much for the individuals tried outside at Kew.

— VINES FROM COCHIN CHINA.—It is only the other day that we had occasion to comment on some of the succulent-stemmed Vines of Soudan, recently introduced into France with expectations—doomed, we fear, not to be realised—that they would succeed in that country, and furnish a substitute for the ordinary Vines destroyed by the Phylloxera. Another candidate for trial is now announced from Cochin China. M. Martin, the Director of the Government Garden at Saigon, has sent seeds of a Vine growing in Cochin China to Messrs. Vilmorin, together with a descriptive letter detailing the experiments made in the production of wine. This species, it appears, has tuberous roots, by means of which, as also by seeds, the plant can be propagated. The plant dies down annually, and is easily cultivated on poles or trellises, like Hops. The plant is described as attaining a height of 50 metres and upwards, and to be covered with very large bunches of fruit. The wine is of a green colour, very poor in alcohol—a recommendation to teetotalers—and not very commendable as to flavour. This applies to the wild fruit. There are grounds, it appears, for hoping that under cultivation the quality will be improved. It is, says M. Martin, very accommodating as to the nature of the soil in which it grows, and Messrs. Vilmorin, without, of course, committing themselves to any opinion on the value of the plant or its chances of successful culture, recommend its trial in Southern Europe, Algeria, and some of the French colonies. We hope M. Martin will speedily furnish the means of determining the plant scientifically, and be the means of introducing it into some of our own colonies. The climatic difficulties in the way of its cultivation would seem to be less than in the case of the Soudan Vines, which latter we venture to think, will prove valueless in Europe.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending March 27, issued by the Meteorological Office, London:—"The weather has been much less settled than late; rain, hail, or snow, has fallen in all places, and a thunderstorm was experienced in the south-east during the evening of the 26th. The temperature has fallen decidedly, and has been lower than for some considerable time. It was, however, still equal to, or slightly above, the mean. The maxima, which occurred at most stations on the 24th or 25th, varied from 53° in "England, N.W.," to 58° in "England, E.," and "Ireland, S." The thermometer was lowest during the first three days of the period, when the minima ranged from 26° in "England, S.," and 27° in the "Midland Counties," to 32° in "Ireland, S." The rainfall has been more than the mean in all districts except "Scotland, E.," the excess in the north-west and east of England being rather large. Bright sunshine, though it was still very general on some days, shows a decided decrease as compared with last week's amounts; the percentages varied from 53 in "Scotland, E.," to 20 in the "Midland Counties." Depressions observed:—"Pressure has been higher over the south-west parts of our area, while several depressions, some of which were deep, have travelled in an easterly direction across our islands. The wind has consequently been westerly to north-north-westerly, and, though moderate on most days, increased at times to a fresh or strong gale. The gale experienced on the 26th (Sunday) was very general, and in some places exceptionally severe.

— GARDENING APPOINTMENTS.—ALEXANDER McLEAN, from Messrs. DOWNIE & LAIRD'S Pinkhill Nursery, Edinburgh, has been appointed Head Gardener to SCISHAMMO, C. DE TRAFALD, Esq., Croston Hall, Lancashire.—MR. ROBERT DAVIDSON, from Dalkeith, has succeeded Mr. HALL (who has gone into business for himself) as Gardener to C. N. McDOYNE, Esq., at Wells, Gorey, Co. Wexford.—MR. W. EARP, lately Gardener at Popley Hall, Market Drayton, has succeeded Mr. WILMET as Gardener to C. S. ROUNDLELL, Esq., M.P., Osborne, Haslemere.



HOME CORRESPONDENCE.

Trickery in Plants.—Probably the same man mentioned by your Maidstone correspondent has lately been in the neighbourhood of Leytonstone, painting off his scented plants as genuine novelties. Some weeks ago he called at my house during my absence, and succeeded in selling his remaining stock of three plants, a trifling sum being given him in payment. These were potted and placed in a greenhouse, but, alas! soon became scentless, but continued growing for some time, until a fungoid growth happened to break out upon two of them, to the influence of which they eventually succumbed. As I had grave doubts as to the alleged value of the plants I was not greatly grieved at this result, more especially as I secured a quantity of the fungoid growth, which I found on examination to be a beautiful *Ecidium*, apparently *E. urticae*, a lovely object under the microscope; but as this good fortune may not fall to the lot of all purchasers it would hardly be worth while to invest in them on the mere chance of the fungus appearing. The third plant is still growing healthy, and will be retained until its identity is discovered. There is but little doubt, however, it is the same thing referred to in the paragraph in last week's *Gardener's Chronicle*—a dead Nettle. I may remark, *en passant*, that I read with very great interest the remarks upon Caladiums by Mr. Hart, as his evidence entirely corroborates my views, expressed in your pages some time ago. *G. F. Cox, Leytonstone.*

Roses Out-of-Doors.—It may interest your readers to know that we have here (South Ham) a couple of fully expanded and perfectly formed Roses, with numerous buds ready to open. The Rose is *Gloire de Dijon*, and occupies a sheltered position on the house. Has any other reader to record Roses flowering thus early (March 22)? *G. F. S.*

Tuberose.—These rank, as they justly deserve to do, among the choicest and most useful flowering plants which embellish our conservatories, drawing-rooms, and boudoirs during the summer, autumn, and early winter months, and to say that the individual blooms of the Tuberose—of which, roughly speaking, a spike contains two or three dozen—are almost equal to Gardenias, which flowers they slightly resemble, would be no exaggeration of their value, and the esteem in which they are held among those who have to do with the making and wearing of bouquets; and this is not to be wondered at, seeing that they possess qualities absolutely necessary in the composition of such floral ornaments—those of pearly whiteness and delicious fragrance, features which, in a general way, never fail to excite admiration. As a decorative plant the Tuberose, when associated with Ferns and other suitable plants, is very effective, but it is for the making of bouquets and buttonholes that its flowers are especially valuable and adapted, and for this purpose, owing to the order in which the individual flowers expand, are very accommodating in their habit, inasmuch as they only expand a few flowers at intervals of a few days at the bottom of the panicle, and so on, until the topmost flower is developed, and on this account a dozen plants in this stage of floral development would, for the purpose above indicated, yield a moderately good supply of flowers for four or five weeks at a stretch, even one of which, as they wear well, may be turned to account. And by potting a dozen tubers more or less, according to circumstances, at intervals of a fortnight or three weeks from the beginning or middle of March to the end of June, the supply of these chaste flowers may be extended from June to Christmas. The Pearl, a dwarf American variety, from 2 to 3 feet high, is the best to grow, and should be potted in 3-inch pots, burying three parts of the tuber in the soil, which should be a sandy loam with a little leaf-mould added, and previous to being potted the tubers should have the old fibrous roots cut away, and all the little bulblets or offsets rubbed off, and subsequently any suckers which may appear should be removed forthwith, otherwise failure to flower in all probability will be the result. The soil must be kept on the dry side until the flower-stem appears, and when the latter is about 6 inches high the plants, being sufficiently moist at the roots, should be shifted into 6-inch pots—their flowering pots—and water withheld from the roots for a few days until the latter have taken hold of the new soil; and as the pots become filled with roots, liquid manure in a weak state should be given them; this will tend to the production and development of finer flowers. In conclusion, I would remark that as soon as the tubers are potted the pots should be plunged to the rim in a Melon or Cucumber frame

to start them into growth, and subsequently the plants should be grown on near the glass to insure a sturdy habit. *H. W. W.*

Cantua dependens.—This is seldom met with, but as a choice climber for a cool house it deserves more attention. Trained up one of the pillars in the conservatory at Belton House, near Grantham, it shows its bright crimson flowers off to perfection, and at once strikes the eye of the spectator as something out of the ordinary way and deserving of more general cultivation. *W. H. Divers, Burghley.*

A Reflex Garden Seat and Table.—Messrs. J. J. Thomas & Co., 87, Queen Victoria Street, E.C., are about to introduce to public notice a new



FIG. 68.—GARDEN SEAT.

patent garden seat and table, brought out by Mr. Samuel Mead, which, unlike many other combinations which are more ingenious than useful, has the merit of being a really useful contrivance. It is a



FIG. 70.—GARDEN SEAT AND TABLE.

most comfortable seat, with arms and sloping back, which by a movement of the simplest character can be converted into a seat with a steady and substantial table in front of it. Under the seat there is a com-



FIG. 71.—SEAT WITH AWNING.

modious locker for holding croquet or lawn tennis balls, garden tools, &c. The mechanical details are exceedingly simple, the movable parts securing themselves automatically by their own weight.

Proliferous Pine.—The illustration of a prolific Pine-apple, in your last week's issue, reminds me of a similar one I fruited when at the Crystal Palace in 1857. It may be remembered that the Crystal Palace Company purchased the whole of the Messrs. Ludlows' collection of plants at the Hackney Nursery, and this plant formed one of the collection. It was then but a small sucker, and was in our possession about three years, when it produced its extraordinary conglomeration of fruits. I find, on referring to my diary, that I took it up to 21, Regent Street, on February 19, and showed it to the late Dr. Lindley, who was much pleased with it. He also examined several drawings of Penang Pine-apples in his possession, but they all differed considerably from the one I took him. Dr. Lindley wrote an

article on this curious fruit in the *Gardener's Chronicle*, where it may be found in the number for February 28, 1857, p. 132. *Geo. Eyles.* [It should have been stated that we were indebted to Messrs. Low, of Clapton, for the photograph whence our illustration was taken. Ed.]

The Araucaria in the Island of Mull.—I noticed in the *Portsmouth Constitutional* lately a memorandum of the dimensions of the Araucaria at Keir, which is represented to be "the finest specimen of its kind in Scotland." I think, however, we have one at Duart, in the Island of Mull, which, so far as girth is concerned, is better than that at Keir. Here are the dimensions:—

	Keir.	Duart.
Height	44 ft. 3 in.	39 ft. 0 in.
Girth 1 foot from ground	5 4 1/2	6 0
Girth 3 feet from ground	4 8 1/2	5 10
Girth 6 feet from ground	4 4	5 6

The Duart specimen is a female, and about ten years ago the leader became sluggish, and seemed to make no progress for five or six years, but within the last five or six years it has begun to shoot upwards again. Is there a finer Araucaria in Scotland than this specimen at Duart? *Fraser Sim, Oban.*

The Flowering of Peaches and Nectarines.—Most of these, as is well known, are naturally very early in flowering and it would, I think, be a great gain, when they are grown outdoors, if we could have sorts that open their blossoms later, as a few days or a week often makes a vast difference in their setting, and those sorts that keep their tender organs covered the longest invariably stand the best chance. All our trees being on the same wall facing east-south-east, we have a good opportunity of testing and noting the difference in the forwardness or otherwise of the several varieties; and taking advantage of this, I went carefully over them on the 14th of March to see which were the most advanced, and found them as follows:—Bellegarde Peaches had, as nearly as could possibly be estimated, about one-third of their blossoms open, Noblesse fully a half, Goshawk ditto, Dr. Hogg a fourth, Poupree Hative 5 per cent., Stirling Castle two-thirds, Late Admirable none, Grosse Mignonne half, Early Rivers 4 per cent., Warburton Admirable 5 per cent., Early Allent a quarter, Malva a half, Leve Palmerston one-third, Barmington about 2 per cent., Eagle Nectarine one or two flowers only fully open, Fine-apple 3 per cent., Humboldt ditto, Lord Napier none, Imperatrice none, Pitmaston Orange one-fourth. It is rather remarkable that the earliest and best Nectarine, which Lord Napier is, should lag behind, and this is another important point in its favour. Since taking my notes they have come on with a rush, the weather having been all that could be desired, except that we have had some rather sharp frosts by night, but the land and everything being so dry and the atmosphere so still they have not met the least harm, and I look forward to having one of the best fruit seasons we have had for years past as regards Peaches, Nectarines, and Apricots, as the flowers are remarkably strong and bold, and the aubers full of ripe pollen. With the sun warming up the walls and the dry buoyant air this cannot fail to disperse and perform its allotted part, as indeed it has done in a great measure already, for on the most forward trees petals are falling, thus showing that fructification has taken place, and that the most critical period is over. Apricots have been a sight, and if to per cent. of the blossoms set and the fruit swells we shall have to thin, so full and gay were the trees a short time ago. Weather prophets have been predicting all sorts of evil things about what is to come, and that we are yet to suffer for the mildness of the winter, but we can only hope that their predictions may, as usual, be falsified, and that the seasons have changed in our favour. *J. Sheppard.*

Fruit Prospects.—People are now asking what kind of fruit crops there will be this coming season. This is a question that cannot be answered at present, so much depending on the weather we may have during the next two months. After a most remarkably mild winter, the spring has set in with very boisterous cold weather. On Tuesday, March 21, we had showers of hail, rain, and snow, at short intervals the whole of the day, accompanied with cutting winds, and at night quite a sharp frost. On Wednesday the wind got round more to the north, and was very cold and piercing the whole day. Apricots and Peaches are in full flower; the former are not setting very well, much of the blossom is falling off, so that the crop will not be abundant here. Some trees promise better than others, the maturation of the wood last autumn having much to do with it. Peaches are promising well, the blossoms being abundant and appear to be setting. Pears and Apples do not promise an abundant bloom. Pears here are best on

standards. Some of the pyramids have a nice show of buds, but many of the trees have very little. Fears on the walls promise only moderately. Some Apple trees promise an abundant bloom, but trees in general do not. Plums will have an abundant bloom, and will be a heavy crop if trees are not injured by the frost. Cherries also promise to be abundant. Gooseberries are fast coming into bloom, but if the severe weather we are experiencing at present continues, I fear the crop will suffer. Currants are not very far forward considering the mild open weather we have had, so that there is a prospect of a good crop. Strawberries look well and promise an abundant crop. Up to the 21st March, everything was promising very fairly on the whole, but the sudden change to the severe weather of the past few days has changed for the worse the aspect of affairs. The outlook, at present, is not very cheering, for should we have more or less of this cold weather for the next two months, it is certain to do much injury. *M. Saul, The Gardens, Stourton Castle, Yorkshire.*

Nicotiana affinis.—The following experiments were lately made with this plant, with a view of ascertaining the best time for its flowers to be influenced by light under natural conditions they close about 8 P.M., and open again about 6 P.M. On March 18, plant No. 1 was brought into artificial light at 10 P.M., when it was fully expanded; it remained so till 11 P.M., when the light was put out; it was wide open at 6 next morning, but closed about the usual time; it was then put into a dark room, but failed to open its flowers; at 9 P.M. it was placed in artificial light until 10.30 P.M., but did not open; it was then placed with the other plants, and at 6 next morning was in the same condition as they were, but remained partly expanded all day, whilst the others closed as usual. Plant No. 2 was taken on March 20 at 6 A.M., when all were expanded, and placed in a dark room, but closed up at the usual time; it remained closed all day, but at 10 P.M. was partly open, and at 6 next morning was fully expanded, and remained so three days and two nights; on the third day, at 7.30 P.M., it was placed in artificial light until 11 P.M., during which time it remained closed, but opened, owing to the influence of the light slightly; the light was put out at 11 P.M., and at 6 next morning it was still open; it was then placed in full daylight with the others, which closed about 8 A.M., as usual, but this one remained open still; at 10 A.M. it was only very slightly closed, and the same at 12 A.M.; at 10 P.M. all were again alike, but since then this one and Nos. 1 and 3 have remained expanded two hours longer than the others, and opened again about two hours sooner, and have not closed up so much as the others which were not experimented on. No. 3 was taken from the others on March 20, at 2 P.M., when its flowers were closed, and placed with No. 2 in a dark room; it remained closed, and opened at 6 P.M., the same as those under natural conditions. It was open at 10 P.M., and 6 next morning, but closed same time as those in the daylight, though not shutting up quite so close. At 11 P.M. it was still in the same condition. At 6 next morning it was open, and remained so two days and one night; it was then taken into artificial light along with No. 2, and has behaved exactly the same as that one since. The scent is very powerful, and approaches that of the Honeysuckle, but is nearly absent during the daytime, even from those that are fully expanded. All three of the plants that were experimented upon show a tendency now (March 28) to remain open through the day, and continue to close two hours later in the evening, and to open two hours sooner in the afternoon. *W. H. Divers, Burgessley.*

Bees in Peach-houses.—It would be very interesting to many, like myself, who value their bees, to know how those employed by Mr. Muir in his Peach-house (see p. 408) will do this summer. My own experience of the system, after several seasons' trial, leads me to prefer, as more economical, hand-fertilising with a brush, or what is perhaps better, a small bunch of soft downy feathers tied to a rod, with which one can go over a large tree in a very short time. Bees are often so much weakened by being used in Peach-houses that they become useless for that season or die outright. I have always found when bees are taken under glass that a great number of them die through exhaustion consequent on their struggling against the glass roof endeavouring to fly upwards—a well-known instinct in bees, as they always, on finding themselves in new quarters, soar upwards in a spiral manner to take the bearings before flying away. The loss of honey and pollen, and loss of bees at this season is more damaging to a hive than probably at any other, as their activity on finding themselves in warmer quarters induces the queen to lay eggs freely, and there being no young bees as yet to hatch and feed the brood this duty falls on the old, besides having to provide honey as well as pollen and water for the young. This, to my mind, as well as the check they receive on being turned out-of-doors, account

for my want of success, and I have known other gardeners who had the same experience, so that to those who love their bees hand-fertilising would be quite as economical. *H. Henslow, Hull Place, Crawley.*

Civic Science.—The City of London has an excellent library, and a learned and most courteous librarian, at the Guildhall. The City also has a small semi-subterranean museum in or under the same building; some of the museum objects are visible; a considerable number no one can possibly see; some objects are antiquarian, others are truly civic. In a small room just upstairs to the left from the museum civic science has a choice niche. Modestly placed with its back to the window (the light is never overpowering at the best of times) is a tall and handsome glass case. The case contains, at the bottom, a lump of sponge, and springing through the sponge is a Horny Coralline, *Hydroid*, or *Aleyonarian scopophyte*—quite an everyday and commonplace affair. This case bears a remarkable inscription, painted on a tablet of deal (neatly grained to imitate Oak)—the legend says in capitals "This sponge was dredged in the Bahamas." Then in small Roman letters young citizens are instructed in the following terms:—"It shows the indissoluble union of an Animal (the Sponge) and a Vegetable (the Marine Plant). The sponge has affixed itself to the root of the plant, and both have grown together, the branches of the plant transfusing the sponge." On the left of the case is a coloured view of the City of London Fish Market, and on the right the Meat and Poultry Market, and, eke, the Provision Market, or animal and vegetable and science and art all combined. On Tuesday I asked the beadle if he had not got a model of the Temple Bar Memorial: he said it was in the Great Hall. I went to the Great Hall, and there asked another beadle. "Sir," replied this functionary, "yes, we have got a model of the Temple Bar Memorial, but it is not visible to the public." *W. G. S., April 1.*

Reports of Societies.

Royal Horticultural. *March 28.*—Colonel Trevelyan sat in the chair. The Rev. G. Henslow commenced his lecture by calling attention to the differences between the two families Liliaceæ and Amaryllidaceæ—the magnificent series of Hyacinths and Tulips, Squills, &c., illustrating the former, while Messrs. Barr & Sugden's series of Narcissi, Amaryllides of Messrs. Veitch, &c., as well as the specimen of *Doranthus* from Kew, illustrated the latter—easily recognised by the ovary of the flower being below it in Amaryllids, but free and within the tube in Lilies and their allies. *Dicentra spectabilis*, through misapprehension of the name of this plant, has been changed to *Diclytra* and *Diclytra*, but *Dicentra*, which means "two spurs," is correct. Mr. Henslow explained how it is fertilised by bees, which remove the little clapper-like petals and so expose the stamens and pistil on searching the flower for honey. The most remarkable instance of insect fertilisation, however, was furnished by the curious *Orchid* exhibited by Sir T. Lawrence, called *Coryanthes macrantha*, from the West Indies. In this the labellum is shaped like a boat or tub, but attached at the lower end by a stout and bent support, thus forming a powerful spring. The column, which bears the stigma and anthers, projects over the boat, the two having their ends in contact. Two hornlike processes projecting from the column continually secrete water, which is caught by the boatlike labellum. Insects, such as large bees, are attracted by the sweet ridges or wringlike expansions at the basal end of the labellum; the food thus obtained appears to be stimulating or intoxicating. The result is that the bees push one another down into the boat, their wings become wetter, so they cannot fly out; but can only escape by crawling along the bottom of the boat and squeezing themselves between the "bows" of the boat and the end of the column. The first insect which escapes invariably carries off the pollen masses. But in order to fertilise a flower it must repeat the process, take a second bath, and escape as before; but on this occasion it sneezes the pollen upon the stigma. The lecturer next called attention to some new hybrid *Rhododendrons* exhibited by Messrs. Veitch. He observed how in this flower, as in *Pterolanthus* and *Gloxinia*, which are irregular flowers in the wild state, are becoming regular under cultivation; and the stamens, instead of inclining downwards or being "declinate," spread symmetrically round, the petals being also uniform, instead of having one in the form of a "lip."

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

Earl of Romney's Plants.—Mr. W. G. Smith reported his examination of these. He said the *Primroses* were attacked by the fungus known as *Leidum primulae*, a pest confined to *Primula*. The *Carnations* and *Pinks* were attacked by the nematoid worm *Tylenchus*, recently illustrated in the *Gardener's Chronicle*, and with *Puccinia lychnidum*, a parasite peculiar to the *Lychnis* tribe. The *Narcissus* leaves were suffering from attacks of a leaf-boring larva. The abnormally mild winter had no doubt been favourable to the existence and early re-appearance of various animal and fungus parasites of plants. There need be no apprehension whatever that these pests would spread to cereal and root crops in the neighbourhood, as the plants sent were not attacked by one enemy, but by many, and each peculiar to the plants attacked.

Thallogous Leaf.—There was no trace of fungous-work on this leaf, fungi being comparatively rare amongst *Orchids*, neither were traces of insects to be seen. There was a marked deficiency of parenchyma in the leaf, possibly pointing to some weak point in the cultivation.

Fungus on Living Insect.—Mr. Pascoe showed specimens of a beetle from Queensland, named *Saragus fuscus*, the specific name having been applied before it was ascertained that the woolly appearance was due to the presence of a fungus. It had been doubted whether fungi really occurred on living insects, but the present specimens were captured upon trees affected with an *Isaria* identified by the late Mr. Currey.

Labels for Plants.—Mr. G. F. Wilson showed Foxwood labels which, as already stated, are objectionable from their tendency to become covered with mould, but which might be avoided by steeping the labels prior to use in hot paraffin. Mr. Lynch showed labels of zinc of various forms suitable for the different purposes, and also others made of stout slabs of so-called "Inch-ine," which is very durable, and can easily be written upon.

Rhododendrons.—Mr. Mangles showed fine trusses of *R. grande* (sine argenteum). The plant was discovered in Sikkim by Sir J. (then Dr.) Hooker, and in *Boota* by Griffiths. The flowers are magnificent, bells of creamy-white, with a delicious fragrance, the parts arranged in eights, and the foliage noble.

R. fornesium is a native of Cachcar, and therefore more tropical in its character. The flowers are pure white, and widely campanulate. It is nearly allied to *R. Veitchii*, with which it will interbreed, and is one of the parents of *R. sesterianum*.

R. Connorsii of *Himalayana*.—A lovely hybrid, with large pale rose-lilac tubular corolla. It is a cross with the pollen of *R. Dalhousie* or *R. ciliatum*. Mr. Mangles remarked that he had invariably failed in his attempt to reverse the cross by fertilising *Dalhousie* with *ciliatum* pollen.

R. campylocarpum.—A species rarely seen, bearing clusters of sulphur yellow flowers, which Sir Joseph Hooker noted as remarkable for the freedom with which they moved when agitated by the wind.

R. Veitchianum (from Mr. Hermann Rucker).—A native of Moulmein, with widely campanulate deeply lobed flowers, with crisped edges to the segments; the colour white, with a golden throat.

R. Dalhousii.—A noble species, the large funnel-shaped flowers of which are of a sulphur-yellow colour produced in this country, but are figured as white in Sikkim.

R. jasminiflorum.—A tubular-flowered species from Malaya, so different from most *Rhododendrons* that when first seen its identity was questioned. It was noted as a curious fact that the Malayan species of *Rhododendron* did not interbreed with the *Himalayan* varieties.

R. Princess Alice.—A hybrid between *R. Edgeworthii* (male) and *R. ciliatum* (female).

An unnamed hybrid between *R. Thomsonii* (Sikkim) male, and *R. Fortunei* (China), female, with the brilliant scarlet colour of *Thomsonii*, but with larger and more numerous flowers, and with the foliage of *R. Fortunei*.

Other hybrids were shown between *R. ciliatum* and *R. glaucum*, as well as some sent to Mr. Mangles by Messrs. Downie & Laird, of Edinburgh.

The Hon. and Rev. J. Townsend Boscewen sent an interesting hamper of hardy hybrid *Rhododendrons*, which Mr. Mangles commented on to the committee. A very beautiful white hybrid was very conspicuous, and was much admired. It is called hardy. A better white has not been raised.

Crimson, claret, very dark purple, and blush, were all represented, and some of the trusses were very large and finely formed. A brilliant scarlet raised some discussion as to whether it was not a form of the true *K. arlorum*. The vividness of the colour was quite equal to the colour of the true species. Some others were very closely allied to the *Himalayan* species, and some almost identical.

Plants, &c., Exhibited.—Mr. Lynch, of the Cambridge Botanic Garden, brought flowers of *Begonia Roezlii*, a fine free flowering species with glabrous obovate fleshy leaves and large eyes of rosy-crimson flowers. *Ribes cereum*, an insignificant species from North-West America, *Primula carpatia*, a small species in the way of the true *P. elatior*, with a distinct aromatic perfume similar to that of *P. sikimensis*. *Cheiranthus mutabilis*, which this season has bloomed out-of-doors; the original form of *Cheiranthus Chirii*, *Hibbertia Reelii*, *Candollea tetrandra*, *Arctotis aspera arborescens*, *Asarum caudatum*, a Californian species with flower segments prolonged into long slender tails. From Miss Mangles came *Tulipa Celsiana*, *T. oculus-sois* var. *præcox*, *T. platystigma*, *T. Loretii*, with narrow flower segments, crimson with a dark basal spot edged with yellow; *Lavandula Stechas*, *Mesembryanthemum acinaciforme*, *Bougainvillea speciosa*, of remarkably rich colour. All these came from Cannes.

From Sir J. Hooker came a leaf and a portion of the inflorescence of the stately *Doranthes Palmeri* now flowering at Kew, and described in our last number. Among other plants exhibited were *Primula obconica*, with trusses of pale lilac flowers well raised above the roundish caliculate leaves; *Maxillaria callichroma*, with linear white flower segments tinged with yellow, the small lip whitish, with narrow crimson stripes; *Myrica stipitata*, from Mr. C. Green, gr. to Sir G. Macleay, at Pendell Court, with broad oblique rough leaves, and very long thread-like branching pendulous inflorescence studded with minute green flowers. Mr. George, of Putney, showed variously deformed leaves, some peltate, from a plant supposed to be a cross between an Ivy-leaf and a zonal *Polygonum*. The feasibility of this cross has been doubted, and Mr. Mangles related that his attempts to cross these two varieties had uniformly failed. Sir Trevor Lawrence showed his *Coryanthes macrantha*, a Stanhope-like *Orchid* of the most extraordinary structure and remarkable history, alluded to by Mr. Henslow in his lecture. As we intend to give an illustration of this plant in a future number we defer further comment for the present.

SPRING SHOW.—The first show of the season, held in the conservatory, was a very enjoyable one, there being a capital display of Hyacinths and other gay flowering plants, and a good attendance of visitors. The leading feature of the show, the Hyacinths, we have dealt with in another place, so that we need not here enter into critical details. Messrs. James Veitch & Sons received a Silver-Gilt Flora Medal for a fine group of over 200 pots of Hyacinths, and awards of a similar value were accorded to Messrs. Osborn & Sons, Fulham, for one of the best groups of Hyacinths they have ever exhibited, and in conjunction with which were groups of Tulips and Narcissis, and forced *Chionodoxa*; to Messrs. Barr & Sunden for immense assemblages of cut flowers of Dahlias and other spring flowers overcrowded and badly shown in admixture with various forms of Kales—an ill-assorted match; and to Mr. R. Clarke, of Twickenham, for a grand display of Cyclamens, splendid strain of *C. persicum*, including the pure White Superb, a model of what a pure white decorative variety should be. Silver Flora Medals were awarded to Messrs. Wm. Cutbush & Sons, Highbate, for a capital group of Hyacinths, Tulips, and Indian Azaleas, accompanied by half-a-dozen boxes of cut flowers of Camellias; to Mr. B. S. Williams, for a very showy group of plants, including a number of Amaryllis, a fine specimen of the brilliant orange-scarlet coloured *Imantophyllum miniatum* var. *Martha Keimera*, and a quantity of Orchids in bloom, mainly well known sorts; to Messrs. H. Lane & Son, Berkhamsstead, for a beautiful group of forced *Rhododendrons* and *Ghent Azaleas*; to Messrs. H. Williams & Sons, Fortis Green, Finchley, for a group of very good *Primulas*, Hyacinths, and Tulips; to *Stilpn* some showy Auriculas, Col. Champneys and Chas. J. Perry; and Mr. Sidney Ford, Leonardale, Horsham, had about sixty dishes of very well preserved Apples.

Prizes were offered by an amateur in Amaryllis, in three classes, for his favourite flowers, but there was no competition. The 1st prizes in each class were taken by H. Little, Esq., whose six consisted of Leah, Orpheus, Queen Victoria, Hereward, Stella, and Drapeau Royale. His best seedling was Hercules, a medium-sized pure scarlet; the best light-coloured variety, Orpheus, white ground with scarlet venation; and the best dark seedling, Hereward, a dark crimson of poor form.

A Fellow of the Society offered prizes for the best

nine pots of Hyacinths and Tulips, but here also there was no competition, the 1st prize being taken by Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, who had neat and good spikes of Mont Blanc, Vurbak, Grandeur à Merveille, Baron Von Tuyl, Von Schiller, King of the Blues, and La Grandesse; and of Tulips, a good pot of *Joost van Vondel*, Prosperine, White Pottebakker, Keizer Kroon, and Vermilion Brilliant, &c.

FLORAL COMMITTEE.—Rev. H. Harpur-Crewe in the chair. Messrs. James Veitch & Sons were large exhibitors of new plants on this occasion, principally of Hyacinths, Amaryllis, and *Rhododendrons*. Of the former, there were nineteen climates for distinction, but only four were certificated, viz., Enchantress, single blue, with a bold spike of fine bells, of a lilac ground colour and lavender-blue shading; Delicata, large, broad, and stout bells, of a delicate flesh colour; Leo, a double form of the last, being of the same colour, but having immense full double bells, and powerful odour; and Challenger, single, a very dark claret, shaded with dark crimson. The new certificated *Rhododendrons* were *R. Favourite*, a flower of moderate size, good form and substance, and rose-pink in colour; and *R. Aurora*, a large flower, of good form and orange-salmon in colour. The best of the Amaryllis were *The Giant*, a variety of extraordinary size, bearing three stems about 3 feet long, on which were not less than sixteen flowers, white ground, with flakes and stripes of crimson; and *Duke of Albany*, a very beautiful pure scarlet flower, with white a centre, and excellent in form and size. The same name also exhibited *Leea amabilis*, probably a climbing plant, but as shown in a dwarf state the leaves are unequally pinnate, the segments lanceolate, acuminate, serrated, purplish-bronze, with a central silver stripe on the upper surface. *Pinguicula caudata*, the same as the *P. bakeriana*, shown last year by Messrs. Sander & Odontoglossum Pescatorei Veitchii, the finest novelty shown amongst Orchids, having flowers 2 inches across, nearly circular, the flower segments broad, white, heavily barred and spotted with brown. Messrs. Hugh Low & Co. had *Phalenopsis Stuartiana* and *P. Stuartiana nobilis*, a variety of the same colour and markings, but larger in all its parts than the type. Mr. Woolford, gr. to W. Lee, Esq., Downside, Leatherhead, showed splendid forms of *Odontoglossum membranaceum roseum*, in which the flowers are rather deep lilac instead of white; *Masdevallia Shuttleworthii*, *Odontoglossum Chestertonii* and *O. Cervantesii* de brown, with white segments marked with purplish-brown. From Mr. H. Parr, gr., Givon's Grove, Leatherhead, came two very fine plants of *Corylogne ocellata*, bearing a dozen spikes or so each; and from Sir Trevor Lawrence's garden came the extraordinary *Coryanthes macrantha*, alluded to elsewhere; also *Odontoglossum asperum violaceum*, sepals and petals lanceolate, the former heavily blotched with brown, the latter yellowish, plumed at the base, lip flat, cordate acute, pale violet; and *Masdevallia Shuttleworthii* and *Masdevallia*, a small variety with dark green, leathery, oblong leaves, tapering into a long slender stalk, the flower segments shell-shaped, prolonged into long slender tails, and in colour yellowish, marked with narrow purplish stripes or thickly dotted with minute purple spots. The striking *Doranthes Palmeri* was represented by a leaf and a portion of the flower-stem, sent from Kew. Mr. Salter, gr. to J. Southgate, Esq., Streatham, sent *Maxillaria callichroma*. The General Horticultural Company showed *Adiantum Victoriae*, one of Mr. Basse's seedlings, said to be between *A. decorum* and *A. scutum*, but really resembling a very dwarf erect-growing *A. farleyense*, and a decorative plant of sterling value. A basket plant of *Lycaste Skinneri* bearing a dozen large pure-coloured blooms, came from Mr. W. G. Gaiger, gr. to T. Taylor-Whitehead, Esq., Burton-Closes, Bakewell. Mr. Anthony Waterer sent from Knap Hill some well flowered plants of *Deutzia candidissima* and *Andromeda japonica*, which forces well; and *Andromeda japonica*, a new species with large drooping panicles of white blossoms and dark green leathery ovate-acute leaves. A few *Abutilons* of the dwarf section alluded to at p. 370 were again shown by Mr. George; and *Primula obconica*, a new introduction from China, came from the Messrs. Veitch. It has pale pea-green hairy leaves and leaf-stalks, and mauve-pink flowers freely produced in the way of *P. cortusoides*. The live variety of *Myosotis distillifera*, known as splenders, came from Chiswick, and Mr. Dean, gr. to the Lincen Gower, Esq., had a pure white form of the same plant. Mr. Green, gr. to Sir Geo. Macleay, brought up from Pendell Court cut flowers of *Myrica stipitata*, referred to in the report of the Scientific Committee, and *Antholyza bicolor*, an Iridaceous plant with a slender spike of elongated curved cylindrical orange and green flowers. Messrs. H. Cannell & Son showed a plant of *Cineraria Victoria*, a very fine purple-rose-tinted self of great size, and a fine form of a bouquet of yellow and white *Marguerites* mixed with *Cineraria cruenta*, and forced

plants of *Spiraea Sieboldii*. Mr. H. Bennett, of Shepperton, showed his hybrid *Tea Rose*, Her Majesty, a seedling from Mabel Morrison—a light pink or light peach-coloured flower of beautiful form, but not so scented; and his fine dark Earl of Pembroke, which on the other hand has a delicious perfume. Messrs. Paul & Son, Cheshunt, also had a new Rose, Helen Paul (Lacharme), a variety with large white flowers remarkable for the size of the petals; also a good dark rosy-purple *Primrose* in *Primula aculis* *Crossii* *flore-pleno*. Captain Patton showed a collection of new Tulips, and the Continental Horticultural Company, Ghent, showed *Gynura aurantiaca*, a plant grown in this country forty years ago, and very pretty in a young state, but of doubtful value at present as a bedding plant, for which purpose it is being recommended. *Spergula pilifera aurea*, a good, constant, hardy golden carpet bedding plant, came from Mr. R. Dean; and a hose-in-hose *Richardia* came from Mr. Phillips, gr. to Captain Jackson, Meopham, Kent.

The awards were:—

First-Class Certificates.

To Messrs. Veitch & Sons, for Hyacinth Leo.
To Messrs. Veitch & Sons, for Hyacinth Enchantress.
To Messrs. Veitch & Sons, for Hyacinth Delicata.
To Messrs. Veitch & Sons, for Hyacinth Challenger.
To Messrs. Veitch & Sons, for Amaryllis The Giant.
To Messrs. Veitch & Sons, for Amaryllis Duke of Albany.
To Messrs. Veitch & Sons, for *Rhododendron Favourite*.
To Messrs. Veitch & Sons, for *Rhododendron Aurora*.
To Messrs. Veitch & Sons, for *Leea amabilis*.
To Messrs. Veitch & Sons, for *Pinguicula caudata*.
To Messrs. Veitch & Sons, for *Odontoglossum Pescatorei Veitchii*.
To Messrs. Veitch & Sons, for *Primula obconica*.
To the General Horticultural Company, for *Adiantum Victoriae*.
To Mr. Woolford, gr. to W. Lee, Esq., for *Masdevallia Shuttleworthii*.
To Mr. Woolford, for *Odontoglossum membranaceum roseum*.
To Mr. Anthony Waterer, Knap Hill, for *Andromeda japonica*.
To Mr. H. Bennett, for *Rosa Her Majesty*.
To Mr. Spyers, gr. to Sir Trevor Lawrence, for *Coryanthes macrantha*.
To Messrs. Paul & Son, Cheshunt, for *Primula aculis Crossii flore-pleno*.
To Messrs. Low & Co., for *Phalenopsis Stuartiana* var. *nobilis*.

Cultural Commendations.

To Mr. H. Parr, for *Corylogne ocellata*.
To Mr. W. G. Gaiger, for *Lycaste Skinneri*.
To Mr. Anthony Waterer, for *Deutzia candidissima flore-pleno*.
FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. The only subject brought before this body was a curled Kale, shown by Mr. J. Reed, Mount Mount, Mill Hill, Hendon, and which was stated to be the result of a cross between *Conve Tronchuda* and Veitch's Dwarf Curled Kale [?]. The committee requested that it be sent to Chiswick for trial.

Royal Botanic: *March 29.*—This Society opened its campaign on Wednesday with an exhibition much superior in point of merit to many of its predecessors. Large groups of Hyacinths and Tulips, Cyclamens, *Cydonias*, *Rhododendrons*, plants new to the public, and common, from stove and greenhouse, all combined to render the corridor and large conservatory unusually gay; while in the adjoining stove there was a plant of the lovely *Petrea volubilis*, in magnificent bloom, and vying in beauty with any of the more modern notabilities close by. The display of Hyacinths included all the collections shown at South Kensington on the previous day, the exhibitors being Messrs. Veitch & Sons, Messrs. Osborn & Sons, Messrs. W. Cutbush & Sons, Messrs. H. Williams & Sons, and Messrs. James Carter & Co.; and in addition to these plants staged in the hands of the amateurs' and nurserymen's classes for twelve. In the former class Mr. James Douglas was again to be found with bold substantial spikes of *La Grandesse*, *De Candolle*, *Fabola*, *Blondin*, *King of the Blues*, *Macanilly*, *General Havelock*, *Von Schiller*, *Grandeur à Merveille*, *Car Peter*, and *Koh-no-rod*; Mr. H. Eason, gr. to B. Noakes, Esq., North Hill, Highbate, was 2d. Messrs. W. Cutbush & Son came in 1st among nurserymen, the varieties staged by them being *Macanilly*, *La Grandesse*, *De Candolle*, *Blondin*, *Mont Blanc*, *The Sultan*, and *Von Schiller*; Mr. Osborn & Sons were a good 2d, and Mr. S. Hill 3d. Fine examples of *White Joost van Vondel*, *Vermilion Brilliant*, *Prosperine*, and *Keizer Kroon*, from Mr. Douglas, also came in 1st in the amateurs' competition with twelve Tulips; next to him being Mr. Boulwood, gr. to Captain Patton, and Mr. H. Eason. In the nurserymen's class, Messrs. Osborn & Sons turned the tables on the Highbate firm, who was here placed 3d, Mr. S. Hill coming in 2d. For a dozen pots of *Narcissis*, the Messrs. Osborn & Sons were 1st, Mr. Hill 2d, and Messrs. Gregory & Evans, Sidcup, 3d, the leading varieties being *Jaune Supreme*, *Lord Canning*, *Grand Monarque*, *Sir Walter Scott*, and *Soleil Brilliant*. The *Primula* class calls for no comment save that, considering the lateness of the season, the 1st prize group from Messrs. H. Williams & Sons were a very creditable lot. The Cyclamens, on the other hand, were a grand class,

the plants all being of large size, with clean, vigorous foliage, and an abundance of clearly coloured, handsome blossoms. The first prize lot, staged by Mr. Wiggins, gr. to H. Little, Esq., were in that grower's best style; and he was very secondly by Mr. H. E. Hason, of Ealing, Deon, Mr. J. G. Gould's Green, H. Hingling, gr. to H. Little, Esq. In a class confined to anthers Mr. Wiggins had no opponent. The Anaryllis, hardy Primulas, and hardy heriaceous plant classes were not up to the mark, but the one for six Deutzias brought out a very meritorious lot of plants, especially a half dozen from Mr. Douglas that were perfection itself, the specimens being of cylindrical form, about 4 feet high, from 2 to 3 feet through, and densely bloomed. Mr. Wiggins was 2d, and Mr. H. Eason 3d. The Azalea classes brought out amongst others a very pretty half dozen of dwarf hybrids, well bloomed, from Messrs. B. Peed & Son, Streatham; and in a capital class of Lily of the Valley Messrs. H. Williams & Sons, Messrs. Gregory & Evans, and Mr. Douglas were the prize winners. For twelve stove and greenhouse plants Messrs. B. Peed & Son were 1st, with a very lot of small plants in a hothouse class from Mr. W. G. Wheeler, gr. to Louisa, Lady Goldsmid, being a very good 2d, and Mr. R. Butler 3d. There was only one exhibitor of Lachenalia's, Mr. H. Eason, but his were a splendidly grown dozen pots, full of L. luteola, and he was most worthily awarded the 1st prize. The miscellaneous class, always a large one here, included, besides the large groups of Hyacinths before named, collections of new and rare plants from Messrs. Veitch & Sons, Mr. E. S. Williams, and Mr. Wm. Bull, many of which were certificated as recorded below; a large and handsome collection from Mr. H. E. Hason; Rhododendrons, and Ghent Azaleas from the Messrs. Lane & Son; a dozen well-flowered decorative Pelargoniums from Messrs. Gregory & Evans; two boxes of Marchal Niel and one of Tea Roses, and plants and cut flowers of the new Toyonias from Esq., A. C. Oldfield, Bickley; a collection of Hyacinths and Tulips, from Mr. Boutwood, gr. to Captain Patton; seven boxes of fine cut Roses, from Mr. Rumsey, Joyning's Nursery, Waltham Cross; succulent plants from Mr. Bolter, &c.

The awards made to new plants were:—

Botanical Certificates.

To Messrs. Veitch & Sons, for *Odontoglossum Pescatorei* Veitchii.
To Messrs. Veitch & Sons, for *Odontoglossum Leeanaum*.
To Messrs. Veitch & Sons, for *Dendrobium Falconeri* giganteum.
To Messrs. Veitch & Sons, for *Cypripedium calceolium*.
To Messrs. Veitch & Sons, for *Lera* analabica.
To Messrs. Veitch & Sons, for *Chamaecyparis Kalmeyana*.
To Messrs. Veitch & Sons, for *Asparagus plumosus nanus*.
To Messrs. Veitch & Sons, for *Prinnula obconica*.
To Messrs. Veitch & Sons, for *Pinguicula caudata*.
To Mr. B. S. Williams, for *Phlox paniculata* *micrantha*.
To Mr. B. S. Williams, for *Adiantum latifolium*.
To Mr. B. S. Williams, for *Dielenia lucida* majestica.
To Mr. B. S. Williams, for *Asparagus plumosus nanus*.
To Mr. B. S. Williams, for *Zycopeltaria Clavii*.
To Mr. W. Bull, for *Odontoglossum Halli* nigrum.
To Mr. W. Bull, for *Odontoglossum Pescatorei* album.
To Mr. W. Bull, for *Cypripedium insigne* aurum.
To Mr. W. Bull, for *Alsophia Rebecca*.
To Mr. W. Bull, for *Dracena fragrans* variegata.
To Messrs. Veitch & Sons, for *Phalenopsis Stuartiana*, and *P. Stuartiana nobilis*.

Floricultural Certificates.

To Messrs. Veitch & Sons, for Hyacinth Charles Deon.
To Messrs. Veitch & Sons, for Hyacinth Surprise.
To Messrs. Veitch & Sons, for Hyacinth Delicata.
To Messrs. Veitch & Sons, for Hyacinth Duke of Albany.
To Messrs. Veitch & Sons, for Hyacinth Challenger.
To Messrs. Veitch & Sons, for Anaryllis The Giant.
To Messrs. Veitch & Sons, for Anaryllis Duke of Albany.
To Messrs. Veitch & Sons, for Anaryllis Indian Chief.
To Mr. B. S. Williams, for Anaryllis Dr. Masters.
To Mr. Henry Little, for Cyclamen White Gem.
To Mr. Henry Little, for Cyclamen Crimson Gem.
To Mr. Henry Little, for Cyclamen Tinted Gem.
To Mr. Henry Little, for Cyclamen Rose Queen.
To Mr. Henry Little, for Cyclamen Louis Little.
To Mr. Henry Little, for Cyclamen Strain.
To Mr. Henry Little, for *Azalea indica* Madame de Gréve.
To Messrs. Paul & Son, for *Primula acutilis* *Crossii* flore-pleno.
To Mr. J. George, for Abutilon Emperor.
To Mr. J. George, for Abutilon Brilliant.
To Mr. Todman, for Rhododendron Mr. F. Corbet.

Ealing District Gardeners' Society.—Probably the first *hond fide* flower show of the year was the one which took place in the spacious Drill Hall, Ealing, on the 22d inst., in which was organised, not by the local horticultural society, but by the members of the District Gardeners' Society, who stepped in to fill the void that otherwise would have existed. The result was entirely

satisfactory, for not only were subscriptions liberally forthcoming, but a very charming show was arranged, and well attended. The Drill Hall admits of an exceedingly effective arrangement of mixed groups of plants at intervals, and a show, which, by judiciously combining burning long plants of flowers, assist to create singularly bright and pleasing effects. Of groups of this sort a very brilliant one came from Gunnersbury Park, Mr. Roberts sending forced Lilacs, Rhododendrons, Azaleas, Kalmias, Aconites, Hotens, Gloxinas, and Lachenalia's, all properly flowered. These plants, dressed with Ferns and small Palms, made a beautiful display. A very pretty group came from C. N. Peal, Esq., Ealing (Huntly, gr.), in which Tulips and Hyacinths told with good effect. Messrs. Froome & Sons, of Waltham Cross, had a very pretty group, which included overhanging Palms, some high-coloured Crotons, *Dracena Goldiana*, standard Azaleas in rich bloom and various other ornamental plants, prettily edged by *Adiantum gracillimum*. Mr. G. Weedon, florist, Ealing, staged a very large and fine collection, in which Hyacinth Tulips, Hotias, and *Dieltras*, largely predominating. A grand lot of Cyclamens came from Mr. H. B. Smith's Ealing Dean Nursery, and attracted great attention. The Ealing Floral Company sent a superb wedding bouquet, and a handsome mural vase, in which they exhibited a very fine lot of flowers, set in a vase of Maidenhair Fern. In the class for large groups arranged for effect, Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, took first place with an arrangement in his customary tasteful style—a base of flowering plants and small Ferns, and a capital group of *Centurionida odorata*, &c., from out of which came some elegant Palms. The second place was taken by Mr. Bunn, gr. to E. M. Nelson, Esq., Hanger Hill House, whose centre plant was a fine *Centurionida*, supported by *Phlox*, *Hyacinth*, *Delicata*, *Crotons*, *Heaths*, *Deutzias*, and various effectively grouped plants. Mr. Clements, gr. to C. A. Daw, Esq., Castle Hill, Ealing, who added to his group some good Gloximas and *Cinerarias*, was 3d; and Mr. Fountain, gr. to Miss Wood, Hanger Hill, was 4th. In another class of flowers, set in a vase of Maidenhair Fern, Mr. Summons, gr. to James Henry, Esq., Ealing, who had some well-bloomed Roses; and Mr. A. Stone, gr. to W. Mead, Esq., Village Park, Mr. Hudson was the only exhibitor of foliage plants, having some fine Palms, Crotons, and *Pandanus Veitchii*. *Cinerarias* made a very fine display. In Hyacinths, however, Mr. Beesley was very strong, showing both a six and a four in good form, as also getting an extra award for a miscellaneous group of these flowers, Tulips, and *Narcissus*. Mr. Weedon was 4d, with four kinds. Mr. Beesley was 5th, with six kinds, and a large well-bloomed *Polygala Dulcamara* and *Erica grandiflora rubra*. Mr. McPhun came 2d, with a large white Azalea and a fine *Genista*. In hardy plants Mr. R. Deon was 1st, with some rich coloured *Polyanthuses* and other border plants, and also showing a very fine *Hyacinth* class with a very fine *Hyacinth* golden carpet plant, *Spergula pilifera aurea*. Some fine boxes of cut flowers came from Mr. Hudson, Mr. Fountain, and Mr. McPhun, the former also showing some excellent blooms of *Camelias*. In spite of harsh weather the show was largely attended, and entirely fulfilled the expectations of the promoters.

Fulwood Floral and Horticultural. *March 22 and 23.*—As may be supposed, bulbs, particularly Hyacinths, were the principal feature of the show, over a thousand Hyacinths being staged. In numerous cases the competition was generally very close, the flowers in most cases well developed. *Narcissus* and Tulips were in great force, the flowers collectively being fresh and well timed for the occasion. In the many classes provided for miscellaneous flowering and cut flowers, *Cinerarias*, *Delicatas*, *Aconites*, *Chamaecyparis*, *Primulas*, *Cyclamens*, &c., the competition was strong and close. In almost every class for Hyacinths there were considerably more exhibitors than prizes, with often little to choose between the competing groups. For twenty-four singles, Mr. Troughton, nurseryman, Preston, was well 1st, followed by Mr. Newton, gr. to W. Birley, Esq., a good 2d; Mr. Sharples, gr. to J. B. Dixon, Esq., 3d. Mr. Troughton was likewise 1st with twenty-four doubles, and Mr. Newton 2d, Mr. McDuff, gr. to J. Harding, Esq., being 3d. The Society offered a well-handled *Gold Medal* with money prizes in addition, for twenty-four Hyacinths, twelve double and twelve single; here Mr. Newton took 1st with an even lot of flowers; 2d, Mr. McDuff; 3d, Mr. Rigg, gr. to J. Forshaw, Esq. The Silver Cups offered by Mr. Troughton for the twelve single Hyacinths were both handsomely won by Mr. McDuff, Mr. Newton and Mr. Sharples taking 2d and 3d for singles—Mr. Atherton and Mr. Dewhurst, gr. to E. Birley, Esq., occupying the same positions respectively with the doubles.

For a collection of twenty miscellaneous bulbs in flower a Silver Cup was given by Mr. S. Lyon, Preston, supplemented by money prizes offered by Messrs. Webb, of Stourbridge, and the Society. These brought out a number of competitors, Mr. Gould taking the lead with a nice lot, consisting of Anaryllis, Hyacinths, Nar-

cessus, Tulips, Cyclamens, Gloxinas, &c.; 2d, Mr. McDuff; Mr. Newton 3d. Of twenty miscellaneous plants there were three creditable collections, Mr. Troughton taking 1st with an effective group, in which was a nice *Camassia* *floribunda*, given by Mr. Gould, at the early season in which this variety can be had in bloom—Azaleas, Palms, *Dracenas*, *Aralias*, and a good specimen of *Polystichum*. Six miscellaneous flowering plants: These were nicely shown by Mr. Rigg, who, amongst others, had a good example of *Fraxinus germanica* *jasminoides*, *Croton palmellus*, *Eucharis amazonica*, and *Cero-dendron Balfourianum*. Azaleas were nicely flowered, and large enough to make them effective. For six Mr. Hargreaves took the lead with an even half dozen; Mr. Newton 2d, Mr. Dewhurst 3d. Ferns were well done, Mr. Hargreaves taking the lead with three, the best of which were a well managed example of *Gleichenia rupestris* and *Adiantum tenerum*.

Foliage plants were large and in good condition; for three Mr. Hargreaves had 1st, showing in an even group a very large specimen of *Pandanus Veitchii*. That best of hardy shrubs for forcing, *Deutzia gracilis*, was here shown in a way that we have not seen it elsewhere, taking size and condition into account; Mr. Hargreaves took 1st with three plants, from 4 to 4½ feet through, densely furnished with flowers, and with healthy foliage and a mass of white bloom. *Hetera japonica*, in beautiful condition, were shown by Messrs. Gould, Newton, and Atherton, who took the prizes in the order of their names. *Dicentra spectabilis*, which when well managed in forcing so as to retain the true colour of the flowers, and a stout compact condition in the plants, is not surpassed in elegance by even the most prized occupants of the stove or greenhouse, was well done; Mr. Dewhurst being 1st, with medium-sized specimens; Mr. Newton 2d. Cyclamens were nicely managed, as also were *Cinerarias*.

The above are only a few of the eighty odd classes, of which the schedule is composed, and which collectively made a very attractive and interesting display. Mr. Troughton exhibited, not for competition, a varied and extensive group of plants numbering about four hundred, to which the Gold Medal of the Society was deservedly awarded. Mr. Hoym, of Preston, was also awarded a Silver Medal for a smaller but nice group, similar in character to the foregoing one.

Florists' Flowers.

HYACINTHS AT SOUTH KENSINGTON.—That these were shown in great numbers on the 25th ult. no one could deny; but they scarcely came up to their general average quality was the universal opinion. Yet, it would not have been difficult to select from Messrs. Veitch & Son's large group of over 200 plants an almost matchless twenty-four; as some of the spikes were surprisingly fine. Messrs. Osborn & Son and Messrs. W. Cutbush & Son also had excellent groups, but in point of numbers and quality they fell behind those from the Chelsea Nurseries.

Some fifty plants in Messrs. Veitch's group were new varieties. Of these the Floral Committee selected four for first-class Certificates of Merit, viz., *Delicata*, S. Red, creamy-white, with a pale brown-buff stripe along each segment; the bells large and well-formed, and the spike full and symmetrical. This is a very novel, but a cold and unattractive looking variety, and yet the committee could not have passed it over. It is one of those varieties that may be regarded as intermediate between white and red. *Enchantress*, S.B., is a very pretty and distinct variety, a kind of pale Lord Palmerston, but of a very pleasing mauve-lilac colour, with a white centre to the bells, very pleasing and attractive, forming a good and handsome spike. *Lily, D.R.*, is a double variety, the broad segments slightly striped with pale pink on a creamy-white ground; good compact truss, and quite distinct in character. *Challenger*, S.B., belongs to the claret class, the segments being of a bright claret colour, with a dark stripe along each; they also take on a shining aspect, which imparts to the flower an attractive appearance; very fine spike, and quite distinct.

Other new varieties of a promising character are *Magnificent*, D.B., a greatly improved *Van Speyk*, having large blue bells of fine shape, but wanting greater solidity in the spike, which will probably come with cultivation. *Progress*, S.B., rich deep-shaded violet, full and symmetrical spike; a distinct and pleasing variety. *Supreme*, S.B., pale violet with dark stripes, somewhat dull-looking, but novel in character. *Duke of Albany, D.R.*, a lively-looking double variety of a pale yet bright red colour; distinct, and fine spike. *Mr. Stanley, S.R.*, bright deep red, of a letter blue of colour than King of the Reds; the close spike, extra line. *Clara, S.K.*, a single form of Duke of Albany, bright and effective; good close spike. *Diadem, S.R.*, salmon-red, distinct in

colour, but small in the spike. Orange Boven, S.V., pale yellow, the segments striped with bright reddish-pink; distinct in character, but wants compactness of spike. Charles Dickens, D.L.G., a sport from the single variety, of which it is a double counterpart. Purity, S.W., like Mont Blanc, but with larger and stouter bells; good spike. Marguerite, S.W., large single white; good spike. Saifano, S.V., pale citron-yellow; good spike. Cinoline, S.R.K., bluish-pink, with slight rose-pink stripes; large bells and good spike. Sparkler, S.B., deep violet-blue, with white centre; bells small, but very pretty. Sunrise, S.R.K., bright red, in the way of Vuurbaak, close spike; an effective variety.

Looking over Messrs. Veitch & Son's group, a selection of the best varieties would include, of D. black, General Havelock, Mimosa, very fine spike; Duke of Connaught, very fine deep shining blackish-purple, striking colour; and Masterpiece, glistening purple-black, very fine. Deep blue: Thiers, the deep violet-blue segments margined with pale greyish-blue; Marie, in the same way, but better; King of the Blues, very fine; and Baron Von Tuyl. Pale blue: Electra, very fine; Grande Bleu, very fine; Lord Derby, really splendid in development; Grande Maitre, extra fine, the close symmetrical spike of great length; Princess Mary of Cambridge, very fine spike; Czar Peter, very pretty and pleasing; Charles Dickens, very fine; Lothair, Triple Crown, pale violet-blue, very fine and distinct; and Blondin. These pale blue single Hyacinths make a very fine group indeed. Deep red: Pelissier, Reine des Hyacinthes, Prima Donna, Linnaeus, Lina, Von Schiller, King of the Reds, Garibaldi, and Vuurbaak, a very fine lot indeed. Pale red: Koh-in-noor, Macaulay, Lady Palmerston, a very pleasing variety; Etna, very distinct and fine; Princess Helena, pretty pale pink; Princess Louise, pale bright rose, very pretty; Ornement de la Nature, Fabiola, and Lady Bountiful, very pretty pale pink. Yellow: King of the Yellows, a variety of such a fine hue of colour and so good in every respect that it will be a long time ere it is improved upon; Grand Duc de Luxembourg; Marchioness of Lorne, pale buff, very distinct, fine spike; Obelisk, pale yellow, fine spike; Ida, and Bird of Paradise, white; Snowball, Ornement, Rose, bluish-white; La Grandesse, Purity, Miss Nightingale, Lord Shaftesbury, very large bells; Marie Stuart, Baroness Von Tuyl, Madame Van der Hoop, Grandeur à Merveille, and l'Innocence.

Messrs. Osborn & Son's fine group, though not so extensive as Messrs. Veitch's, contained some spikes well worthy of notice. Of blue varieties, the most striking were General Vander Heyden, pale lavender with azure-blue striping along the segments—large close spike; Lothair, very good; Argus, fine in colour; Charles Dickens, with a rare depth of colour; Triple Crown, very fine bells and compact spike; Cavalcade, very large bells and broad segments, margined with azure-blue on a greyish-lavender ground, the points of the segments of a deeper blue—very fine; Grand Bleu, very fine; and Czar Peter, very fine. Red Beauty of Waltham, small bells and narrow segments, but with a peculiarly pleasing deep hue of pink, pale centre, good spike; Charles Dickens, pale red; Von Schiller, very fine; Princess Louise, double, pale rose, the segments tipped with green, distinct, fine spike; Princess Helena, very bright pale pink, good bells and spike, distinct; Solitaire, very rich in colour; Prima Donna, very bright red; Linnaeus, very fine; Vuurbaak. White: La Grandesse, Snowball, very fine; Lady Derby, pure white, very good bells; and Snowspike, in the way of Lady Derby. Yellow: Grand Duc de Luxembourg, l'Or d'Australie fine deep yellow; King of the Yellows and Jonquillon, a good hue of yellow, fine spike and bells.

In Messrs. Cutbush & Son's group the following were the leading varieties:—Grandeur à Merveille, very fine indeed, and so greatly in advance of this variety in other groups as to have the appearance of a distinct strain; Lady Derby, Mont Blanc, King of the Blues, Charles Dickens, very fine; Lord Derby, Blondin, Lord Palmerston, very fine in colour; Duke of Connaught, very fine; Macaulay, Garibaldi, very fine in colour; Sir William Mansfield, pale claret, with deep broad stripes along the segments; Princess Clotilde, pretty bright pinkish-rose; Bird of Paradise, and Ida.

Some of the early flowering Tulips shown on this occasion deserves a passing notice. The best flowers were in Messrs. Cutbush & Son's group, and consisted of Yellow Pottebakker, Prosepine, Vander Neer,

purple; Joost Van Vondel, fine rosy-crimson; Rose Louisante, White Pottebakker, Cerise Gris de Lin, a charming variety, the cerise-red petals being broadly tipped with white; Roi Perin, a charming striped variety; and the old double Tournesol. In Messrs. Osborn & Son's group was a very pretty rose-coloured self of fine shape, named Adeline, like a rose-coloured form of Prosepine; Bird of Paradise, a very fine golden-yellow self, with a greater depth of colour than is found in Chrysolora; the white form of Joost Van Vondel, which sometimes comes prettily striped with white on a crimson ground; Vermilion Brilliant, fine in colour; and Queen of Vellies, soft pale violet. R. D.

with its bull placed on grass and fully exposed to the sky was 23° 50, on the 20th; the mean of the seven readings was 31° 4.

Rain fell on five days to the amount of 0.45 inch.

ENGLAND: Temperature.—During the week ending March 25 the highest temperatures were 65° 4 at Cambridge, 64° at Sunderland and 63° 6 at Nottingham. The highest temperature at Brighton was 53° 3, at Hull 55°, and at Bolton 55° 1. The general mean was 59° 2.

The lowest temperatures in the week were 25° 2 at Nottingham, 26° 3 at Wolverhampton, and 27° 5 at Leicester. The lowest temperature at Truro was 35°, at Plymouth and Liverpool 33° 5. The general mean was 30° 2.

The greatest ranges of temperature in the week were 38° 4 at Nottingham, 36° 4 at Cambridge, and 34° 9 at Wolverhampton. The least ranges were 23° 8 at Liverpool, 24° 3 at Plymouth, and 24° 5 at Bristol. The general mean was 29°.

The mean of the seven high day temperatures was highest at Cambridge, 56° 1, at Sunderland 55° 4, and at Truro 54° 3; and was lowest at Bolton, 47° 2, at Hull 48° 7, and at Liverpool 49° 4. The general mean was 51° 9.

The mean of the seven low night temperatures was highest at Truro, 42° 9, at Plymouth and Liverpool 39°; and lowest at Nottingham, 33° 4, at Wolverhampton 33° 6, and at Hull 34° 3. The general mean was 36° 7.

The mean daily range was greatest at Cambridge, 26° 3, at Nottingham 19° 8, and at Blackheath 17° 6; and was least at Liverpool, 10° 4, at Truro 11° 4, and at Bolton 11° 7. The general mean was 15° 2.

The mean temperature for the week was highest at Truro, 47° 5, at Sunderland 45° 6, and at Plymouth 45° 2; and was lowest at Bolton, 40° 3, and at Wolverhampton and Hull, 41° 5. The general mean was 43° 2.

Rain.—The largest falls were 2.05 inches at Bolton, 1.34 inch at Bradford, and 1.30 inch at Liverpool. The smallest falls were 0.17 inch at Plymouth, 0.23 inch at Bristol, and 0.29 inch at Sunderland. The general mean was 0.81 inch; it fell on an average of five days.

SCOTLAND: Temperature.—During the week ending March 25 the highest temperature was 56°, at Paisley; at Greenock the highest temperature reached in the week was 51°. The general mean was 53° 4.

The lowest temperature in the week was 29°, at Greenock; at Leith the lowest temperature was 34°. The general mean was 30° 8.

The mean temperature for the week was highest at Paisley, 44° 5; and at Leith 44° 4. The general mean was 42° 7.

Rain.—The largest fall was 1.50 inch, at Greenock; the smallest was 0.29 inch, at Dundee. The general mean was 0.92 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questeth much shall learn much.—BALCON.

PEAT MANURE.—Have any of our readers any experience to offer on the value of moss-peat manure? The peat is used as a substitute for straw in London stables, and it absorbs about five times its weight of liquid.

POLLEN OF DATE PALM.—The Curator, Botanic Garden, Cambridge, would be grateful to any English or foreign correspondent for a supply of fresh pollen of the above in a glass tube or quill.

Answers to Correspondents.

* We shall be much obliged if our correspondents will favour us with their communications a day earlier next week.

BEANS: J. W. S. The weevil is the well-known Bruchus granarius. The beans will grow in all cases where the weevil has not eaten through the germ but only through the seed-lobes.

CAPTUSES NOT BLOOMING: J. O. H. Expose them freely to sun-heat, and when growing feed them with liquid manure. Most people starve them too much.

CINERARIAS: J. Richards. Your flower is only semi-double and of no value as it is, but you might save seed from it with a view to improvement.—J. Kingdon. A very good double flower, almost, if not quite, identical with a variety Mr. Vertegans grows under the name of Vertigera.

GIGEA TRITRERA: H. J. Ross. Cedra tritpera, Don, is the same as C. Baueriana, Lindl., and the original name was Cymbidium tritperum, Swartz. It is a native of the West Indies and Mexico. W. B. H.

DAPHNES: E. Webster. Daphne Biegiana is scarce yet, but we should suppose that any of the leading nurserymen could supply you with the others, or procure them for you.

GREENHOUSES RATEABLE: T. Barry. Yes.

HIBISCUS SINENSIS: J. H. The largest, and in some respects the finest double-flowered variety of H.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MARCH 29, 1882.

Table with columns: MONTH AND DAY, BAROMETER, TEMPERATURE OF THE AIR, Hygrometrical Deductions, WIND, RAINFALL. Rows for Mar 23-29 and a Mean row.

Mar. 23.—A fine day, generally overcast. Dark cloudy night. Wind clear and cloudy alternately. Strong wind. 24.—A fine day, sun shining at intervals, cloudy and clear alternately. A wet night. 25.—A fine day, sky overcast. Fine night. 26.—A fine day, overcast. Fine night, clear and cloudy alternately.

LONDON: Atmospheric Pressure.—During the week ending March 25, the reading of the barometer at the level of the sea decreased from 30.20 inches at the beginning of the week to 30 inches by 3 P.M. on the 19th, increased to 30.01 inches by midnight of the same day, decreased to 29.77 inches by 3 P.M. on the 20th, increased to 29.84 inches by midnight of the same day, decreased to 29.72 inches by midnight of the 21st, increased to 29.77 inches by midnight of the 24th, and was 29.37 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.88 inches, being 0.62 inch lower than last week, and 0.1 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 62° 5, on the 20th. The highest temperature on the 22d was 43° 8. The mean of the seven high day temperatures was 53° 8.

The lowest temperature in the shade in the week was 30°, on the 23d; and on the 24th the lowest temperature was 44°. The mean of the seven lowest temperatures was 36° 2.

The greatest range of temperature in one day was 25° 5, on the 20th; the smallest was 10°, on the 24th. The mean of the seven daily ranges was 17° 6.

The mean temperatures were, on the 19th, 45° 0; on the 20th, 49° 7; on the 21st, 45° 9; on the 22d, 36° 2; on the 23d, 40° 4; on the 24th, 48° 3; and on the 25th, 45° 9. Of these those of the 19th, 20th, 24th, and 25th were 6° 9, 8° 0, 6° 2 and 3° 0 respectively above their averages, those of the 21st, 22d, and 23d were 0° 9, 5° 7, and 1° 6 respectively below the averages.

The mean temperature of the air for the week was 44° 4, being 3° 1 lower than last week, and 2° 4 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 122° on the 19th; the highest on the 24th was 68°. The mean of the seven readings was 104°.

The lowest reading of a minimum thermometer

sinensis we have ever seen ; colour, rosy-scarlet. It is well worth perpetuating and sending out under a distinctive garden name. Could you oblige us with a flower not quite so fully developed?

IVY: R. Best. Clip off the whole of the leaves and burn them before the ivy commences to grow again.

LABELS: J. Jacobs. Write for particulars to the Secretary of the Society of Arts, John Street, Adelphi, W.C.

MALFORMED ONCHIDIUM: A. Probably the result of a fusion of three flowers, as there are three columns. There are, however, only seven perianth-segments and two lips, so that several parts have been suppressed. It is singular that on the same plant the leaves should show a tendency to be united back to back, like the letter X.

NAMES OF PLANTS: Simon. 1. Cypridium barbatum-biflorum; 2. Lycaste Harrisoniæ.—Evelyn-Boad. Alonsoa linearis, alba Celsia linearis, or a very spindly growth of A. incisifolia. The Fern is Lastrea emula.—M. didima. We believe they are—1. Dendrobium aggregatum; 2. Dendrobium Pierardi katiifolium; 3. but you should have sent more particulars.—P. J. Forsythia suspensa.—R. H. P. So far as we can tell from your description and the leafless scrap you send, the Laurustinus is the variety known in the nurseries as lucida.—E. A. E. 1. Dieris, 2. Hardsenbergia Comptoniana; 3. Cotonaster boxifolia; 4. we cannot name without flowers; 5. Alternanthera achanthata; 6. Amarantus chlorostachys.—J. H. H. We are unable to name your plants without flowers. No. 1 appears to be a species of Calceia; 4 is a Calceola; and 5 is one of the numerous varieties of Codium variegatum.—C. H. Lathraea squarrosa.

PROPAGATOR: F. Palmer. We think it would be useless to advertise. Your best plan would be to go out to New York or Melbourne, and put yourself in communication with the horticulturists there.

QUEEN'S TAXES: R. J. K. You must pay the tax.

ROOT-PRUNING PEAR TREES: I. O. W. The end of September or the month of October is the best time for doing this. We should think your trees do not want root-pruning; they more probably want manure.

SALIX BABORDIANA: Cor. Herford Messrs. Rodger, McClelland & Co., of Newry, can supply this Willow.

SEAKALE AND ASPARAGUS BEDS: I. O. W. Apply the salt now, before growth commences. Nitrate of soda applied to the Asparagus at the rate of 2 lb. per square yard will give you much better results. Transplant in spring, also before growth commences.

SEEDS FROM PHILIPPINE ISLANDS: L. M. G. The "Nipas" are, we should suppose, the seeds of a Palm-like plant, Nipa frutescens, common in the sundarbans. The genus Baubinia is mostly composed of Leguminous slow climbing plants common in the tropics. Cissampelos is the name of a genus of Leguminous dwarf trees, or large shrubs, also natives of tropical climes. C. sappan forms a tree in the East Indies, and furnishes the Sappan wood of commerce.

VINES: C. H. They have had a check in some way, inducing a tendency to proliferation in the leaves, but will grow out of this state with genial weather.—G. H. We think the shrivelling is due to withering while the leaves have been wet.

WEEDS: John Colebrooke. Foul 1 lb. of arsenic in a gallon of water for half-an-hour, then add from 4 to 5 galls. of cold water, and pour it on the walks carefully. One dressing a-year will suffice, but the mixture must be used with the greatest caution.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editor," and not to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

CATALOGUES RECEIVED.

- CHARLES TURNER, Slough.—Florists' Flowers.
WILLIAM PELL, CO. (Hexham)—Farm Seeds.
RAWLINS & BROTHERS, Old-Church, Romford.—Dahlias.
WILLIAM PAUL & SON, Cross-stair Nurseries, Paisley.—Florists' Flowers, &c.
STANSFELD BROTHERS, Southampton—Alpine and Hardy Herbaceous Plants.
B. K. BLISS & SONS, 34, Barclay Street, New York.—Potatoes, and Select List of Novelties.
EDWARD GILLET, Southwick, Mass., U.S.A.—North American Perennial Plants.
THIBAUT & KETTERER, Seconin, France—General Catalogue of Plants.
PRINGLE & HOSFORD, Charlotte, Vermont, U.S.A.—Hardy North American Plants and Seeds.

COMMUNICATIONS RECEIVED.—J. L. A. F. J. H. H. Subscriber.—C. C. Tradesman.—D. T. F.—K. R. D. C. P.—W. H.—F. S. & Co.—Ed.—W. L. E.—C. J. K.—E. J. F.—B. E. B.—E. T. B.—B. C.—Eaton von Mueller, I. Bennett.—I. H. S.—J. H. Curlew, J. R. B.—P. & H.—C. V. Riley, Washington.—Messrs. Vilmorin.

DIED, on the 26th inst., at Carton Park, Mayo, Kildare, JANE HARRIETT, wife of Edward Knowlton, aged twenty-five years.

Markets.

COVENT GARDEN, March 30.

The present fine weather is driving a lot of forced stuff into our market, and with the holidays before us we must expect low prices. The largest cargo of St. Michael's Pines reached us this week in fine condition, nearly 5000 being sold in one day. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with columns for fruit types (Apples, Grapes, Kent Cobs, Strawberries) and prices per bushel or per lb.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with columns for vegetable types (Artichokes, Asparagus, Jersey, Spruce, Barbe de Capucio, Beans, Cauliflowers, Celery, Celeriac, Cucumbers, Endive, Garlic, Keut Regents, etc.) and prices per doz. or per lb.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with columns for plant types (Aralia Sieboldii, Arbutus-vitæ, Begonia, etc.) and prices per dozen.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with columns for flower types (Abutilon, Arum Lilies, Azalea, Bouvardias, Carnielis, etc.) and prices per bunch or per dozen.

SEEDS.

LONDON: March 29.—The seed market has lately been well attended, and a good business doing. Stocks of all descriptions of seeds are now in narrow compass, and prices consequently show great firmness. Canadian Clover seed, being remarkably clean, meets with increasing favour. Of fine new English red, the supply seems almost exhausted. Alsike, white, 12s. 6d.; Hutton reduce full rates. For spring Tares there is less inquiry. The sale for bird seeds is slow. Feeding Linseed unchanged. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies of both home-grown and foreign are moderate, and the trade quiet, with very little change in prices. Quotations.—Flukes, 120s. to 140s.; Victor, 100s. to 110s.; Scotch Champions, 60s. to 70s.; ditto King's, 60s. to 70s. per ton. German Reds, 3s. 6d. per bag.—The imports into London last week comprised 400 bags and 88 sacks from Bremen, 600 bags Hamburg, 114 bags Cadix, 20 sacks Algiers, 54 bags Harlingen, and 58 tons from Roscoff.

COALS.

The following are the prices current at market during the week:—Ravenworth West Hartley 13s. 6d.; East Wylam, 15s.; Walls End—Hutton, 12s. 6d.; Hutton Lyons, 13s.; Hawthorns, 13s. 3d.; Lambton, 14s.; Hutton Hartlepool, 14s. 6d.; Wear, 13s.; South Hetton, 14s. 6d.; Chilton Tees, 13s. 6d.; Tees, 14s. 3d.; Thornley, 14s. 3d.

THE MOST BEAUTIFUL FLOWERS ARE GROWN FROM WEBB'S SEED

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WEBB'S PRIZE LAWN SEEDS. Produce perfect Lawns in a few months. 1s. 2d. per pound; 22s. per bushel.

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VIOLA S., 30,000 fine strong Plants: VIOLA CORNUTA, WHITE VIRGIN 5s. QUEEN OF BLUES per 100, 45s. LLEVELAND YELLOW per 100, 45s. BLUE KING per 100, 45s. Cash, Carriage and package free. H. I. HARDY, F.R.H.S., Stour Valley Seed Grounds, Hurs, Suffol.

WILLIAMS' CHOICE FLOWER SEEDS. The Finest in Cultivation. Post-free.

Table listing various flower seeds (Auricula, Balsam, Begonia, Capsicum, Calceolaria, etc.) and their prices per packet.

For further particulars see ILLUSTRATED SEED CATALOGUE Which will be forwarded, Post-free, on application.

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SWEDE.

SHARPE'S Selected **LARGE SWEDE**.
SHARPE'S Selected **KINLDIE GREEN**.
SHARPE'S Selected **HARDY'S SHORT-TOP**.

YELLOW.

SHARPE'S Selected **GREEN-TOP SCOTCH**.
SHARPE'S Selected **PURPLE-TOP SCOTCH**.
SHARPE'S Selected **POSTERTON HYBRID**.
SHARPE'S Selected **YELLOW TANKARD**.

WHITE.

SHARPE'S Selected **GREEN GLOBE**.
SHARPE'S Selected **RED GLOBE**.
SHARPE'S Selected **WHITE GLOBE**.

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Special Prices Current on application.

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CATALOGUE of the above may be had Post free upon application.
THOMAS S. WARE,
HALE FARM NURSERIES, TOTTENHAM, LONDON.



AQUILEGIAS (Seeds). Few have the slightest idea of the beauty, elegance, and the use of this splendid hardy plant, and to be quite sure that our seed shall be the best, we purchased the stock of two most noted raisers of new kinds—viz., Messrs. Douglas and Cruikshank, and we have great pleasure in offering it to our friends in 12, and 25 packets, mixed, from all the best named in cultivation. Here, again, to be quite sure that our Gloxinia seed is the best, and if possible to improve on our stock, we purchased at a high price the seed which the *Gardeners' Chronicle* alludes to in the following eulogistic terms:—

Gloxinias Exhibited at the Richmond Show and Royal Botanic Gardens, Regent's Park.—"It is a goodly group of the most beautiful summer decorative flower should evoke special praise from some of our oldest plant judges indicates that they were unusually good." We doubt whether finer plants, more superbly flowered, were ever put upon a show table. The blooms were not only large, but of rich colours, and the finest quality. These plants exhibit what can be done towards making the Gloxinia a summer exhibition plant and it must be admitted that in beauty and richness it stands second to none other. Since the Gloxinia has been taken in hand by the florists, it has developed grand qualities and such brilliant hues as to put many flowers in the shade."

Mixed Seeds, 2s. 6d. per packet.

H. CANNELL & SONS,



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Invite an inspection of their stock, or a perusal and comparison of their CATALOGUES by all requiring Seed or Plants. *The most comprehensive Catalogue of low prices published.* All classes of goods required for the Amateur Gardener. All the following are Package Free for cash with order:—

WM. CLIBRAN AND SON'S FUCHSIAS, see Catalogue. The best Old Varieties, and the finest English and Continental Novelties. Young Plants, our selection, assorted, 12 varieties 3s. 2s. 6d. 5s. 6d. 3s. 0d. 2s. 6d. 1s. 0d. 17s. 6d., 100 plants in 50 varieties 15s. Cuttings half price.

WM. CLIBRAN AND SON'S CHRYSANTHEMUMS, see Catalogue. Thousands of young rooted plants are now ready for sale, in all the most approved American-flowered Pompons, &c. our selection to name, 12 varieties 2s. 6d., 2s. 0d., 1s. 6d., 5s. 0d. 2s. 6d., 100 plants in 50 sorts 12s. 6d. Japanese varieties 1s. per dozen higher in price. Cuttings half price.

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WM. CLIBRAN AND SON'S DAHLIAS, see Catalogue. Pot Roots Show or Fancy, our selection, 12 varieties 4s., 2s. 6d., 5s. 0d. 12s. Young Plants, 12 varieties 3s., 2s. 6d., 5s. 0d., 10s. 6d., 100 do. 22s., 100 in 50 varieties 18s. Cuttings half price.

SINGLE DAHLIAS—See Catalogue for list of sorts and price.

WM. CLIBRAN AND SON'S CHEAP BEDDING PLANTS, from stores for potting—Ageratum and Lobelia in variety, to name, our selection, per dozen, 1s.; per 100, 5s.

CALECARIAS—Golden Gem and Aurea (Irishma), per dozen, 1s.; per 100, 5s. Fringe of Orange, per 100, 5s.

IKESINS, of sorts—Mesembryanthemum variegatum, per dozen, 1s. 6d., per 100, 10s.; 50 each, Ageratum, Lobelia, Calceolarias, and Iresine, 200 plants for 10s. For other Bedding Plants in great variety, see Catalogue. Cuttings half price.

WM. CLIBRAN AND SON'S CALCEOLARIAS, GLOEIS, Evergreen BEGGIANS, MIMULUS, SALVIAS, LANFANAS, TROPÆOLIMS, 12 varieties of any of these (our selection) 3s., 6 each of the seven, 4s. plants; for 9s.; Heliotrope, 12 varieties, 2s. 6d. Cuttings half price.

WM. CLIBRAN AND SON'S CHEAP FIVE AND GREEN HOUSE PLANTS, either Stove or Greenhouse, or both as desired, our selection, all fine varieties, 12 for 6s., 25 for 12s., 50 for 22s. 6d., 100 for 42s.

ORNAMENTAL FOLIAGE BEGGIANS, 6 varieties 3s., 12 do. 6s.

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WM. CLIBRAN AND SON'S STOVE, GREENHOUSE and HARDY FERNS, any of all classes as desired, 12 varieties, 6s.; 25 do., 12s. 6d.; 50 plants, in 20 sorts, 21s.

WM. CLIBRAN AND SON'S HERBACEOUS PLANTS, The finest and most showy kinds, true to name, 12 varieties, 3s. 6s. 5s.; 25 plants, 6s. 9s. 6d., 4s. 0d., 10s. 6d. or 12s. 10s. 0s., 20s. or 35s.; 100 plants, in 50 varieties, 16s. or 30s.

WM. CLIBRAN AND SON'S FLORISTS' FLOWERS, see Catalogue. For Exhibition or Garden Decoration, all to name, our selection—Carnations and Pansies, 12 plants 7s., 12 plants 10s., Single Primrose, Sweet William, Wallflowers, Canterbury Bells, Forget-me-Nots, Silene compacta, Arabis, Aubretia, HASTY'S Cerastium, Sedum, any of the above, 1s. per dozen, 5s. per 100; smaller plants, 9s. per dozen, 3s. 6d. per 100.

WM. CLIBRAN AND SON'S VIOLAS and BEDDING PANSIES. Many thousands of plants from the open ground, fine sorts to name, 12 varieties, 2s. 6d.; 25 do., 4s.; 50 do., 10s. 6d.; 100 plants, Blue, Yellow, White, or Purple, or Mixed, as desired, 10s. Double, Red or Pink, 1s. per dozen, 4s. per 100. White, 1s. per dozen, 4s. per 100; Auricula Seedlings, 1s. 6d. per 60, 10s. 6d. per 100; Lilium, 1s. per dozen, 5s. per 100; Clematis, 12 distinct kinds, for garden, 6s.

HARDY CLIMBERS in pots, in great variety, 12 distinct varieties 6s.

STRAWBERRY PLANTS, from ground, our selection, 2s. 6d. per 100, 500 in 1 to 10 sorts as required 15s.; strong plants from 1 1/2 in pots 10s. per 100, from 5 in, pots 21s. per 100.

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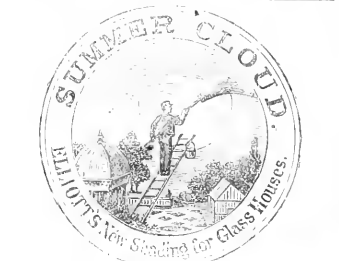
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It combines Efficiency with Appearance, Convenience with Economy, and its effects are Lasting. Sold in Packets, 1s. each, with full Directions for Use, and may be obtained from all Seedsmen and Nurserymen.

SOLE Manufacturers and Proprietors, **CORRY, SOPER, FOWLER & COMPANY (Limited)**, FINCHURCH STREET, E.C., and London.

TANNED NETTING from a yard to 4 yards wide, 1d. per square yard, subject to a liberal discount on large quantities. **SHADING CANVAS**, from 25d. per yard, and upwards. **BEST ROLL TORALCO PAPER, RAFFIA FIBRE, RUSSIA MATS.** **SACKS and BAGS**, New and Second-hand. **ROPES, LINES, and TWINES**. Descriptive Catalogue post-free on application. **JAMES T. ANDERSON**, 742, Commercial Street, Shoreditch, London, E.

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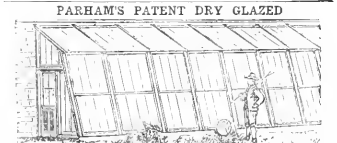
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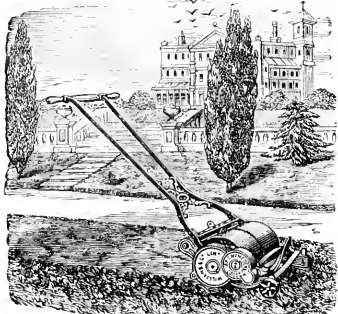


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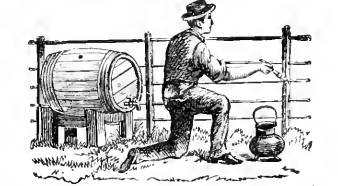
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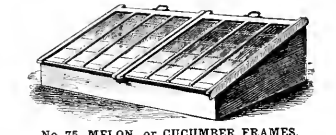
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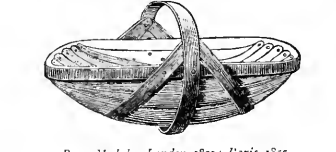
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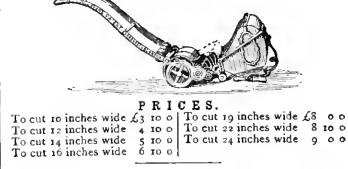


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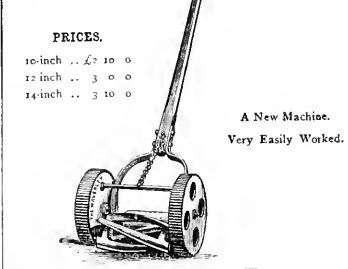
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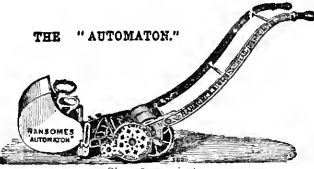
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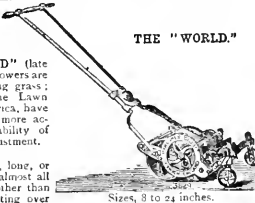
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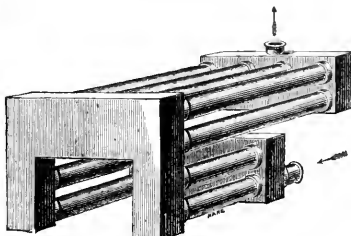
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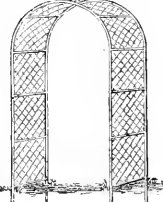
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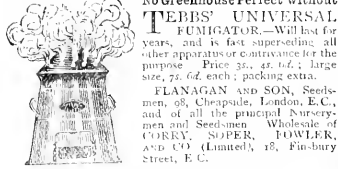
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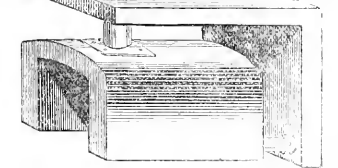
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WANTED, an active young MAN, to take Charge of two or three Houses—one who has a knowledge of Propagating Soft-wooded Plants. A good character essential.—W. WEATHERILL, Woodsure Nursery, North Finchley, N.

WANTED, a young MAN, to assist in the Packing-shed; if able to Glaze and Paint preferred. Also TWO young MEN, for House Work. They must be quick at Potting. Wages 17s. per week.—WILLIAM BADDELEY & CO., Coventry Nursery, Coventry.

WANTED, a young MAN—one who has been accustomed to Market, and capable of Potting and Tying. Also a young man as IMPROVER, under an experienced Foreman. Work principally Out-of-doors.—Apply, personally, or by letter, stating wages required, to T. COOK, Bromley Road, Beckenham, Kent.

WANT PLACES.

DOWNIE and LAIRD can at present recommend with every confidence several first-rate SOUTH GARDENERS, whose character and abilities may be fully relied upon for Large Establishments or Single-handed Situations; also FOREMEN, UNDER GARDENERS, and FARM BALIFFS.—17, Frederick Street, Edinburgh.

To Noblemen and Gentlemen requiring Land Agents, JAMES WALKER & CO., 11, Abchurch Lane, London, E. C.

JAMES CARTER and CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W. C.

RICHARD SMITH and CO. beg to announce that they are constantly receiving applications from Gardeners seeking employment for Large Establishments or Single-handed Situations; also FOREMEN, UNDER GARDENERS, and FARM BALIFFS.—17, Frederick Street, Edinburgh.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, are in a position to recommend an exceptionally good man as GARDENER, or SEWARD and ASSISTANT, for a Large Establishment or Single-handed Situations; also FOREMEN, UNDER GARDENERS, and FARM BALIFFS.—17, Frederick Street, Edinburgh.

GARDENER (HEAD).—Age 28; thorough knowledge of Gardening in all branches. Twelve years in five places. Five years' good character.—E. M., 13, Elizabeth Place, Kent, Greenwich.

GARDENER (HEAD).—Age three or four years kept. Age 41; married; no family; thoroughly practical man, and well up in every branch of the profession. Character and reference highest class.—A. E., 16, Whitmore Street, Mod-tene.

GARDENER (HEAD), where others are kept.—Thoroughly understands the Growing of all kinds of Fruit, Flowers, and Vegetables, and the General Management of a good Garden. Highly recommended.—E. T., to John Street, Atrincham, Cheshire.

GARDENER (HEAD).—Age 25, single; Cape or United States of America preferred. Twelve years' practical experience in some of the best places in England and Scotland, and an abundance of professional Good character testimonials.—S. L. H., Manor House, Hookham, Leatherhead.

GARDENER (HEAD).—Single; well acquainted in all branches. Eighteen years' experience in some of the best Gardens in England. Four and a half years as Head in last situation. Excellent references for the past ten years.—T. C. H., Alexandra Terrace, Pence Lane, Faversham.

GARDENER (HEAD); married, one child (Age 3)—a Civil Engineer, who has been engaged with any Gentleman requiring the services of an Orchard Grower, or good General Gardener. Seven and a half years in present situation.—The Knoll Gardens, Balfon, Shipley, Yorkshire.

GARDENER (HEAD), to any Lady or Gentleman requiring the services of a thoroughly practical man—Age 36, married; nine years' good character from last situation.—W. H., Victoria and Paradise Nurseries, Upper Holloway, London, N.

GARDENER (HEAD); age 30. A. SUMMERSELL, Waltham Park, Borely, Herts, can with confidence recommend a thoroughly practical man, who has been with him for four years, to any Nobleman or Gentleman requiring the services of a good practical man.

GARDENER (HEAD).—No family. Thorough practical and energetic man, well up in every branch of the profession. Stove, Greenhouse, Conservatory, Fruit and Potted Plants, and all the various branches of the highest class. Land and Stock if required.—HORTUS, 43, Alfred Street, Spald Brook, near Birmingham.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING and COLLECTING MACHINES for 1882.

THE WINNERS OF EVERY PRIZE IN ALL CASES OF COMPETITION.

Patronised by Her Most Gracious Majesty the Queen on many occasions, His Royal Highness the Prince of Wales, the King of the Belgians, the late Emperor of the French, the Emperor of Russia, and most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "Journal of Horticulture," of June 7, 1881.—"Mowing Machines.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Son, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856, And Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

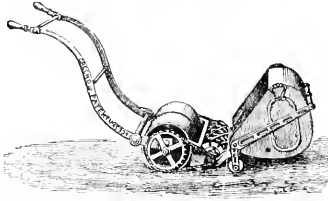
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible.
- 2d. They are worked with much greater ease than any other.
- 3d. They are the least liable to get out of order.
- 4th. They make little or no noise in working.
- 5th. They will cut either short or long Grass, wet or dry.

Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower.

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
*To cut 22 inches. By Two Men ...	8 10 0
*To cut 24 inches. By Two Men ...	9 0 0
* It made stronger, suitable for Donkey, 30s. extra.	

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

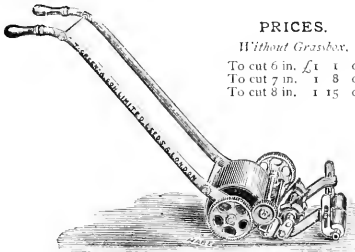
To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.



PRICES.

Without Grassbox.

To cut 6 in. £1 1 0
To cut 7 in. 1 8 0
To cut 8 in. 1 15 0

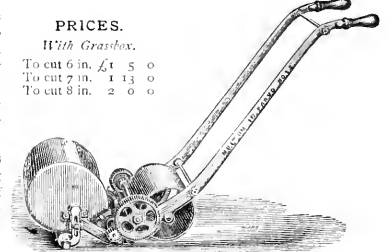
This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, servicable machine, and very easy to work.

PRICES.

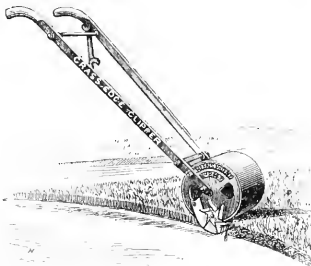
With Grassbox.

To cut 6 in. £1 5 0
To cut 7 in. 1 13 0
To cut 8 in. 2 0 0



GREEN'S PATENT GRASS EDGE CLIPPER.

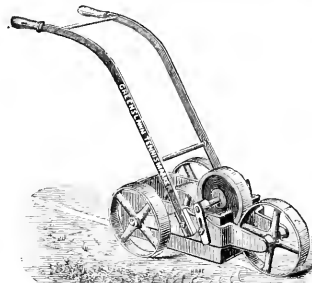
Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.



SIZE and PRICE.

Wide. ..	Diam. ..
8 inch ..	7 inch ..
Packing Case, 2s.	

GREEN'S PATENT LAWN TENNIS COURT MARKER.



This Machine is of novel design and construction, and the simplest and most effective in its operations.

In the trough containing the liquid there is a loose drum which revolves when the machine is in motion, and conveys the marking material to the intermediate pulley, which in its turn transmits it to the front one, so that the ground is marked effectively as the machine is pushed along.

Price, 21s.

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.

Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

No Lawn Mower Manufacturer keeps so large a stock of Mowers as is to be found at our London Establishment, 54 and 55, Blackfriars Road, where purchasers can select out of several hundred Machines, of Hand, Pony, and Horse Power, and have their Orders executed the same day they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

THOMAS GREEN & SON (Limited), Smithfield Ironworks, Leeds; and 54 and 55, Blackfriars Road, London.

Editorial Communications should be addressed to "The Editors," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & CO., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, April 1, 1882. Agents for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MACKENZIE & Co., Edinburgh and Glasgow.

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SATURDAY, APRIL 8, 1882.

{Registered at the General Post-office as a Newspaper.} Price 5d. POST-OFFICE, 51d.

CONTENTS.

Table listing various items and their prices, including Anemone nemorosa, Asparagus, Carnations, and Heliconia.

ILLUSTRATIONS.

Table listing illustrations such as Craig-y-nos Castle, Heliconia ramosa, and Narcissus Mastermanii.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. NOTICE - COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., &c.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY. GREAT INTERNATIONAL FRUIT AND FLOWER SHOW, at the Central Horticultural Company (John Wills), Limited, having intimated to the Society the withdrawal of the Prizes offered by them at this Show, the Society has substituted the following:—

CLASS I.—FRUIT. No. 7. For the best six sets of Grapes, 120 bunches of each, &c.—1st Prize, £15; 2d Prize, £10; 3d Prize, £5.

CLASS III.—FRUIT. No. 50. Best collection of twelve sorts of Fruit, including two Pines, two sorts of Grapes, two Melons, and six other sorts of Fruit.—1st Prize, £15; 2d Prize, £10; 3d Prize, £5.

TUBEROSES, double American. LILIU CHAI CEDONIUM. LONGIFLOREM, imported from Japan. GLADIOLUS COMITALE ALBA, "The Bride." GANDAVENSIS. FLOREBUNDUS. RAMOSUS. NE PLUS ULTRA. Special quotations on application. WATKINS AND SIMPSON, Wholesale Seedsmen, Exeter Street, Strand, W.C.

BEDDING VIOLAS.—Admiration, Duchess of Sutherland, Sovereign, Parry, and Victoria, all autumn struck in open ground, &c. per 100, 2s. 6d. per 100. SANTOLINA INCANCA, autumn struck, &c. per 100, 2s. 6d. per 100. GRAPE HYACINTHS, AMERONE, JAPONICA, SCHOENHUTIA & COCCINEA, and the finest SEDUM for bedding, all at 2s. per 100. T. L. MAYOS, Nurseryman, Heref. rd.

Double-flowered White Bourdiana. MR. WILLIAM BULL can now supply this charming acquisition, in nice little well established plants, 42s. per dozen, in New and Rare Plants, 556, King's Road, Chelsea, London, S.W.

DOUGLASS SEED.—Crop 1881, from the celebrated Douglas Forests at Murrumbidgee, Perthshire. Price per pound, with samples, on application. R. AND A. MORRISON, The Nurseries, Elgin.

THOMAS RIVERS AND SON are now prepared to supply PEACHES and NECTARINES, in pots, fine healthy Trees, beautifully set with Fruit, 7s. 6d. and 12s. 6d. each. The Nurseries, Sawbridgegorth, Herts.

Cabbage Plants—Cabbage Plants. ROBINSON'S CHAMPION DRUM-HEAD CABBAGE PLANTS, 3s. per 100. JOHN FERKINS AND SON, 55, Market Square, Northampton.

Notice of Removal. JAMES BOYD AND SONS, Paisley and London, beg to intimate that they have REMOVED their London Office from 6, Suffolk Street, Pall Mall, to 49, PAUL MALL, S.W.

Plants for Spring. CHARLES TURNER'S CATALOGUE is now ready, containing full Lists of Forest Flowers, Pelargoniums of all classes, New Roses, Bedding Plants, &c. C. Turner especially directs attention to his fine collection of Carnations, Picotees, and Cloves, at this most seasonable time for planting. The Royal Nurseries, Slough.

Heliotropes. WHITE LADY and PRESIDENT GARDEN.—Never before have two new varieties so completely surpassed all other kinds; however, such is the fact, and perhaps never were there two more serviceable plants offered. Two First-class Certificates, 2s. each; one of each post-free for 4s.

H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent. FIGS IN POTS.—All the leading varieties, in strong healthy plants. Price and particulars on application to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

American Tuberoses. HOOPEK AND CO. have a very fine sample to offer. Covent Garden, London, W.C.

Pelargoniums. PELARGONIUMS.—Show, French, and Fancy varieties, strong, healthy plants, established in single pots, 3s. per 100, packing included. Cash with order. JAS. HOLDER AND SON, Crown Nurseries, Reading.

GERANIUMS for BEDDING-OUT. Strong healthy autumn-struck plants, in good variety, at 10s. per 100.—Madame Vaucher and Silver Variegated, 12s. per 100. Packages free with order. S. BIDE, Alma Nursery, Farnham, Surrey.

Show and Decorative Pelargoniums. GAKAWAY AND CO. offer the above, good bushy stuff, in pots, 2s. per dozen, 6s. per 100. GAKAWAY AND CO., Durham Down, Clifton, Bristol.

To the Trade Only. TEA ROSES, on own roots, extra strong, out of 45-inch pots, 2s. per 100, for cash. Now ready, Isabella Spruce, Glose de Dijon, &c. MARRIS AND CO., Weston-in-Gordano, Bristol.

NEW ROSES of 1882.—The above are now ready, all the best varieties, lists of which may be had on application. The plants are very strong and healthy, in fact, be true plants could not be wished for—certainly could not be obtained. KEYNES AND CO. Salisbury.

CHEAP OFFER.—VERBENAS, strong, healthy, well-rooted Cuttings, White, Purple, Scarlet, heat varieties, 5s. 6d.; 10s. 6d. 100s. 37s. 6d. Carriage free for cash with order. A. STRAWBERRY, Rusham, Bedford.

Sweet Bays (Laurus nobilis). JOSEPH NAPOLEON BAUMANN, Ghent, Belgium, has a splendid stock of the above to offer, from 4s. to 20s. per pair. CATALOGUE with illustrations may be had free on application.

Verbenas—50,000 Now Ready for Sale. S. BIDE can now supply really good strong 500,000 spring-struck plants if Purple, Scarlet, White, and Pink VERBENAS at 6s. per 100. Good exhibition varieties, 2s. per 100. Packages free for cash with order. Also strong healthy Cuttings of the above at half price free by post. S. BIDE, Alma Nursery, Farnham, Surrey.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 12s., and 21s. A few extra specimens, size and price on application. LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application. W. HOWARD, Southgate, N.

To the Trade. CATALOGUE of NEW ROSES for 1882, TEA ROSES, &c., now ready, and may be had post free on application to KRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre Hereford.

WEBB'S PRIZE COB and other FILBERT TREES, Calton Gardens, near Reading. Apply to Mr. COOPER, F.R.H.S., Calton Gardens, near Reading, Berks.

CAULIFLOWER LONDON EARLY.—Very fine plants, struck out and wintered at the foot of a wall. Price, which is very moderate, on application. EDWARD SANG AND SONS, Nurserymen, Kirkcaldy, N.B.

WANTON. PINUS PINASTER, 3 feet. PINUS MARITIMA, 3 feet. Well furnished plants. Quote price to WM. FELL AND CO., Wentworth Nursery, Hexham.

SUTTONS' FLOWER SEEDS. ASTERS.

SUTTONS' FLOWER SEEDS. STOCKS.

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SUTTONS' CATALOGUE of FLOWER SEEDS, gratis and post-free on application.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, READING, BERKS.

Now is the time to Transplant. HOLLIES—Grand specimens of all sizes to 12 feet high, and of the Best Variegated and green kinds. See LIST here on application. These Trees should be seen to be appreciated. RICHARD SMITH AND CO., Worcester.

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FRESH GREEN ORCHID SPHAGNUM, clean, Hand-picked, in Hampers only, 5s. per Hamper. THOS. BEAUCHAMP, Woodfall's Cross, Downton, near Salisbury.

CALCEOLARIA GOLDEN GEM.—Strong Autumn-struck plants, 4d. per 100, 30s. per 1000; packages free for Cash with order. M. ROCHFORD, Fife Green Nurseries, Tottenham.

To the Trade. PRIMROSES.—PRIMROSES. Double WHITE, per 100, 14s. Double YELLOW, per 100, 16s. All fine plants. RODGER, McCLELLAND AND CO., 76, Hill Street, Newry.

ONE HUNDRED THOUSAND GERANIUMS.—Special offer. Extra strong, from 5s. per 100. CALCEOLARIA Golden Gem, 3s. 6d. per 100. All autumn-struck. LOBELIA, 6d. per 100. Cash. Priced LIST FREE. E. R. DAVIS, Newry Nurseries, Newry.

1882—Illustrated Hardy Perennials.—1882. THOMAS S. WAKE will have pleasure in possessing the above CATALOGUE free on application. It contains a grand collection of Rare New and Hardy Perennials. Hale Farm Nurseries, Tottenham, London, N.

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STRAWBERRIES.—Guaranteed true to name, strong Plants from ground and in pots. List of sorts and prices on application. KRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

CABBAGE PLANTS.—Enfield Market. Early Rainham, Robinson's Champion Drumhead, Green Curled Kale, and Red Pickling, may be had in any quantity, however large. Prices moderate. Mr. T. DAVIES, Tangley, Guildford, Surrey.

Cabbage Plants for Sale. S. BIDE can offer good strong Drumhead or Cattle CABBAGE, Early Battersea, Enfield Market, Imperial, and Nonpareil, at 2s. per 100 for Cash with Order. Packages free. S. BIDE, Alma Nursery, Farnham, Surrey.

HARWOOD'S PRIZETAKER GIANT ASPARAGUS. Fifty heads weighed 8 lb. 14 oz. The finest Asparagus in the world. One ounce of seed, 1s. 6d.; half-ounce, 1s. HOOPEK AND CO., Covent Garden, London, W.C.

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Formed by Allan Edward, Esq., of Oaklands, Dawlish. MR. J. C. STEVENS has received instructions from A. Edward, Esq., for sale by AUCTION...

By Order of Messrs. J. Peed & Sons, who are giving up Establishing. MESSRS. PROTHEROE and MORRIS will SELL by AUCTION...

A Well-known London Nursery for Sale. A valuable property as above, on which many thousands of plants...

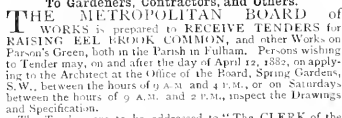
Home-grown MANGEL-WURZEL and TURNIP SEEDS. H. AND F. SHARPE will be glad to give every particulars...

(Imported—No. 2495) Adjoining Peace Station, London, Chatham, and Dover Railway... IMPORTANT TO MARKET GROWERS. TO BE SOLD, THE FREEHOLD of the ROYAL NURSERY...

Private Treaty, an Old-established NURSERY and SEED BUSINESS, in the North of England, established 1870... TO GENTLEMEN, Fruiterers, &c. FORK DISPOSAL, a first-class FRUIT BUSINESS...

ROYAL AGRICULTURAL SOCIETY OF ENGLAND. READING MEETING, July, 1882. PRIZES for FARM FRUITS and VEGETABLES will be offered in Classes open to Market Garden Farmers only...

BATH and WEST of ENGLAND SOCIETY (Established 1777) 309, SOUTHERN COUNTIES ASSOCIATION. CARBIDE MEETING. May 29, 30, 31, and June 1 and 2. LAST DAY of ENTRY, May 2.



THE METROPOLITAN BOARD of WORKS is prepared to RECEIVE TENDERS for RAISING KEELWORK COMMON and other Works on Parkers' Green, both in the Parish in Fulham...

CHARLES TURNER'S Descriptive CATALOGUE of all the sections of these beautiful Flowers is now ready and may be had post-free. The plants are very strong and in unusual fine health. The Royal Nurseries, Slough.

VERBENAS.—Strong, healthy, well-rooted Cuttings, perfectly free from disease, of White, Purple, Scarlet, and Pink, 6s. per 100, 4s. per 1000.

Gold Medal Begonias. LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection...

CHRYSANTHEMUMS, best sorts, 3s. 6d. per doz., 4s. per doz. GOLDEN best sorts, 1 doz. 2s. 6d. 2 doz. 2s. 6d. 2 doz. distinct varieties, 6s. ALTERNANTHERA AMENA and MAGNIFICA, 5s. per 100, 10s. 2 doz. ALL the above good plants...

Early White Roman Hyacinths. NARCISSEUS, Double White and Paper White. ORDERS FOR THESE ARTICLES, to be delivered in August Next, are now being booked.

H. AND F. SHARPE offer the following varieties of SEED POTATO, at very low prices to clear out: RIVERS' ROYAL ASHLEAF, MYATI'S PROLIFIC KIDNEY...

ASPARAGUS, 1-yr., 2-yr., and 3-yr., fine stout. Jerusalem and Globe ARTICHOKE'S, RHUBARB, Early, Johnston's St. Martin's, Lemaire. Plain CRESS seed. FREEMAN, Seed Grower, Norwich.

Double Tuberoses. E. H. KRELAEGE and SON, Haarlem, Holland, has a fine first imported lot of best Double American and Italian TUBEROSIS ready for immediate supply...

ROSES, Dwarf, on Manetti.—The strongest and best plants (all good sorts) that money can buy, 30s. per doz. Double American, The Pearl, per 100, 22s. Double Italian, per 100, 12s. Discount to the Trade. As planting season is coming, immediate orders are solicited.

To the Trade. SEED POTATOS. H. AND F. SHARPE offer the following varieties of SEED POTATO, at very low prices to clear out: RIVERS' ROYAL ASHLEAF, MYATI'S PROLIFIC KIDNEY, WILKINS' SUPERB, YORKSHIRE REGENT, PATTERSON'S VICTORIA, SCOTCH CHAMPION, AMERICAN EARLY ROSE. Lowest prices on application. Seed Growing Establishment, Wisbech.

CATTLEYA AUREA CATTLEYA TRIANE (many pure white). ODONTOGLOSSUM PARLURIUM, best variety. ODONTOGLOSSUM ROLZII. MASDEVALLIAS, of all sorts, with fresh green leaves. CYPRIPEDIUM SELLUM, with splendid green leaves.

CHEER LILIES and ORCHIDS.—The following beautiful Lilies are offered at very low prices: LILIUIM AUSTRUM, the golden-rayed Lily from Japan, size No. 4, 6s. per doz. ALBUM KRAETZERI, one of the best pot. Lilies and the easiest to grow: Bulbs, certain to give satisfaction, 1s. 6d. each, or 2s. per doz.

- Acridis virens 3 6 Odontoglossum Alexandrinum 5 0
Dendrobium aggregatum 5 0
... .. 3 6 Saccolabium Blumei 5 0
... .. 3 6 mumus 5 0
... .. 3 6 reitzi 5 0
... .. 3 6 Sephromium grandiflora 3 6
... .. 3 6 Dendrobium Friesenii 5 0
... .. 3 6 Cattleya citrina 7 6
... .. 3 6 superba 7 6
... .. 3 6 scopulorum 5 0
... .. 2 6 Elderado 12 6
... .. 3 6 Triane 7 6
... .. 3 6 Chrysis lutea 5 0
... .. 2 6 Lelia Dayana 5 0
... .. 2 6 Odontoglossum Rolzii 5 0
... .. 3 6 Masdevallia tovariana 5 0
... .. 3 6 Mormodes parviflora 5 0
... .. 3 6 Odontoglossum constrictum 5 0
... .. 2 6 Elderado 12 6
... .. 3 6 Triane 7 6
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... .. 2 6 Odontoglossum Rolzii 5 0
... .. 3 6 Masdevallia tovariana 5 0
... .. 3 6 Mormodes parviflora 5 0
... .. 3 6 Odontoglossum constrictum 5 0

SPECIAL CLEARANCE OFFER.—As April is one of the best months in the year for Evergreen Planting, and having a heavy stock of English EVERGREENS, of various sizes, from 2 to 6 feet, we invite orders by the undertaker met with extremely low prices:— 2 feet Plants, 25s per 100. 2 1/2 to 3 feet Plants, 35s per 100. 3 to 4 feet fine Plants, 45s per 100. 4 to 5 feet, extra bushy Plants, 50s per 100. OAKS, English, 1 shilling each, 3 to 10 feet, 25s per 100. LARCHES, English, 1s per 100. AVENUES, 25s per 100. LIMES, 10s to 15s, 50s. Apply to GODWIN AND SONS, Ashbourne.

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NEW FUCHSIA, EDELWEISS.—The best and purest double white corolla ever offered. Flowers large, sepals well reflexed, strong grower, and short-jointed, among the finest flowering from 4 to 6 feet to six flowers a plant. 2s. each. April 20. HENDER'S DOUBLE FLORET DAHLIA.—Awarded three Certificates of Merit for 25 years for each flower having an oval or oval size within it, giving the flower a peculiar appearance. Colour deep crimson. 2s. each. HENDER'S CRIMSON VESUVIUS.—Grand new and most beautiful double flower, 2s. per dozen. HENDER AND SONS, Nursery, Plymouth.

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The Largest and Best Stock in Europe of good Established Plants. Tens of Thousands of Plants to select from.

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Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

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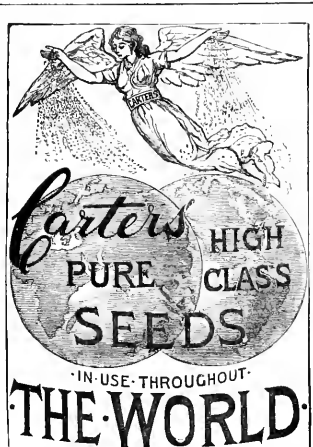
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Of all kinds, which have given unequalled satisfaction. See Illustrated and Descriptive LIST, free on application.

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After Three Months no discount can be allowed.

PRICE LIST OF THE FOLLOWING

is now preparing, and will be forwarded gratis and post-free to applicants:—

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THE MOST WONDERFUL CROPPING POTATO IN THE WORLD.

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ROYAL NORFOLK SEED ESTABLISHMENT,
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SUITABLE FOR ALL CROPS.

Price, £3 10s. per Ton, in Bags, at Aylesbury.

A single cwt. Sample Bag sent, Carriage Paid, to any Railway Station upon receipt of Post-office Order for 5s.

This valuable Manure, prepared from Sewage by the "A B C" process, has been extensively used, for several years, by Farmers, Gardeners, and others, whose reports testify to its fertilising properties.

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WILLIAM CURME, Gr. to Duke of Marlborough, Bienenheim Palace Gardens, December 12, 1881.

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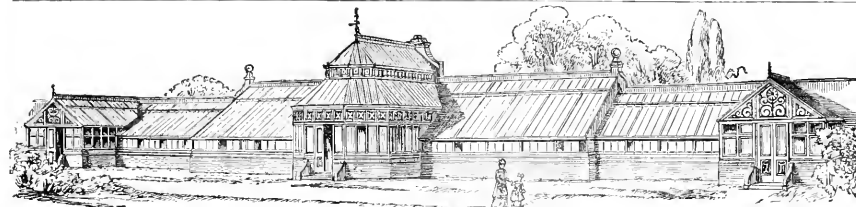
A. BLAKE, Head Gr. to H. Cameron, Esq., The Lilies, Wotton, January 3, 1882.

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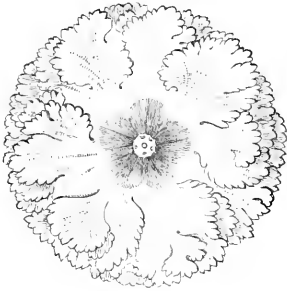
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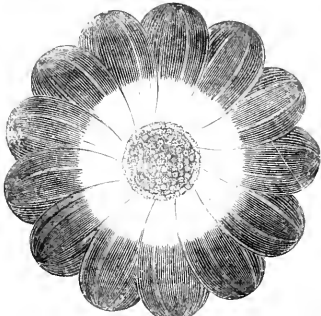


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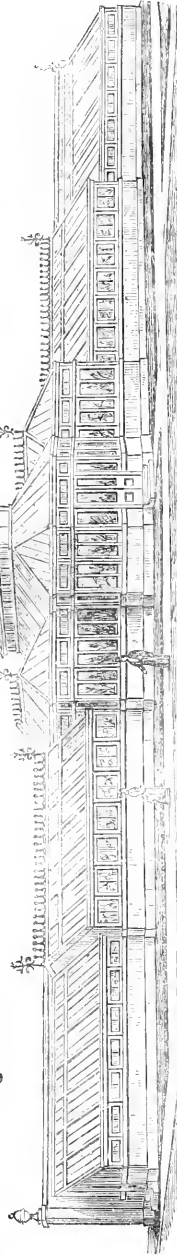


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THE Gardeners' Chronicle.

SATURDAY, APRIL 8, 1882.

GARDENIAS.

AMONG the many changes and contrasts between the horticultural practice of the present and the past, perhaps there are none more striking and complete than that relating to the culture and position of Gardenias. Only a few years ago very few were grown, and those few were mostly very indifferently cultivated. Seldom were more than from six to a dozen found in private places, and few or none were grown by the trade. The old variety—radicans, single and double—was almost the only sort grown at all, and the plants were not seldom the victims of mealy-bug, thrips, and spider, being as full of insects as of flowers. Here and there the improved *C. florida* might have been met with in better condition, but these were rare exceptions. The plants were looked upon as miffy growers, specially liable to insect pests, and hardly worth growing. A great mystery was made of the art of growing clean, healthy, and floriferous Gardenias, and for many years the art remained in such few hands as to be practically unknown. A glimpse of the truth, however, oozed out occasionally, associated with dung beds for bottom-heat. The introduction of larger-flowered species or varieties, such as *Fortunei*, *intermedia*, &c., also gave a stimulus to *Gardenia* culture. With the prospect of obtaining *Gardenias* as large as small *Camellias*, and sweeter than *Jasmine*, *Rose*, and *Stephanotis* combined, *Gardenia* culture took a fresh departure. Though for a time the progress made was slow, and the highest measure of success may not have been reached as yet, yet the *Gardenias* of to-day are as unlike as the same plants or family could well be to those of a quarter of a century since. And not only have the plants improved almost out of recognition, but their numbers have increased beyond enumeration. For every one grown in gardens five-and-twenty years ago, there are probably a thousand cultivated now. Go where one will, one meets with scores, hundreds, thousands, housefuls of *Gardenias*. Gardens, markets, and shops, are crowded with them. At Easter, especially, no flowers are more popular or more profitable. From 6d. to 2s. 6d. is thought a fair price for a prime *Gardenia*. The *Camellia*, *Rose*, *Carnation*, *Tuberose*, *Stephanotis*, have a hard struggle to hold their own in public favour against or abreast of the new favourite. The purity of its whiteness, the fulness of its fragrance, are unrivalled for wreaths, bouquets, room, table, and church decoration. It is in universal demand and esteem. The decorative value in the stove or main conservatory is also of the highest order—their habit is excellent, their foliage of the deepest glossy green, which sets off their flowers to the best advantage. So fashionable have *Gardenias* become and so substantial are their merits, that it is hardly an exaggeration to add, that they are found in almost every garden, and that the more largely they are cultivated, the more satisfactory and enjoyable the garden. All this being true,

it becomes every day a matter of more practical importance to show how our present success in *Gardenia* culture has been reached: chiefly, through more root-room and higher temperature, and a more liberal allowance of food and water. So greedy is the *Gardenia* of root-room that its perfect culture can hardly be reached in pots, however large the latter may be. The first man that planted out a *Gardenia* was as great a benefactor to his species probably as the historical person who made two blades of grass to grow where one only grew before. It is certain he pointed out the way to grow *Gardenias* to perfection, and was the progenitor of those thriving housefuls met with in all directions.

Gardenias are such gross rooters that they seem to spurn the control of pots. Almost before the roots reach their sides they cease to thrive or to grow, hence the importance of planting them out. The mere extension of old and formation of new roots seems essential to their perfect health and free blooming. *Gardenias* will not be forced into flower at the bidding or crushing of small pots; on the contrary, the more free and uncontrolled the roots the more freely the plants bloom. So well is this understood by many of the best growers of *Gardenias* that if unable to plant out or shift on their large plants they simply throw them away and start afresh. It is easy enough to feed the old roots, but that will not suffice to keep *Gardenias* in robust health and full flower. To this new roots seem absolutely necessary, and it is found that these are most rapidly produced and kept longest in health in an open border of peat only, resting on a good substratum of thorough drainage.

If compelled to grow *Gardenias* in pots the shifts into large ones should, if practicable, precede root-growth so much and so far as to prevent the roots being matted around the inside of the pots. *Gardenias* in pots should also be overpotted. When this becomes impossible discard the old plants, however fine, in favour of younger ones, for in the ratio in which the plants make roots, so also do they make flowers.

Next to an abundance of roots perhaps a high temperature is the most essential requisite to success in *Gardenia* culture. True, *Gardenias* may be forced to drag out a shivering existence in greenhouse, cold pits, &c.; but where is the benefit to any one? The plants may live, and that is all. But to make them flower freely and preserve them in robust health, a high temperature is essential. Cultivators differ as widely as from 65° to 100° in their definition of a high temperature; but the average range of those who grow *Gardenias* most successfully may be quoted as from 65° to 80°; this tropical temperature not only ensures a superabundance of roots, but strong growth and plenty of bloom.

Abundance of moisture and of food are needed to sustain the strength and vigour of the plants. As to moisture, there are few more effective means of vapourising the atmosphere than by the use of fermenting material. This and the bottom-heat were the secret of the success sometimes obtained in the culture of *Gardenias* in olden times. Now overhead syringings, and the constant damping down of paths, stages, &c., have ensured that the atmosphere shall be kept at or within a degree or two of saturation. The roots are also kept flooded with water during the period of most active growth. Dryness in the air or at the roots is fatal to success in the culture of the *Gardenia*. Even when dryness at the roots is not carried so far as to impair the health or check the vigour of the plants, it may readily result in sending off a whole or a half of the flowers in showers before they open. As to food, the most successful growers give little in the soil. True, some have grown good *Gardenias* in a mixture of loam, peat, and cow manure,

the latter well spent, and in small quantity; but fibry peat is now mostly preferred, and food is given if needful in the form of weak and clean manure-water—that made of cow-dung and soot in weak solution being often used. *Gardenias* thus treated and shaded from the direct rays of the sun, though at other times exposed to as much light as possible, grow with a vigour and flower with a profusion totally unknown under the older system of cultivation. The flowers are also larger and more full of fragrance under these more liberal methods of cultivation, and the plants enjoy complete immunity from the attacks of insects.

New Garden Plants.

ZAMIA MONTANA.*

THIS interesting species was described by Alexander Braun in 1875 from specimens collected by Gustav Wallis in New Grenada in 1873. It was again met with, in 1880, by Kalbreyer. Quite recently Messrs. Shuttleworth, Carder & Co. have imported a fresh stock from Antioquia, a circumstance of some interest to students and cultivators of Cycads, as the species had all but disappeared from cultivation.

The following description is drawn up from the notes and materials of all three collectors. I am indebted to Professor Eichler for a tracing from Wallis' specimen, to Messrs. Veitch and Herr Wendland for part of Kalbreyer's specimen, and to Messrs. Shuttleworth, Carder & Co. for specimens of the foliage of their imported plant (which have enabled me to identify the species), as well as for the stems which they have presented to the Royal Gardens, Kew.

Stem tuberous, 4–5 feet high, 1 foot thick (probably in very old plants); leaves forming an erect terminal tuft, 4–5 feet long; petiole at the base fuscescent, flattened above and $\frac{1}{2}$ inch in diameter, beset throughout with minute scattered prickles; leaflets numerous (eight to ten pairs), the lower more distant, 1 foot or more long, 2–4 inches wide, chartaceous, oblanceolate to linear-oblanccolate, slightly unsymmetrical, narrowing into a very short petiole, apex abruptly acuminate, with usually one prominent and a few obscure teeth; nerves twenty to thirty-five, marked by strong furrows above, scarcely prominent except in dried specimens below. Inflorescence unknown. New Grenada. Moderately shady places in the upper mountain region, 7000–8000 feet.

Regel places this species in his genus *Aulacophyllum*, which principally differs from *Zamia* in the leaves being produced simultaneously and not in succession. The validity of the character requires to be tested by a further study of the species in a growing state. *Zamia montana*, as far as foliage goes, has its nearest ally in *Zamia Skinneri*, from Guatemala, which differs in its smaller, more symmetrical, broadly oblanceolate and sharply denticulate leaves. *W. T. D.*

ZAMIA OBLIQUA† (fig. 72).

This charming species, another of Gustav Wallis' discoveries, was also described by Alexander Braun. It differs from all other *Zamias*, and, indeed, as far as I know, from all other Cycads, by its Chamedorea-like habit. It has a straight, slender stem, of considerable height in proportion to the crown of numerous handsomely modelled leaves. Altogether, the plant has a character of distinction which makes it very acceptable in a collection of rare stove plants.

Stem cylindrical, erect, sometimes as high as 4 feet; 1½–2½ inches diameter, ultimately covered with a smooth or slightly warted pale scarious cortex, marked by the obscure transverse leaf scars. Leaves numerous, forming an erect ultimately spreading terminal crown, 1½–3 feet long. Petiole about equalling the rachis, cylindrical, glabrous, with a few minute scattered prickles. Leaflets about six pairs, 6–9 inches long, 2–4 inches broad, chartaceous, elliptic-oblanccolate, base narrowed into a short petiole; apex gradually caudate-acuminate, margins spinulose-denticulate

* *Zamia montana*, A. Braun, in *Monatsh. Acad. Wiss., Berlin* (1875), p. 376; *Aulacophyllum montana*, Regel, *Botanischer Anzeiger* (1879), p. 141; *Cycad. Revisio* (1879), p. 30.
† *Zamia obliqua*, A. Braun, in *Monatsh. Acad. Wiss., Berlin* (1875), p. 195; Regel, *Cycad. Revisio* (1879), p. 42.

from the middle upwards, upper surface bright green, shining, lower paler; nerves numerous, slender, wholly immersed. Inflorescence unknown. New Grenada: warm region.

Zamia obliqua was originally introduced by Messrs. Veitch. More recently it has been well represented in the collections of Mr. Bull and Messrs. Van Houtte. Good plants are in the possession of the Royal Gardens, Kew. A coloured figure will be found in the *Revue Horticole*, t. 289. *W. T. Thibault-Dyer*. [Our figure was taken some time since from a plant in Mr. Bull's collection, since which time it has considerably increased in size and beauty. Ed.]

ANTHERICUM (HIALANGIUM) GRAEFOPHYLLUM, Baker, n. sp.*

This is a new species of *Anthericum*, allied to the well-known St. Bruno's Lilies of Europe, which was discovered by Dr. Balfour in his recent exploration of the island of Socotra. He brought home the roots, and it flowered with us at Kew for the first time in the summer of last year, but did not develop its leaves till this present spring.

Root of very numerous cylindrical fleshy fibres, old leaves splitting up into copious strong bristly threads. Proper leaves of the basal rosette sessile, lanceolate, under a foot long, $\frac{1}{2}$ inch broad at the middle, narrowed gradually to the base and apex, with 8–9 strong vertical ribs, marked on the glabrous face with transverse bands of darker and lighter green, the edges conspicuously dilated. Peduncle simple, slender, under half a foot long, with several nodes, each with a small scarious lanceolate bract-like leaf. Raceme lax, simple, few flowered, pedicels solitary or in pairs, articulated near the base. Perianth funnel-shaped, white, $\frac{1}{2}$ inch long; segments lanceolate, with three ribs. Stamens rather shorter than the perianth; filaments white, glabrous, rather flattened; anthers small, globose, orange-yellow, ovary globose; style reaching to the tip of the perianth segments. *J. G. Baker.*

DENDROBIUM LUBBERSIANUM, n. sp.†

A very curious new *Dendrobie*, from the grand area of *Dendrobium*—Birmah. In growth it is like a smaller *Dendrobium* formosum. The terminal inflorescence at hand is two-flowered. The flowers are much like those of *Dendrobium cariniferum*, sepals and petals yellowish-white, with a white chin. The lip is much dilated from its cuculate base, trifid, with rounded large side lacinia, and a semi-ovate, blunt, toothed middle lacinia, covered with styliform processes. On the disc of each lateral lacinia there is a emmar blotch, and the same colour is to be seen on the base of the middle lacinia. The anterior styliform processes stand retrose, and are often pectinate or bipectinate. It is dedicated with great satisfaction to Mons. C. Chevalier Lubbers, the able *chef des cultures* of the Botanic Garden at Brussels. *H. G. Kuhn, f.*

EPIDENDRUM COOPERIANUM (Bat.) CALOGLLOSSUM.

No one would venture to accuse Mr. W. H. Fitch of having done too much justice to the beauty of one of those thousands of flowers he has represented in his wonderful perseverance with pencil and brush. Hence we are fully entitled to declare that the original plant, as represented in the *Botanical Magazine*, was a poor thing with its nearly flesh-coloured lip.

There appeared in 1881, at Mr. Day's, a glorious thing, surpassing a fine plant that flowered at Meadowbank in 1872 at Mr. Dawson's, under Mr. Anderson's management. It was the most exquisite colour, so bright and the glorious purple lip entered, it to be regarded as a not much inferior cousin of *Epidendrum Friderici Guilielmi* itself. This plant was bought at a high price by Sir Trevor Lawrence at the Dayan sale. I have before me a very strong plant coming from the same source as that from which Mr. Day obtained it, from Dr. Wallace, the New Bull Company, Colchester. *H. G. Kuhn, f.*

* *Anthericum graefophyllum*, n. sp.—(Nigro hirsuta) caulis crassiusculus denum sulcatus nigro pilosulus; foliis subcaerulis multo cylindricis, foliis verticis in fibras-valde copiosis dissolutis, foveis productis lanceolatis dorso et facie glabris, venis primariis validis 8–9 fasciis, transversalibus pallide et saepe viridibus decoretoe morae conspicue ciliatis; pedunculo brevi simplicifloro 4–6 minutis scariosis bracteiformibus parvis, racemo laxo paucifloro, pedicellis 1–2-nis, perianthii albis infundibularibus; segmentis lanceolatis; staminibus perianthio brevioribus; antheris parvis luteis. *J. G. B.*

† *Dendrobium Lubbersianum*, n. sp.—(Nigro hirsuta) caulis crassiusculus denum sulcatus nigro pilosulus; foliis subcaerulis oblongis apice inaequalibus, utrinque hispidis, racemo terminali oblongo 9-sepalis triangulis acutis carinatis, lateralibus in calyce exsertatis; perianthio albis; segmentis lanceolatis; staminibus aequalibus, labello emarginato distato trifido, lacinia lateribus obtusangulis antrorsum denticulatis, lacinia mediana brevi lobulata imbricata distortulata antice retusa, regione inter lacinias laterales intricata medio sulcata, papillis acutis paucis in ima basi, papillis filiformibus pectinatis bipectinatis antice in basi lacinae mediana. Opt. Lubbers Brunellensium dicitur. Ex Birmah imp. Dr. Fitch. (*v. v. c.*)

MALVERN HOUSE.

THE very interesting collection of Orchids and other new plants, many of which are not yet in commerce, which may any day be seen in Mr. Christy's garden at Malvern House, Sydenham, cannot fail to attract the attention of the plant student, or still more so of those who specially identify themselves with the distribution of new plants. Some very fine examples of *Dendrobium macrotphyllum giganteum* grown in

in flower, and a plant, strange to me, of *Albica data*—a Garlic-like plant with a flower-spike over 2 feet long; also some excellent plants of *Dracyna indivisa lineata*, a good-habited plant for the table. Mr. Christy has also got a stock of the original *Imanophyllum* miniatum imported into England twenty years ago, which quite eclipse a great many of the varieties seen now-a-days in point of colour. Collections of Orchids from the waters of the Amazon, and Australian Orchids, Palms, and other foliage

variety, and *Adiantum Paccotti* will also rank high in its class. The red-stemmed *Selaginella*, *S. rubricaulis*, seems a distinct kind worth growing in every choice collection, particularly for house decoration.

Specimens that are remarkable for rarity, and others that are entirely new, are *Urostigma Vogelii*, in fruit; *Ficus Tabernaemontana*, *Prosopis dulcis*, and *Omphalocarpum procerum*, which is said to be the newest thing in Europe; *Hevea brasiliensis*; *Landolphia Kirkii*, and *L. florida*, curious plants from Central Africa, yielding caoutchouc are also interesting subjects. There is a fine batch of *Phenix reclinata*, imported from the Western States of America, which are as fresh as paint after their journey; and if plants can be brought to this country in such condition by thousands at about one-fourth the price they cost to grow in England it will certainly reduce the prices of these fashionable plants to a figure which will tend to popularise them among a class who, cheap as they now are, can hardly afford to purchase them. The plants arrive in this country in packing cases, looking very little the worse for their journey. *Reporter.*

NEW AUSTRALIAN ORCHIDS.

HAVING made a special journey to South Australia and Western Australia with the intention of working up, as far as possible, the Orchids of the two colonies, I have, in addition to obtaining drawings, &c., of those known, succeeded in obtaining the following nineteen new species:—

Caladenia paniculata, sp. n., Fitzgerald.—A small hairy species, about 3 inches high. Leaf oblong-lanceolate, 2 to 3 inches. Flowers three to six in a flat panicle. Petals and sepals narrow, lanceolate, acute, white, with a central streak of red, and tinged with red at the ends on the outside, about 4 lines long and 1 broad. Labellum not two lines long, 3-lobed, the central lobe lanceolate, fringed with clavate calli, side lobes ovate entire. Calli of the disc about twenty, linear, in two rows united by a long central callus, which extends from the short claw for two-thirds of the length of the labellum. Column winged from the base. Anther with a long point. Western Australia.

Caladenia unita.—A hairy species, from 3 inches to 1 foot high. Leaf linear-lanceolate, from 3 to 6 inches long. Flowers pink, hairy on the outside, two or three on long or short pedicels. Petals lanceolate acute, contracted towards the base, reaching 7 lines long. Dorsal sepal erect, hooded, shorter than the petals. Lateral sepals lanceolate, falcate, acute or obtuse, united from more than one-third to two-thirds of their length, reaching 8 lines. Labellum about 3 lines on a long claw or contraction towards the base, the remainder of the labellum ovate, much recurved, and fringed with numerous linear calli. Calli of disc linear, in two converging lines, but united at their base into a plate. Column winged to the base. The wings produced into oblong lobes on each side of the stigma. Anther with a long recurved point. (This is the only *Caladenia* known to me in which the lateral sepals are united.) Western Australia.

Caladenia plicata.—A very hairy species, about 1 foot high. Leaf lanceolate, 7 or 8 inches long, and 7 or 8 lines broad, sheathing at the base. Flowers generally two, yellowish, with red lines down the centre of the sepals and petals. Petals narrow, lanceolate, acute, 10 lines, sepals about 1 inch, lanceolate at the base for about half their length, then narrow linear clavate, the enlargements at the ends being covered with numerous brown calli. Dorsal sepal erect recurved. Labellum about 4 lines on a long slender claw, 3-lobed, the central red-brown, oblong, denticulate, recurved so as to become plicate and touch the under surface of the disc. Lateral lobes orbicular, reddish-yellow, and fringed with long linear calli. Calli of the disc linear clavate in a densely covered band down the centre of the labellum. Column about 6 lines, much curved, winged from the base in two lobes, and having two oval calli near the base, anther with a short point. (The labellum is constantly moving up and down with the slightest breath of air.) Western Australia.

Caladenia lobata.—A tall, robust species, probably the tallest in the genus. From 1 foot 6 inches to 2 feet, hairy. Leaf oblong, lanceolate, sheathing at the base, about 6 inches long, about 1 inch 4 lines broad. One or two flowered. Petals yellowish with a red line down the centre, linear, taper-

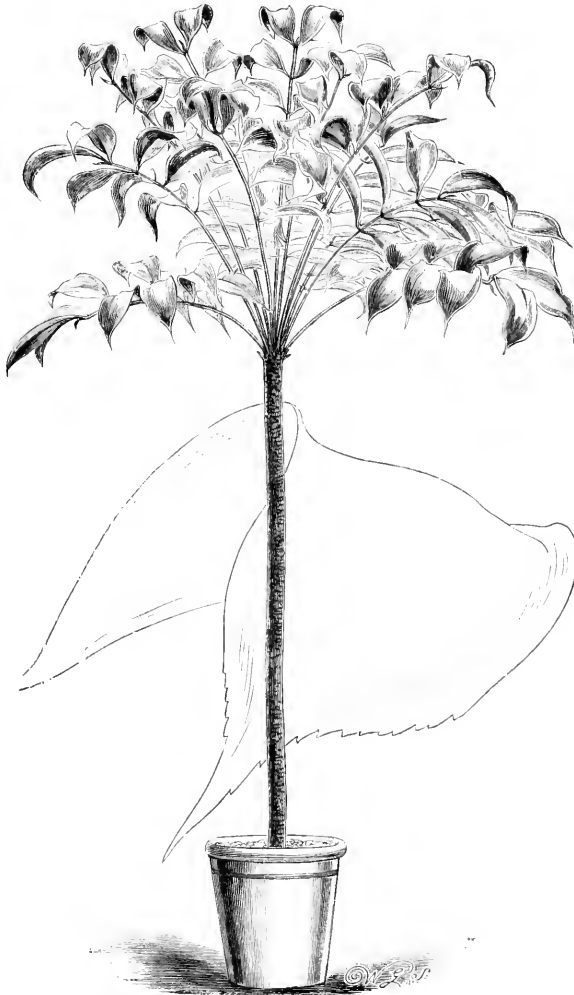


FIG. 72.—ZAMIA OBLIQUA. (SEE P. 460.)

small pots, and which are flowering freely, as well as many others, testify to the success with which Orchids are cultivated in this establishment. The practical evidence which is visible to any one who understands Orchids will be seen in the vigorous growths made since the plants were imported as compared with the puny native growths, which are very diminutive indeed.

But, to the writer's mind, there are other plants more remarkable than the Orchids. It was just evident when I reached Malvern House, and I had the pleasure of seeing a nice specimen of *Nicotiana affinis*

plants, can only be mentioned for the present, as a great portion of them are still unnamed. A curious plant of the *Solanum* family, having seven lobes to each leaf (the variety is new), from the West Coast of Africa, is said to possess some medicinal property for the cure of skin diseases; and there are others—notably a red-fruit one—which is very useful for church decoration. There are *Crotons* from the Fiji Islands, and *Aralia Chabrieri*—the *Aralia* of the future so far as habit and usefulness are concerned. Among Ferns *Davallia gibberosa*, which is to be sent out by Mr. Williams, of Holloway, is a very pretty

ing to a point, about 2 inches. Sepals reaching 2 inches 8 lines, or even 3 inches, dilated for about 1 inch, then passing into long fine points, the dilated portion about 5 lines broad, but reduplicate. Dorsal sepal erect, and much curved forward. Lateral sepals sharply curved upwards. Labellum about 1 inch 2 lines long and 1 inch broad on a long, narrow, elastic claw; three-lobed, central lobe narrow, lanceolate acute, denticulate, reflexed, inflated at the base. Lateral lobes green, narrow, acute, fringed with long linear calli. Calli of the disc linear, crowded for about one-third of the labellum, in two bands, which unite into one towards the base. Column about 9 lines, curved towards the anther, wings dilated into a very peculiar orbicular lobe about the centre of the column. No gland at the base of the column. Anther with a sharp point. Western Australia.

Calanina leptocolla.—A rather slender species, hairy, about 1 foot high, generally two-flowered. Leaf lanceolate, sheathing at the base about 4 or 5 inches. Sepals and petals yellowish. Petals linear, tapering to a fine point, about 1 inch. Sepals curved upwards, linear, tapering to a fine point, dilated about 1 inch three lines. Labellum on a long claw, dark red-brown, about five lines long and two broad, lanceolate, recurved for about half the length; probably the flattest labellum in the genus; denticulate along the edge towards the base. Calli of the disk in four rows, oblong, sessile, except a few at the base, which are linear clavate. Column about six lines, not much curved, winged to the base, deeply winged for about two-thirds of its length near the anther. Anther with a long point. Two orbicular calli at the base of the column. South Australia.

Calanina reticulata.—A rather slender species, hairy, about 9 inches high. Leaf lanceolate, sheathing at the base, about 4 inches long. Flowers one or sometimes two. Sepals and petals yellowish, with a red line down the centres. Petals linear, tapering to a clavate point, about 1 inch 6 lines. Dorsal sepal erect. Labellum about 5 lines, on a long claw, undivided, reticulate, with dark red veins (as in section *Phibechilus*, Dent.), ovate lanceolate acute, margins serrate. Calli of the disc linear clavate, in four rows, the outer rows more or less abortive. Column about 6 lines, slightly curved, winged from the base. Wings dilated towards the anther (but not so much so as in *C. leptocolla*). Anther with a short point. Two orbicular calli at the base of the column. South Australia.

Calanina macrostylis.—A slender species, hairy, about 7 inches high. Leaf linear lanceolate, sheathing at the base, 4 to 5 inches long, 1-flowered. Sepals and petals light yellow, with a red line down the centre. Petals about 1 inch, lanceolate, tapering to a fine point, turned up. Sepals about 1 inch long and 3 lines broad, broadly lanceolate, tapering to a fine, slightly clavate, point. Dorsal sepal erect for three-fourths of its length. Labellum on a short claw, ovate lanceolate, about 6 lines long and 4 broad, yellow, veined with red, the edges thickened for about one-third towards the point, undulate, dark red-brown. Calli of the disc dark red-brown in a broad band extending from near the base to within about a line from the point, linear, clavate, closely packed together. Three or four calli at the base, linear, twice clavate. Column about 5 lines long and 4 broad, very much bent, winged from the base to half way up the anther. Wings on each side of the stigma very broad. Anther with a short point. Two orbicular calli at the base of the column. Western Australia.

Calanina tenuis.—A very slender pubescent species, from 5 inches to 1 foot 8 inches high. Leaf lanceolate, sheathing at the base from 3 to 5 inches. Flowers one to three. Petals and sepals white, with a pink stripe down the centre, light brown towards the end. The colour produced by closely set sessile calli. Petals linear acute, about 9 lines. Sepals broader than the petals and about a line longer. Dorsal sepal erect. Labellum about 5 lines, narrow lanceolate without lobes, point reflexed. Calli of the disc linear in two bands each consisting of four rows. The point of the labellum without calli on the surface but edged with linear calli. Column about 5 lines, very slightly bent, winged from the base. Anther with a rather long point. Western Australia.

Glossodia intermedia.—A slender pubescent species,

about 5 or 6 inches high. Leaf oblong, sheathing at the base, 2 to 3 inches. One-flowered; the outside of the flower pubescent. Sepals and petals about 6 lines, ovate, lanceolate, blunt, glossy lilac-purple. Labellum about 4 lines, linear obtuse, not emarginate, twice duplicate towards the end. A linear ridge on the centre of the disc. Calli at the base not as long as the labellum, linear, with two enlargements towards the end. Column winged from the base and above the anther. (In this species the flower resembles *G. brunonis*. The labellum is more like that of *G. emarginata*, but not emarginate; not simply duplicate, as in *G. brunonis*, but twice duplicate, as in *G. emarginata*. Calli at the base rather those of *G. emarginata* than of *G. brunonis*. Column narrower than either in *G. brunonis* or *G. emarginata*. It flowers later than *G. brunonis*.) Western Australia. *Robert Fitzgerald, Surveyor General's Office, Sydney.*

(To be continued.)

JOTTINGS ROUND BRISTOL.

COTE HOUSE.—To write of a garden where the gardener is an old servant and generally respected by his own craft is always a pleasant duty, and the pleasure is deepened when one finds evidence of skill in the garden along with the qualities above mentioned. Mr. Banister, to whom I refer, has been gardener to H. St. V. Ames, Esq., for many years, and those who have visited the Bristol exhibitions will be familiar with the names of both employer and gardener, both being patrons of the exhibition. Cote House is situated on the Westbury Road, bordering on the Downs, where the air is bracing, and where, if there is much life at all left in one, he feels for the moment rejuvenated. Well, in such a climate one would expect things in good trim, and the result is certainly as good as the most sanguine could expect.

At this season of the year, of course, the glass-houses are the centre of attraction, and thither I wended my way. Upon entering a large plant-house some grand pots of *Lachenalia tricolor* catch my eye; they are grown successfully by planting, from ten to twelve bulbs in a 7-inch pot, and they bear leaves and flowers larger than I have ever seen before. In the vicinities it is needless almost to say that Mr. Banister has the promise of fine crops, and a seedling Vine between *Garden Champion* and *Black Hamburg* is very favourably spoken of, and will no doubt find its way to South Kensington in due time. The Vine has the *Hamburg* leaf and wood, with a tapering bunch like the *Muscad*, but the berries are not, I noticed, quite so oval. The Vine is said to be a free fruiter, the fruit having a sweet *Muscad* flavour.

Ranges of forcing-houses are stocked with Melons and Cucumbers and various other subjects requiring the same temperature. I noticed *Pancratiums*, flowering *Begonias*, and other miscellaneous plants, were particularly well grown for decorative purposes—the order of the day about Bristol. The garden is celebrated for its collections of Ferns, and stove plants generally are cultivated in moderate quantities, chiefly of the useful type. *Calanthe nivalis* is a great favourite, and well it may as grown here. The views from the pleasure-grounds are very fine in clear weather to Portishead and the Bristol Channel, where the training ships are visible in the distance, and Blaize Castle towers glitter in the sunlight. The woods of the latter place are also a charming picture. Leigh Court, the seat of Sir Philip Miles, Bart., M.P., is also within view, and several other places of note; but the trees in the grounds out rival all the others. Here is an old *Tulip Tree* (*Liriodendron tulipifera*) supported by wires, having been uprooted two years ago, and successfully replanted. The tree has a dozen limbs, and at 3 feet from the ground is 12 feet in circumference. A *Wellingtonia* is 47 feet high, and 14 feet in circumference at the ground level; at 6 inches from the ground 13 feet, and at 2 feet from the ground 10 feet 8 inches. Large Cedars are also conspicuous for age and size, and a huge Elm is 22 feet 6 inches in girth a few inches above the ground level. Outside the boundary of the ornamental grounds a very elegant form of Elm was pointed out, which in habit in its present stage resembles an *Acer*. The tree is of huge size, and is a beautifully proportioned pyramid. Of such a place one might write much that would interest; but enough has been said to show that the garden and its adjuncts are furnished with all that can make an English garden enjoyable.

ELMFIELD.—This new and beautifully situated country-seat is owned by A. Shipley, Esq., who is a liberal patron of horticulture, and provides not only good houses in which to grow plants, but also procures rare selections of plants to fill them. The Orchids alone are worth going a distance to see. Probably, however, the *Camellia*-house, built upon the site of the quarry from which stones were procured for building purposes, is the most charming feature of the garden. The structure which covers the site of the quarry is a span-roofed one, in which the central plants are tall *Camellias* and tree Ferns. The space at disposal has been skillfully utilised, and the result is a natural appearance, no attempt being made to alter the jungle-like formation of the place. The irregular arrangement of the rocks at different altitudes, and the variety of plants which have been employed for furnishing the structure throughout seems to have been as carefully selected as they are skillfully cultivated. Tree Ferns, and even *Conifers*, are among those that from natural form or spreading habit relieve or attract the eye from even noticing that a roof of formal shape is overhead. It is a jungle garden under a glass roof—a rockery of Ferns as natural as you will find them in a Highland glen—a carpet of mosses overhung by canopies of Fern fronds, and foliage drooping majestically from stems varying from 3 to 6 or 8 feet high. *Asplenium excelsa* and *Dicksonias* carpeted underneath with mosses, arranged in circular form, are distinct from banks of *Pteris tremula* or *Woodwardia radicans*, which, when planted out in a cool structure grows amazingly. *Cyathea medullaris* is another Tree Fern which succeeds well, and has a grand appearance in a structure of this kind. Other Ferns of striking habit and rapid growth are *Polypodium appendiculatum*, *Neottopteris Nidus*, *Blechnum brasiliense*, and a large variety of dwarf growing kinds, which tend to produce an irregularity in character with the formation of the rockwork.

In contrast with the Ferns there are Palms shooting up from large pockets prepared for them, *Abutilons* trained as pillar plants, New Zealand Flax (*Phormium tenax*), and *Acacia linearis*. The Palms are mostly of the *Chamærops* form and the *Date Palm*, *Phoenix dactylifera*. The conservatory is gay with Palms, *Abutilons*, fine *Azaleas* good in variety and well coloured, grand plants of *Imantophyllum miniatum*, *Cytisus elegans*, flowering *Begonias*, *Gesneras*, *Spiræas*, and *Eupatorium tataricum*, very fine. *Cinerarias*, too, are very showy, as also *Richardias*, *Acacias* in variety, several cool Orchids, *Pimelea spectabilis*, and many others. The Vines in two span varieties are showing well for Grapes, and also contain good examples of *Azaleas* and *Coumtes* of *Haddington Rhododendron*. In the late vineery there are tree *Pæonies* in pots, and other plants that are being brought forward gently. We now reach a range of span-houses for growing select plants and Orchids, and in the first of these there is a miscellaneous stock, comprising a good batch of *Gloxinias* in a forward state, *Urcellina aurea*, a plant with leaves like the well-known *Eucharis* and bearing a profusion of yellow bells with greenish-white tips upon short stems drooping over the sides of the pot. Stove and greenhouse plants are each grown in a house by themselves; of the latter *Stactis profusa*, *Tremandra verticillata*, and *Primula amœna alba*, are very well grown, as also *Pæony Elizabeth* (var. *mountain*), which are charming plants for decorative purposes at this season.

The Orchids fill three houses, and as the collection is a large one, I will just mention only those specimens that are in flower, and that are remarkable as indicating careful cultivation. They are, as follows: *Odontoglossum Roezlii* album, *O. triumphans*, *O. vexillarium*, *O. Halli*; *Pendrobium Wallichii*, *D. chrysotoxum*, *D. Wardianum*, very fine; *D. macrophyllum*, in hanging basket; *P. heterocarpum*, *P. hembrium oculatum*, *P. albo-sanguineum*, *Oncidium macranthum*, with a spike over 12 feet long; *O. Cervantesii*, *O. Weltoni*, *O. Cavendishii*; *Cattleya Trianae Warszewiczii*, *Cattleya citrina* in pans and on blocks; *Lycastes*, fine plants; *Mesospindium sanguineum*, which makes a pretty basket plant; and excellent plants of *Phalenopsis Schilleriana*, one plant of which has a spike with six-and-thirty flowers. The pleasure grounds are prettily laid out, and commanding views of the surrounding country are obtained from them. Shrubs and shrubby borders are in good order, and already there is a good display of herbaceous and alpine plants in the rock garden and in the hardy flower borders. Mr. Smith has been gardener at Elmfield for nine years, and considering

what has been done in the time there must have been a good deal of zeal and activity displayed in communitating so many important garden operations, for be it remembered it is one thing to execute work of a routine character, but quite another thing to construct a new garden out of raw material.

CUCUMBERS BY "EXPRESS."

THAT Cucumbers of the very best quality can be grown by what you have well termed the "express" mode (see p. 427), is hardly to be disputed. It has been said, however, that "there is nothing new under the sun," and the following extracts from a letter of mine, which appeared in your columns two or three years ago, will go far to show that this express method of Cucumber growing is not quite new. The letter alluded to, after mentioning some of the evils to which the Cucumber plant is liable, such as mildew, red-spider, &c., goes on to say:—"In former seasons I have experienced some of these annoyances, but during the last few years I have been entirely free from them, and I am inclined to attribute this result to a somewhat peculiar method of treatment which I will endeavour to describe." . . . "The structure here (Culford), which generally furnishes an abundant supply of Cucumbers during at least nine months of the year, is a small lean-to house, about 20 feet in length and 9 feet in width, with a south aspect, and the roof, which is fixed and without any openings, is at an angle of about 40°, glazed with large squares of sheet glass. The plants are trained to wires stretched under the roof at a distance of 16 inches from the glass, and to afford a slight shade during the summer months the outside of the glass receives a thin coat of whitewash. But notwithstanding this precaution, the plants very frequently became unhealthy long before the season was over, so that some years since the plan of keeping the house almost entirely closed was resorted to and this plan has in all respects proved satisfactory. The ventilators in the front and back walls are now only used during the early stages of the progress of the plants, when, with the view of keeping them as robust as possible, air during favourable weather is admitted; but as soon as the Vines have fairly covered the roof the house is kept quite close, and during very warm weather the plants are syringed not less than six or seven times each day. The atmosphere of the house is consequently surcharged with moisture, while the temperature at the same time frequently exceeds 100°, and in such an atmosphere and temperature it is needless to say that neither red-spider, aphid, nor mildew can exist, while visitors or others who may have occasion to enter the structure do not care to prolong their stay therein. This condition of atmosphere and temperature, however, appears to be that best suited to the production of Cucumbers of the best quality. Being so quickly grown they are quite free from anything like bitterness, and are as crisp, succulent, and digestible as can be desired. Neither does this fast treatment appear to have the effect of prematurely exhausting the plants, which from March until the present time (middle of November) have furnished abundance of fine fruit, and will most likely continue to do so until the end of the year. Under this treatment, too, the foliage throughout the season remains clean and healthy, quite free from insect pests and disease of all kinds. The plants receive very little stopping or thinning out of the shoots. When the leading shoots reach the top of the house they are stopped; after that operation the shoots as they are produced are crossed over each other in any way which is most convenient, and tied to the wires, so that the roof is always covered with clean healthy foliage. The use of the heating apparatus (hot-water pipes) is generally discontinued about the middle of June, and is again had recourse to early in October."

I cannot now state the precise time which elapsed from seed sowing to fruit cutting, nor the weight or number of fruits cut, further than to say that this was always found to be more than sufficient for the demands of a large establishment. I may also say that the surface of the bed in which the plants were growing generally presented a network of white healthy roots, and slight surface-dressings of rich soil, mixed with snot, were from time to time applied to it, and the water used was from a rain-water cistern, into which a portion of the drainage from a stable-yard found its way, so that the water was always more or less enriched by manurial matter; while that

used for the purpose of syringing the plants was, of course, pure rain-water, which had been for hours in the structure, and acquired a similar temperature. *P. Grieve, Eury St. Edmunds, April 3.*

HELICOCORYNE RAMOSA.

THE figures of different species of Moulds, which are given by Corda in his *Prochilora*, are so beautiful and extraordinary, that many have thought that they were greatly exaggerated, if not altogether imaginary, inasmuch that Corda himself told me, "People imagine that I have seen them in my dreams." We have had an opportunity of verifying several of his species from specimens which he himself communicated. We have, however, now to lay before our readers, one, if possible, more beautiful, and certainly more curious. The Mould in question was sent to us from New York as a new species of *Macrosporium*, but unfortunately in the specimen examined by the writer of this notice and Mr. Broome, the spores were all detached, and looked so much like some insect that we doubted greatly whether it was vegetable at all. The fallen spores resembled closely those of *Sporidium elegans*, especially the older ones. Mr. Broome, however, found that they unrolled into a spiral. With a view to gaining further information as to

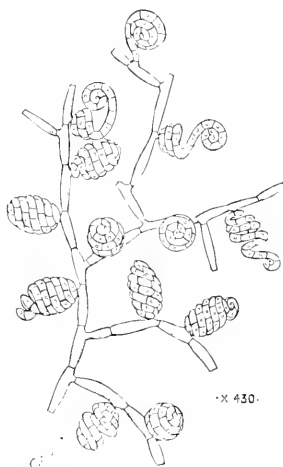


FIG. 73.—HELICOCORYNE RAMOSA.

their nature, specimens were sent to Mr. W. G. Smith, who found the spores attached, as we do now in the specimens which he has returned, with a suggestion that the plant may be referred to Corda's genus *Helicocoryne*, which indeed differs only in the spire being more unrolled. The fungus, which is of a pale olive tint, forms little tufts on old deal shingles, the spores themselves being nearly colourless, or much paler than the threads.* The species, whose characters are given below, may bear the name of *H. ramosa*. The spores on a partial examination appear as if they were beaded all round, a structure which is illustrated by the figure quoted above, and is merely an optical delusion. It is possible that Corda was deceived as to the structure. *M. F. Berkeley.*

CORREA CARDINALIS PLANTED OUT.—Most people are acquainted with this fine old plant under pot culture, nor indeed is a well-grown specimen of it ever likely to be despised. The well-known scarlet bells, which are produced freely upon a healthy plant, leave an impression upon the mind which is not soon forgotten; but planted out and grown in a natural way there is a complete transformation. In the conservatory at Elmfield, near Bristol, the seat of A. Shipley, Esq., a standard has been planted out in rockwork, which is now adorned with its bright scarlet bells, and is the prettiest of many pretty objects in the same house.

* *Helicocoryne ramosa*, Br. and Smith.—*Floeris ramosa* triloculatis; sporis ellipticis e spiris simpliciter convolutis.

ASPARAGUS.

OF all vegetables this is the most delicious and wholesome, and yet there are thousands of gardens belonging to the well-to-do classes in which there is not a bed or plant of it to be found, and in many where there are it is not grown to anything like the perfection it might be, as in the majority of cases the plants are either overcrowded or are treated in a way by which it is next to impossible for them to become fine and strong. It is often remarked that they do so-and-so better on the Continent, and there can, I think, be no question but that the French do beat us in growing Asparagus, as witness those fine bunches that are sent over to Covent Garden, the heads in which are of great size, and are the admiration and wonder of many beholders. It is quite certain that if the French cultivators pursued the same system as prevails here in the management of our plantations, they would not excel in the manner they do, as they have neither a more fertile soil nor a more favourable climate, and the whole secret lies in giving the plants more room and feeding them well. This being so, there is no reason why we should not follow the same course, and produce just as fine heads, for it is not to our credit that we should have to depend on others so largely for the supply of an article of food that we might as well grow for ourselves.

We talk of farming interests being bad, and of land going out of cultivation because it does not pay, while Asparagus and many other vegetables are only to be had by the few, the prices being such that only the wealthy can buy them. If Asparagus were only planted to anything like the extent it might and ought to be, a ready market would be found for all that could be grown; and I am convinced that a third of the prices now charged would pay well, and people in towns would be able to enjoy an article of diet that many among them hardly know the flavour of, as the heads can be cut, bundled up in small compass, packed, and sent from afar. Another advantage in cultivating Asparagus is, that beyond the cutting, it entails little or no labour after planting, beyond keeping the land clean, as once the plantations are formed they last for a lifetime, and the plants grow finer and stronger with age. The soil that suits Asparagus best is that which is of a deep loose character, for the roots, being large and fleshy, can only ramify freely in a medium that is free and open. In many districts plenty of such land is to be seen, especially near the sea coast and in valleys near rivers, like those in the neighbourhood of Colchester, where Asparagus is grown better than in any other part of England. Although Asparagus delights in a soil like that referred to, it objects greatly to that which is wet with stagnant water, as in ground in such condition the roots rot. I have seen it done remarkably well in moist greasy sand, and no doubt where land of this nature can be had near towns and irrigated occasionally during the summer with sewage, Asparagus might be grown to a very high state of perfection.

The best time to plant is immediately the crowns begin to start, as then they can be handled readily, and the plants go right off into full growth without any hindrance. Where plants are on the spot and can be taken up and got in quickly the planting may be done when they are from 6 inches to a foot high, and if the soil is washed in about the roots by giving a heavy watering they do not flag or seem to feel the check, but quickly become re-established.

To begin with, one-year-old plants are the best, and these should be dug up with a fork and lifted carefully, so as to preserve the roots from injury, and in replanting it is necessary to spread or lay these out so that the points incline down, and then to cover them with about 3 inches of soil. The readiest way to plant Asparagus is to open a shallow trench a foot or so wide, in which the plants can be placed and the earth returned in a speedy and satisfactory manner. Previous to the planting, however, the ground should be trenched, and during the operation have plenty of manure worked in. If the land is at all inclined to be stiff and close it is better to have the manure rather long and strawy, like that generally to be had from stable yards, as the tendency of such is to keep the soil open; but where it is already light, cow-dung or night-soil will be the more preferable. With ground prepared in this way the plants should be put in rows about a foot apart, and the rows ought not to be a yard from each other. Planted in this way, with plenty of room, the roots have a fair chance

to find what they want without starving each other. In beds they become massed together, and under such circumstances it is impossible for the plants to develop fine crowns.

What injures *Asparagus* very much in beds is the cutting down and digging out the alleys between—a practice still in vogue with some, although it is fast dying out. Another thing that weakens the plants materially is cutting the heads late in the season, by doing which the plants are exhausted in their efforts to throw up others, and have not time to recruit. Taking one season with the other, and speaking broadly, the end of May is quite as late as it is advisable to cut *Asparagus*, and it is a good plan to cease with a portion of the beds or plantations before then, and allow the other to grow. Those plants furnishing the late supply one year may be rested the next, and so on; and if this is done it will have a very beneficial effect. In spring, just as the heads are coming through, a slight sprinkling of salt over the ground does good, as it not only destroys weeds, but it stimulates and improves the flavour of the "grass." When the tops are cut and removed in the autumn, a dressing of short rotten manure should be given, and if the crowns of the plants are near the surface, some light soil may be thrown over too. *J. S.*

CRAIG-Y-NOS CASTLE.

CRAIG-Y-NOS CASTLE, the charming Welsh resort of the ever-popular Madame Adeline Patti (see pp. 465, 466) is situated about 21 miles from the busy town of Swansea, on the banks of the River Tawe, in the county of Brecon. The name *Craig-y-nos* is purely Welsh; rendered into plain English it signifies "Night Rock," so that it would read "The Castle of the Night," or "dark rock" or "mountain," no doubt in allusion to the dark mountains immediately surrounding it. It is, at all events, extremely appropriate. A more secluded or romantic spot it would be difficult to find—it is seclusion itself! Hence the charm, no doubt. Away from the glare and turmoil of constant excitement. Here solitude prevails, here are found rest and quiet.

Craig-y-nos is approached by the Midland Railway. The nearest station (Pen-y-will) is situated on a high mountain ridge, some 800 feet above the level of the sea, a very cold and exposed station indeed, and is stated to be half an hour's walk distant.* A trusty guide, however, and stout legs are required to accomplish it in an hour. There is no regular road over the bare mountain side, and often long *cloums* have to be made, as on the occasion of our visit, when the storm of the previous week had lashed the little river into a perfect torrent, carrying away the bridge, the newly-finished river-wall, and lowering the natural bed some 3 or 4 feet directly in front of the Castle. The walk is, however, extremely interesting to any one having a botanical turn, a great many charming alpine plants being met with growing between the chinks of the limestone rocks. Ferns abound, the pretty little *Asplenium Trichomanes* making a perfect wall of verdure; also the rarer *Cystopteris fragilis*. In shady nooks *Saxifraga hypnoides* forms quite a carpet. On the opposite side of the valley the pretty green and rare *Asplenium viride* is to be found in considerable quantity.

Arrived at the Castle—which, as will be seen from the illustration on p. 466—is situated on a plateau some 100 feet above the river. Looking from here one is struck by the stillness of the scene. There is the tortuous river below, little more today than a great highway of boulder-stones, but at times a swift mountain torrent. Beyond, and on either side, very little but the bare and rugged mountains meet the view, with flocks of the pretty Welsh mountain sheep browsing on their steep sides. A little to the left *Danyrogaf* Cave, containing some beautiful examples of stalactites and stalagmites—those wondrous silent works of Nature in the bowels of the earth, formed by perpetual dripping from the calcareous rocks—will well repay the exercise and nerve necessary to reach it. It is regretful to find that even here some wretched beings are base enough to destroy the beautiful—that which they come to see.

But to our text, and the object of our visit, *Craig-y-nos*, on becoming the property of Madame Patti,

some few years ago, presented a very different appearance from the *Craig-y-nos* of to-day. Considerable additions were necessary, and have been made to the Castle itself. It is a matter of great regret that the architect should not have constructed the additions after the style of the original. The gardens, and all that pertain thereto, are entirely original, and have been formed and constructed from the plans and under the superintendence of Mr. William Barron, Garden Architect, &c., Sketty, Swansea, to whom Madame Patti intrusted the work. Mr. Barron is, we understand, a pupil of the late Sir J. Paxton, at Chatsworth, nearly forty years ago, but is no old-school practitioner—on the contrary, a glance at the light, elegant, and beautiful designs here shown will, we venture to say, place him as one of the first of the day.

A special feature here are the steep grassy slopes or terraces in front of the Castle; these, although not yet completed, were a work of no mean character—the quantity of soil required in their formation being astonishing. How much better these grassy slopes look than the ordinary inevitable terrace walling, and how much less costly! We have before noted Mr. Barron's mode of forming these grassy slopes in other parts of the country, and it appears to us his style is particularly pleasing, inexpensive, and quite unique.

The conservatory attached to the Castle measures 80 feet by 27, having a ridge-and-furrow roof, the side-lights with glass near to the ground all forming doors that may be opened at pleasure to go out on the terrace at any point. No staging is used, the plants being placed in groups as required, or cleared away altogether, as on the occasion of our visit, and used as a banquetting-room. Creepers plentifully adorn the roof and pillars, the whole presenting a very charming appearance. A glass corridor, 50 feet long by 11 feet, leads from the conservatory to the winter garden, which measures 80 feet by 60. This, which is also ridge-and-furrow roofed, and constructed in the light and elegant style of the conservatory, covers an irregular or undulating piece of ground. A small fountain adorns the centre, but the arrangements of the plants are not yet completed; when they are so this winter garden will be unique in its way, and cannot be but charming. The heating arrangements throughout are of a very complete and efficient character: four rows of 4-inch pipes going round the conservatory covered with ornamental grating, four rows along the corridor, and six rows round the winter garden. The whole, as well as the ranges of forcing pits and houses, vineries, &c., being heated throughly by boilers 300 feet distant, having 27 feet of a rise. But of this we may speak hereafter.

FLOWERS IN SEASON.

MAGNOLIA CONSPICUA.—A Chinese tree of medium height, with deciduous leaves, flowering in early spring before the leaves expand, and producing from the ends of the young shoots obovate or pear-shaped erect flowers, pure white, with a delicious fragrance. Petals, each about 3 inches long, leathery, oblong or oblong-obovate obtuse. Stamens crowded in many rows round the base of the elongated spike bearing the carpels, filaments fleshy, lilac at the base. It is curious to note how, as in other *Magnolias*, sepals, petals, stamens, and carpels, instead of succeeding one another in rings form a series of spiral coils around the prolongation of the axis of the flower. The Chinese name, *Yulan*, is said to signify a Lily, and the vase-shaped white flowers, which form so conspicuous an embellishment of the tree in spring are, indeed, not unlike Lilies, taking the word in its vague general sense. Representations of the flower are common in Chinese and Japanese drawings. The species is cultivated in Japan, and is said to have been introduced here in 1789.

LONICERA SEMPERVIRENS.—A charming climber, hardly enough to stand our climate out-of-doors, but amply deserving a place in a cool greenhouse. The upper leaves are inseparable at the base, forming a flat transversely oblong plate, pale green above, glaucous beneath, through the centre of which the slender stem seems to pass. The long trumpet-shaped flowers are borne in two or three tiers or whorls, each tier with six flowers, and separated from its neighbour by a slight space. The little green flask-shaped ovaries are surmounted by a very small 5-toothed calyx, and then comes the slender curved

tubular corolla, nearly 1½ inch long, of an orange-crimson colour. The limb of the corolla is yellowish, with five short roundish nearly regular lobes, beyond which both stamens and style protrude. It differs from the common *Honeysuckle* in its nearly regular flowers, which are scentless; on the other hand, its colours are much more brilliant. Native of the North-eastern States of North America, but though long ago introduced gardeners do not seem to recognise its value as a greenhouse climber.

MARANTA WARSEVICZII.—We noticed this in bloom, under Mr. Hudson's care, at Gunnersbury lately. It is one of the most ornamental of stove foliage plants, having long-stalked, oblong acuminate leaves rounded at the base, dark velvety-green above, with light coloured patches near the midrib, and with the fine veins also whitish; the under-surface is softly downy and of a rich violet colour. The leaf-stalk is long, membranous, and sheathing for two-thirds of its length. The dense flower-spikes emerge from the axil of a leaf-sheath, and consist of an oblong mass of densely overlapping, broadly ovate, acute, boat-like bracts, cream-yellow beneath, edged and tipped with lilac; each bract protects a whitish flower, whose lips protrude beyond their recurved points.

LATHRÆA CLANDESTINA, &c.—From Biarritz we receive specimens of this very beautiful and very remarkable plant. It is a parasite, like our *Broomrapes* (*Orobanchæ*), and is of course nearly allied to the *Lathræa squamaria* of our woods, like which it has roundish, fleshy, thick leaves, but the flowers in this case are differently arranged, much larger, and of a lovely violet-blue colour. We fear the plant at present defies cultivation, though there is no reason why the attempt should not be made to import the plant growing on its foster-parent. The common *Lathræa squamaria* has been sent to us by several correspondents. It grows on the roots of Hazel and other trees, and is a leafless white parasite, with a dense spike of pale lilac flowers all turned to one side. It often passes for an Orchid with those who think everything a little out of the common way must be an Orchid.

PLANT PORTRAITS.

ANOPHOXYTIUM INCANUM, E. Morren, Belg. Hort., t. xi., 1881.—A singular Brazilian epiphytal tufted Bromeliad, with lanceolate acuminate broad based leaves thickly covered with coarse white down; racemes pendulous compact, bracts silvery, petals rosy. It is the *A. Rollissonii* of gardens, and is also known as *Tillandsia Gardneri*, *T. incana*, and *T. argentea*.

BEGONIA DISCOLOR, Illust. Hort., t. 434.—A set of six hybrids between *B. discolor* ♀ and *B. rex* ♂, viz. 1, Madame Joseph Moens, silvery white, with green reticulations towards the margins, and a green disc; 2, Madame Charles Weber, green ground, spotted with white; 3, Madame G. van Meerbeeke, silvery, with a narrow green edge and a central green disc running out along the veins; 4, *Souvenir de Madame la Baronne de Bleichroder*, disc and broad margin brownish-green, central portions silvery; 5, Madame Funck, disc and broad margin light apple-green, intermediate portion silvery; 6, Baron A. de Vrière, disc dark green, central silvery, margin broad, dark green, silver-spotted.

CRYPTANTHUS BEUCKERI, E. Morr., Belg. Hort., 1881, t. xvii.—A curious tufted Bromeliad, native of Brazil, with ovate acute leaves, the outer with long broad stalks, the inner nearly sessile, sharply toothed, salmony-orange, barred with transverse blotches of green. The flowers are white, crowded in the centre of the tuft of leaves. *Hort. Beucker.*

MASCARENHANSIA CURNOWIANA, Garden, Feb. 11, 1882.—A very pretty stove Apocynaceous climber, with lanceolate leaves and large bright rose corollas, with a slender tube and spreading 5-lobed limb with lanceolate segments. Messrs. Low. See *Gard. Chron.* 1881, p. 283, vol. xvi.

SEMPERVIVUM MOGGRIDGEI, Hort. De Smet, Bot. Mag., t. 6610.—A form nearly allied to *S. arachnoideum*, but differing in the longer leaves and larger flowers.

STERCUARIA DISCOLOR, Bentham, Bot. Mag., t. 6608.—An East Australian tree, with Ivy-like leaves, hoary on the under-surface; flowers in spikes, calyx funnel-shaped, 1½ inch long, leathery, rosy, 6-lobed, stellately hairy. *Hort. Kew.*

* The station for carriages is some 7 miles distant.

The Herbaceous Border.

PÆONIES.—These may, I think, be justly regarded as the kings and queens among herbaceous plants, as they are not only very showy in character, but grand in the extreme, and gorgeously beautiful when clothed with their bold massive blossoms. The tree kinds are very fine, and produce a striking effect on lawns, but they lack the richness of colour of the herbaceous sorts, some of which have deep crimson flowers of great size and substance, and almost as round as a ball. The best, however, in my opinion, are the semi-doubles, which are not so massive and stiff-

ing into growth it is a good time for dividing and planting, although this would have been better done earlier, before the crowns had got so forward, as in travelling they are apt to be bruised or damaged unless very carefully packed and handled, and if the shoots get broken or injured the plants are weakened and thrown back for a season. Although Pæonies will succeed in almost any soil, they do best in that which is in good heart and deep, and therefore before planting large holes should be dug and some rotten manure worked in at the bottom. This will help to feed them for a long time after they become established, and enable them to form strong crowns, on which their free flowering depends. Being large-growing plants, they should be planted at the back of any border or the centre of a bed, and there

side of woodland walks and in other kindred positions than this pretty spring flower. Let not the fact that it is common in many districts militate against its employment for the purpose named. It is when it can be seen in masses, the plants growing thickly and covered with pretty nodding flowers, that its sweet and unassuming beauty can be best appreciated.

In some of the woods about Watford there are thousands of plants in large patches, or less crowded, silencing the banks of hedgerows in the pleasant spring time. An inspection of the flowers will show many of them have faded tints of rose, some deeper and some paler, and double forms are also to be met with. The long roots are to be lying almost on the surface, receiving sustenance from

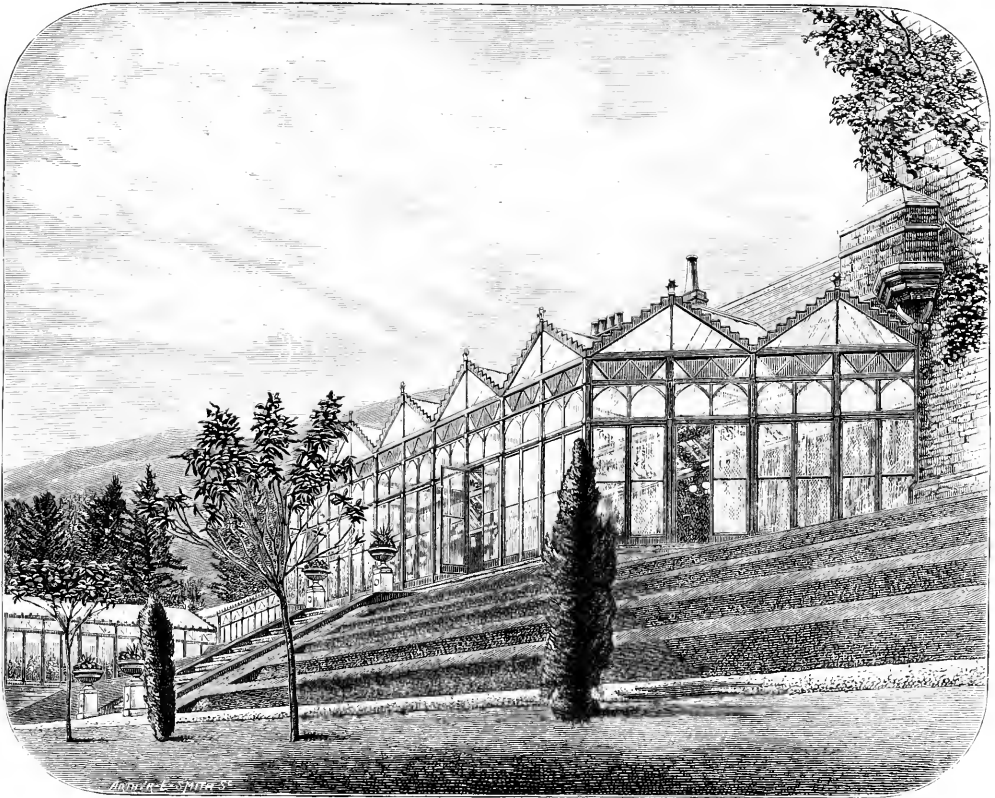


FIG. 74.—CONSERVATORY AT CRAIG-Y-NOS CASTLE, BRECON: THE RESIDENCE OF MADAME ADELINA PATTI. (SEE P. 464.)

looking, and the blooms of these are valuable for cutting to use as single specimens in glasses, where, with a portion of their own foliage, they are charming to look on, and in these days of æstheticism are regarded as the correct thing to have in a room. One of the most choice among them is *P. Cherub*, which has the outer petals carmine, and the centre pure white, the contrast between the two being both striking and pleasing. *Duchesse d'Orléans* is also a very showy kind, having outer petals of a rose-lake colour, with salmon centre. *Victoria Modesta* has outer petals of the same shade as the last-named, and pink centre tipped with white. *Desdemona* has blooms of a clear rose, very large, and double. *Archangel* is a fine sort, rose-lake tipped with white; and *Potesi* and *Whitley* are both desirable sorts, and the old *officialis rubra plena* is the richest and best of the crimsons. As Pæonies are just start-

allowed plenty of room to spread and develop.
J. Sheppard.

RANUNCULUS ANEMONOIDES.—This neat and distinct alpine plant, obtained at the beginning of last year from Messrs. Fröbel, is now flowering freely in one of the top pockets of a limestone rockery. The leaves are crimped like Parsley, and the flowers remind one of those of the common Daisy, but with broader and fewer petals, and are more than an inch across, white, with a slight tinge of rose. As both flowers and leaves are procumbent it does better, as all alpine plants do, for a surrounding of fine gravel, which keeps the surface of the soil healthy, and the flowers from being splashed. *C. Wolley Dod.*

ANEMONE NEMOROSA.—It would be difficult to name a subject better suited for naturalising by the

decaying leaves that cover them in autumn and winter.

The practice of raking up the leaves in autumn in woodland walks, and on the grassy banks and verges of semi-wild places, plays havoc with wild gardening. Daffodils, Primroses, Anemones, &c., are all gathered with the leaves, instead of the leaves being left for sustenance and protection. The pretty mauve-coloured *A. apennina* should be mingled with *A. nemorosa* where it can be done. It is one of those subjects that require to be let alone; then, in a suitable place, it will grow into large patches, and bloom with great freedom. All that is required is to keep the patches free from weeds and rubbish accumulations, that will retard the growth of the plants. The leaves should be allowed to accumulate and decay, in order to nurture and give strength to the clumps.

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—Among the Orchids that are really useful to the gardener the deciduous *Calanthes* deservedly rank high, and may be grown successfully by any one who possesses a stove or a well heated pit. It is not advisable to start these into growth too early in the season or before we get the days longer than the nights, but where the plants have had a good rest without any water at the roots they will now be showing signs of activity, and should not be allowed to get too forward before they are reotted. The bulbs may be grown singly in 48-pots, or three bulbs may be grown in a 32-sized pot, and when it is desired to make large specimens of them it will be better to start the plants in small pots, and keep them in these till their growths are well advanced when six or eight healthy bulbs should be placed in a large pot, and when their flowering period arrives they will be very effective. The soil we prefer for *Calanthes* is sound fibrous loam with all the earthy matter threshed out of it. To this add a small quantity of dry cow-dung and a few nodules of thoroughly dried or partially baked clay, and a dash of silver-sand. As the potting proceeds, a few pieces of charcoal should be worked through the soil round each plant, and the soil should be pressed moderately firm in the pots, so as not to hold too much moisture when the plants are first started, otherwise the foliage is apt to get diseased, and when this state is brought about the plants do little good afterwards. A position close to the glass, with a night temperature of 65° to 70°, and an advance on this during the day with a moist atmosphere, is what suits the *Calanthes*. These remarks apply to *C. Veitchii* and two forms of *C. vestita*; but the beautiful *C. v. Turneri*, which is a later bloomer than the others, may not yet be out of flower, but when it is ready for potting the treatment given above will suit it. About this season of the year we are generally troubled with a small colony of green-fly in the cool-house, and it is not safe to recommend fumigation to the inexperienced without a caution, and the caution is, never to fill the house so full of smoke that you cannot see perfectly from one end of it to the other. These fumigations will need to be repeated about three times with two or three days interval between, and if they are carefully carried out the *Odontoglossums* will not receive the slightest injury. Where thrips are troublesome on the *Masdevallians* these should be carefully sponged over at once, repeating the operation after an interval of a week or so. During hot sunny days it will now be necessary to damp down the houses more frequently than hitherto, and the ventilation should be attentively managed so that no unnecessary loss of atmospheric moisture held in suspension in the house occurs. *J. Roberts, Gunnersbury.*

FLOWERING ODONTOGLOSSUM ALEXANDRE.—It may interest Mr. E. Vervae to know that spikes of this *Odontoglossum* have been produced in this country with as many as forty-five flowers on a single spike. We had a spike here some time ago with exactly the above number of flowers, all open at one time; the spike showed forty-eight flowers, but three failed to open. Another plant here produced a spike of thirty-six flowers, which were all open at one time, and the flowers in both cases were larger than the best *O. Pescatorei* flowers I have ever seen. Both spikes had several branches, and it is hardly necessary to say, that the plants that produced them were exceptionally well rooted. *J. Roberts, Gunnersbury, near London.*

THE ORCHID ALBUM for March contains coloured figures of *Cattleya superba splendens*, *Paphia cristata*, *Odontoglossum Andersonianum* and *Cypripedium polium* x. These will be further referred to in our list of plant portraits. Among miscellaneous matter we may call attention to a note on a variety of *O. crispum*, with canary-yellow flowers, which has appeared in the collection of G. Hardy, Esq., Timperley, Cheshire.

CYMBIDIUM EBURNEUM UNDER COOL TREATMENT.—We have at present some specimens of this lovely Orchid in flower which have been subject to

comparatively cool treatment. Our practice is to grow them with *Odontoglossum cirrosum* separate from *Odontoglossum Alexandrie*, always keeping the house 5° warmer than for the *Alexandras*, which practice speaks for itself here at present, as we have a batch of six *cirrosums* which were bought last June in very small thumbs, and which are now a mass of flowers. We have had plants of *Cymbidium Mastersii* in flower at Christmas, treated in precisely the same way as *C. eburneum*. *W. B. G.*

MALFORMED COLOGNE.—I send you a very handsome deformity of *Cologne cristata*. It is from a spike of the plant exhibited at our Sevenoaks Spring Show lately, by Mr. Burt, gardener to H. B. Millward, Esq., Shoreham Place. The plant was a well-flowered 2 feet specimen. The flower has three lips, two of which are joined for three-quarters of an inch; three columns are distorted into one, and it has ten sepals and petals, thus making five more. Mr. Burt had not noticed it, but when I pointed it out to him he kindly allowed me to send it you. *L. B. Greenhalgh, Rossett, Srewnock.* [At first sight it appeared as if two or perhaps three flowers were joined together, some of the parts being squeezed out of shape, or even jostled out of existence altogether. Such, however, is not the true explanation. The appearances are due to a twisting of the axis of the flower during growth, to an increased number of parts and to changes in their forms. The parts of the flower instead of being in a ring are arranged in spiral sequence. There are three sepals, three petals, three lips, as described by our correspondent, then another petal, then a three-fold column, as described above, from the front of which projects another petal. The ovary is of the ordinary character, one-celled, with three parietal placentas. The flower is so distorted that it is difficult to reduce it to its proper symmetry, but the three stamens are one of the outer series (the others being wanting) and two of the inner series, while the petal-like outgrowth from the front of the column may possibly represent the third stamen of the inner row. *Ed.*]

WALLFLOWERS.

AMIDST all the varied introductions and novelties of the past fifty years the Wallflower still holds its own as one of the most loved of garden flowers. There was a time in its history when it had little else to commend it to public favour but its sweet perfume. It is true that these garden flowers were neither so numerous nor so beautiful as they are now. Still the Wallflower was rather a poor thing as judged by our knowledge of its present merits, for, like many other plants, it has had to advance in the march of improvement, and keep abreast of its garden competitors. Our forefathers would have indeed cried "Eureka!" could they but have seen the superb deep reds and the large golden yellows of our time—colours so rich and yet so defined as to evoke our warmest admiration. Our market growers, who find in the dark red Wallflowers the best of all flowering plants for their use, have by dint of constant selection almost converted that kind into a winter bloomer, for if, as during the past winter, the season be open, it is indeed a source of surprise and disappointment if the plants do not commence blooming in November, and continue to do so all the winter, and finishing off their latest flowers by the end of March. The Wallflower now having, in addition to its perfume, such rich colouring, is, therefore, for its season a most popular flower, and always sells at a fairly profitable price. With the advent of warm days comes to the red Wallflower change and deterioration. The deep hues become pale or steaked, and the glory of the flower departs. This inevitable result naturally compels its early blooming, and the encouragement of this faculty has been repaid. Now the rich, clear, golden yellows of the Tall Yellow are singularly constant, and fade or turn only under great heat-provocation; but these kinds naturally succeed the dark reds, and it is yet inexplicable that market growers have never taken to growing these yellows also, as it is an undoubted fact that they always excite the warmest gratification when seen blooming. It may be that the fear of contaminating the old market stock is one of the primary causes of this apparent neglect, and there is good reason to fear such a result if the two kinds are grown in juxtaposition, but it need not result if only ordinary care be exercised in that respect. [We may add that a plant of the wild or naturalized form of *Cheiranthus Cheiri*, taken by us from the old walls of Canterbury, has after cultivation in rich moist soil for some years developed into a plant closely like the Wallflowers of the market gardens. *Ed.*]

The Flower Garden.

CALCEOLARIAS of the type of Golden Gem and *Aurea floribunda*, although not well adapted to enter largely into combination in geometrical arrangements on account of the uncertainty of their duration through disease or other causes, are yet very beautiful and effective when confined to beds in suitable positions and especially prepared for their reception; such beds should be so situated as to be shaded from the mid-day sun, which is often very destructive, and should be carefully guarded against, and some time before planting time the beds should be thoroughly well trenched up, and if the soil is naturally light a portion should be removed and good strong holding loam substituted, and a good layer of rich cow-manure introduced during the operation of trenching about a foot below the surface, which will tend to keep the bottom cool, which is a most essential condition. The plants can usually be taken up from the pits with a good ball of earth and ought not to miss their moving. After planting, a slight layer of cow-manure all over the surface will prevent too rapid evaporation, and by frequent watering where drainage is good a grand bloom is produced for a long season. Isolated plants of these and the more shrubby sorts may now be introduced into the mixed borders with good effect.

PLEASURE GROUNDS.—The general routine of mowing, rolling, edging, and sweeping may now be said to be fully entered upon, but in order to give a finished appearance to all such work it must be supplemented by a careful attention to the gravel walks, the edges of which must be carefully re-cut, the surface of the gravel slightly picked up, and a coat of new gravel spread over the top, which should then be trodden over and raked level, and finally rolled at intervals until it has become consolidated. Nothing contributes more to give a well kept appearance to lawns and pleasure grounds than a strict attention to these apparently trivial matters.

HARDY FERNERY.—I noticed this briefly last month, but since then I find that the new fronds are pushing up fast, and as these are usually very brittle and tender it necessitates immediate attention to the rough work of overhauling and dressing before they are too far advanced. The old fronds should be removed from the evergreen sorts, the size of any which are overgrown reduced, the surface pricked over to remove weeds and extraneous matter, and then a good dressing of leaf-mould, loam, and peat in equal quantities and sifted applied; this should then be forked in slightly, and if the colour is not objected to, a layer of cocoa fibre over the whole surface will prevent evaporation and is peculiarly grateful to the Ferns.

ROCKERY.—So many interesting plants are advancing into flower here that the operations before recommended as attendant upon neatness and cultural care cannot with safety be delayed any longer. It may be of some interest to those who are fond of this very interesting section of flower gardening to notice a few of the most conspicuous plants in flower at the present time (April 2); and here I must give the palm for stamping a distinctive character to the *Erica carnea*, *E. herbacea*, and *E. mediterranea*, which have been in great beauty for some time. Next to these the *Aubrietia purpurea*, *A. purpurea grandiflora*, and *A. Ghiesbreghtiana* are very conspicuous and long flowering; *Anemones* of several cultivated kinds but particularly *apennina*, conspicuous for its bright blue flowers; and by way of contrast the ever-flowering *Lithospermum prostratum*, with dark blue flowers; *Pulmonaria virginica variegata*, very striking and pretty; patches of *Ajax minor*, *Epimedium alpinum*, *Andromeda floribunda*, *Saxifraga cuspidata*, *granulata fl.-pl.*, *cordifolia*, and several others; *Hieris sempervirens*, *Mertensia pulmonarioides*, *Aralis albidus*, *Primula purpurea*, very fine; *Polyanthus* and *Primroses* of many colours, both double and single; *Corydalis tuberosa*, *Lathyrus purpureo oculatus*, and several others; thus showing what an interesting display of flower can be obtained in a comparatively small space, and the best of it is that all those I have enumerated will flourish in ordinary soils and under general cultural care. There are many choice sorts

which require different soils and very peculiar treatment, and unless they are made a speciality, to the neglect of many other matters, require more time, trouble, and attention than can usually be afforded. *John Cox, Redleaf.*

The Pine Stove.

THE PINE STOVE.—With increased light and longer days plants in all stages of growth will make more rapid progress. Keep fruiting-houses up to 70° at night; this is sufficiently high for the present, owing to the cold nights prevailing. These figures may be increased 10° to 15° by day, and let the house be closed early, so that the temperature may rise to 90° for a time. Attend to the atmospheric conditions, and see that the damping is thoroughly done in the paths and all vacant places. If sufficient steaming troughs are at command, these and copious sprinklings will keep the atmosphere sufficiently moist for the present. Syringing overhead may be deferred for a little time, unless in the case of houses or pits heated by flues, when a gentle sprinkling with a fine syringe over the plants as the houses are closed up will be beneficial. Keep succession plants about 65° at night, with a rise of 10° to 15° by day, and on fine bright afternoons the temperature may rise to 85° for a time after closing. Keep the atmosphere moist, and on bright afternoons give the plants a slight sprinkle with a syringe with water at 85°. This greatly assists them in the formation of new roots, and in the case of large plants with only a few healthy roots it keeps them in a fresh state in the interval, and as Pines are very succulent they absorb a deal of moisture. Rooted suckers should be kept freely growing, without any check, so that when put into fruiting pots or larger sizes, they will not fruit prematurely. As many of the plants are now in flower, keep the atmosphere a little drier for a few days. This is a rule that may be applied at any season of the year. In cold, sunless weather, if stagnant moisture is allowed to accumulate on the fruit some of the pips become abortive, thereby causing deformity. Many of the plants are so far advanced as to require staking. This is a matter that should never be neglected, and should be done in due time. Ash is one of the best materials for this purpose, and the stakes should be cut and dried some time before using. When staking the plants, if they are too long, cut a piece off the upper end, and not the end that enters the soil. Put two stakes to each plant close to the sides of the pots, then take a piece of strong raffia about 3 feet long, put it over the crown, holding the two ends together towards the stakes, twist the two round each other twice, and make a knot half-way between the crown and the stake; make two more twists, and tie both ends securely to the stake. Let the ties on the stakes be 5 or 6 inches higher than the crown, so that, as the fruit rises in the plants, it is not hung or injured, but is supported in a natural, upright position. A corresponding piece of raffia should be put over the other side of the crown, and tied likewise to the other stake; this keeps the fruits in an even, vertical position during the swelling period, at the same time allowing full liberty for the fruit to expand. The Pine is not like many other fruits that require to be fertilised by the hand, or in other ways assisted to cause the fruit to set. When, however, grown under the proper conditions the flowers readily fructify, even in mid-winter, but seeds are seldom found. The temperature for these plants is not agreeable for the bees or other insects that aid in fertilising many fruits. When seed is wanted to raise new varieties the flowers must be fertilised by hand skilfully. Many fruits are, however, ill-formed by imperfect setting. *D. Wilson, Castle Hill, Devon.*

Grapes and Vineries.

THE Grapes in the earliest vinery will now be colouring fast, and must have less atmospheric moisture. As they start to colour reduce the atmospheric moisture gradually, but do not by any means let them become dry at the roots; a thorough watering with clear tepid water at a temperature of 85° as they commence to colour will be sufficient until they are ripe. Keep the night temperature 65° to 70°, with a rise of 10° by day. Admit a good supply of air on the back ventilators, and a little only on the front,

with sufficient fire-heat to keep up a circulation of warm air. Be very careful to avoid cold draughts, and do the damping down in the early part of the day, when there is plenty of air on, so that it will dry up before evening. Let the evaporating pans go dry, and go over all the corners of the house with a hair-broom to dislodge the spiders. Do not stop any lateral growths now, especially on such sorts as Foster's Seedling or Madresfield Court, which are liable to crack; but if the growth appears thick the laterals can be taken off after the Grapes are ripe, as it is only for a few weeks now that they will crack. Succession Hamburgs that are swelling their fruit must have liberal supplies of tepid manure-water, and during bright weather plenty of atmospheric moisture. If the foliage is thin let the laterals run until the trellis is covered without crowding. Keep them at a night temperature of 65°, and close early in the afternoon; and on bright days with sun-heat they may be allowed to run up to 90°, with abundance of moisture.

Hamburgs started about February 1 will now be ready for thinning; and if any extra large bunches are required a few may be tied out, or shouldered, instead of cutting out so many berries, but they never make such compact and handsome bunches as those not tied out. In thinning take out all the inside or cross berries, leaving those that point directly outwards. Those houses closed a short time ago, and growing bunches, must be disbudded and stopped three or four joints beyond the bunch, according to the room there is on the trellis. Keep them at a night temperature of 60°, with a rise of 10° by day. The latest Hamburg house must be kept as cool as possible, only closing the house when there is danger of the frost catching them, as they are this year breaking earlier than usual. Muscats that are swelling their fruit must have liberal supplies of tepid manure-water, and an abundance of atmospheric moisture. Still keep them at a night temperature of 70°, with a rise of 10° by day, and close the house at 90° with bright sunshine. Those started later will now be disbudded, and must be stopped four or five joints beyond the bunch. Muscats are better with more foliage if there is room for it without crowding. Keep them at a night temperature of 65°, steadily increasing it until it reaches 70° when they are in flower, with a rise of 10° by day. Late varieties of Grapes will now be ready for disbudding, which must be done carefully, leaving the best placed and strongest growths. Stop them at four joints beyond the bunch; and examine the border, and if dry, water thoroughly with clear tepid water. Keep them at a night temperature of 60° to 65°, with a rise of 10° by day. Admit air early in the day, and close early in the afternoon. Damp the house down several times daily, but syringing overhead can now be discontinued. For Vines colouring can now be kept with a drier atmosphere, but they will require plenty of water at the roots; and on bright mornings it is a good plan to damp the paths and borders with tepid water. While there is plenty of air on keep air on back and front ventilators night and day, and regulate it so that there will be no cold draughts, and keep the temperature 65° to 70° at night, with a rise of 10° by day. Vine eyes in pots or on turves may be potted on as they require it, keep them in a strong moist heat; and when the pots are filled with roots give weak manure-water every other day. If for planting permanent vineries I prefer them in turves, as the roots are not cramped, and the turf can be buried in the new border without any check. If they are planted with cut-backs from pots put them in a moderate heat, and let them break a few inches, and then shake them out of the pots, and after planting water with tepid water, and keep the house close, and only shade the Vines to prevent flagging until they take the new soil. *Joshua Atkins, Lockinge Gardens, Wantage.*

The Hardy Fruit Garden.

THE stormy and unsettled weather we are now experiencing is not over-favourable for the setting of the fruit blossom, and the best of protecting materials cannot prevent rapid loss of heat from the walls during such gusty nights. Extra precautions are, therefore, necessary, as the walls are being cooled and left wet by drifting showers, and are consequently placed under bad conditions for resisting the sharp morning frosts we have been having. The chances of an Apricot crop are much increased by the successional manner in which that fruit blooms, as a portion of the bloom usually thus escapes the rigours of the early season at which it opens. Apricot flowers seem to be even more irregular in their development than is their wont, and may this season be seen in all stages, from fruits as large as sparrows' eggs to opening buds. Their foliage is now developing itself

quickly, so it is to be hoped the crop is safe on walls that are afforded some protection—at least, in the southern and south-western counties. Attention cannot be too early paid to any manifestations of the presence of the Apricot maggot amongst the unfolding leaves. Destroy by pinching at present, and on a favourable change of the weather syringe freely with a weak infusion of soft-soap and quassa; or, in the event of the attack being severe, and it is found that the application of an insecticide cannot be deferred, it should be used during the earlier part of the day to allow time for the wall to become dry before night. As soon as the Peach bloom is set it will be well to examine carefully for the first traces of greenfly, which often makes rapid progress just at this time, and gives a great amount of trouble throughout the season if suffered to increase. Where thick materials have been used for protection they may be let down and damped, when a fair amount of success, proportionate to the trouble taken, will usually attend attempts at fumigation with Tobacco, which is yet, after the introduction of many novelties in insecticides, one of the best modes of destroying the whole of the aphid tribes when it can be conveniently applied. Cherry walls are now quickly becoming whitened by the profusion of their bloom, and immediate steps ought to be taken to afford some protection, if not already provided for. The principal work in this department will now consist in trying to secure a crop of fruit by giving every attention to the protecting material. Stretched and worn ties will require frequent looking after, and the tightening effects of wet and the slackening consequent upon drying allow the wind to have such power over the material used, when not well attended to, as to endanger the bloom as much by its flapping as it would by the effects of frost in the absence of protection. Complete the pruning of Cob-nuts and Filberts at once, if not yet done, keeping the bushes well open in the centre, and free from crowding in all parts. The bearing shoots of last year can be cut-back to form spurs, and the shoots for yielding this season's crop can be thinned-out where necessary, retaining those that show most bloom—which are now fully evident; and see that a sufficiency of catkins be retained at regular intervals over the bush. Any grafting yet remaining undone should be proceeded with at once, and if drying winds prevail continue to attend to the regular damping of the clay of those grafts which were put on last month. Finish planting-out Strawberries from store beds at once, if any such work remains unfinished, and see that no work is suffered to be in arrear in this department at a time when each day brings increasing business. Keep all walks clean and free from weeds, which will be a comparatively easy matter if the open winter has been utilised for turning the gravel of walks, re-coating with fresh where necessary, and in attention to their condition generally. The hoe should be used on the fruit quarters and borders upon the very first evidence of the existence of germinating weeds, which are most readily destroyed before they have developed beyond the seed leaf. *Ralph Crossling, St. Pagan's.*

The Roseery.

THE ROSE-HOUSE at REDLAND LODGE.—So much has been said and written about Roses and Rose growing, and especially respecting that most erratic of all Roses, *Marshall Niel*, that it is a pleasure to be able to record some particulars of a very fine plant grown by Mr. Vallance, gardener to J. C. Wall, Esq., Redland Lodge, Bristol. The plant covers one side of a span-roofed house, 33 feet long and 18 feet wide, and would have filled the whole house long ago had it not been deemed desirable to make safe against accident by having young plants coming forward upon the opposite side of the house. Two of the main limbs are $6\frac{1}{2}$ inches in circumference at from 2 to 3 feet from the ground. The luxuriance of the plant is not more remarkable than the number of buds which are fast approaching the opening stage—some, indeed, are just expanding. It is characteristic of this, as well as other Roses, that when the crop of buds is disproportionate to the vigour of the plant the result is a large percentage of distorted blooms, but in this case a fair equilibrium is happily maintained. The method of training, too, is all that can be desired. The shoots—some of them over 18 feet long—are fastened loosely to the wires, and the flowering shoots hang irregularly from these with grand effect. Over 3000 blooms were gathered last season, to say nothing of those that dropped in the natural order of things. The plant is budded on the common Brier, and has been planted five years. *W. H.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, April 11	{ Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11.30; Scientific Committee, at 1.30.
WEDNESDAY, April 12	{ Sale of Second Portion of Mr Yates' Or- chids, at Stevens' Rooms.
THURSDAY, April 13	{ Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY, April 14	{ Sale of Stove, Greenhouse, and Hardy Plants, at Stevens' Rooms.

THE establishment of a FOREST SCHOOL in this country, to the necessity for which we have often called attention, will receive a fresh impetus from the valuable report printed in the current number of the *Journal of Forestry*, from the pen of M. BOFFE. It appears that the gentleman just named, who is connected with the French School of Forestry at Nancy, recently paid a visit to several of our British forests in company with Colonel PEARSON. What they saw and what they did in their visit of inspection from the Highlands to the New Forest, and from Windsor to the Forest of Dean, is concisely and graphically told in the article before us. After a few brief paragraphs devoted to the history of the Scottish forests, which are amply worth reading, we come to the year 1870, when the work of replanting the vast areas left desolate by neglect and the ravages committed by sheep "seems to have recommenced with increased ardour, so that on all sides may be seen young plantations vigorously striving to fill up the gap which separates them from those of half a century's standing." Adverting to the Highland district north of Perth, and after making allowance for unproductive areas, M. BOFFE calculates that there will still remain 5,000,000 acres capable of furnishing valuable timber-forests, and affording a vast field for enterprise and capital. Thanks to the punctuality and precision "so thoroughly characteristic of Englishmen," Mr. Inspector BOFFE and his companions were enabled to thoroughly inspect more than 100,000 acres of every description of forest under every-
varying physical and geological conditions.

What old SAM JOHNSON, who playfully doubted whether Scotland produced (in his time) timber enough to make him a stout walking-stick, would have said to these French forest officials we can only barely imagine. Suffice it for us to say, that they were struck in Scotland with the magnificent specimens of Oak, Maple, Lime, Elm, Ash, and Beech, which, by their vigour and the rich colouring of their foliage, bore testimony to the favourable conditions of soil and climate under which they grew. They were, they tell us, struck with admiration at beholding the colossal trees forming the avenues at Scone, Dunkeld, Blair Athol, and Darnaway, and the Oak forest of 400 acres planted sixty years ago by the venerable father of Scotch forestry, Mr. McCORQUODALE. In selecting the Scotch Fir as the tree to be cultivated before all others, the promoters of forest plantation have not only insured the success of their operations, but have traced out the best line of action for their successors. The introduction of the Larch is also spoken of with sympathetic admiration. The reporter further counsels the planting on a larger scale of the Beech, either as a substitute for the Birch, or, better still, mixed with it. For the peat mosses the introduction of *Pinus montana* (Mugho) is also recommended. The different conditions under which Scotch forests are managed, as compared with those on the Continent, attracted the attention of the Inspector. Everywhere, he says, he found the forests fenced in on all sides with walls and hedges, these costly enclosures being erected, not for the purpose of keeping out the cattle and the deer, but for the purpose of keeping them in; "it appeared to us like shutting up the wolf in the sheepfold." They were also struck "by the monotonous regularity in height and age of the trees, unmistakable signs of their artificial origin and want of

methodical management. The forest here left to its own devices continues growing just as the hand of man has planted it; the undergrowth is constantly grazed down by the sheep and cattle, and Nature, in spite of the immense resources at her disposal, is quite powerless to modify the work of the planter or to repair the errors committed by woodcutters. When, under such circumstances, the time arrives for the trees to be cut down, or should they be uprooted by a hurricane, the forest disappears in its entirety owing to the total want of young growth which is necessary as a link between the old forest and the new one which ought to be created."

After adverting to some lamentable illustrations of the want of system, the reporter alludes to two forests near Grantown in Strathspey, the other at Beaulieu, where nothing has been neglected which even the most critical forester could desire. The gradation of the trees was complete, and the reservation of specially vigorous trees of known pedigree duly carried out. The *modus operandi* here pursued consists simply in the exclusion of the sheep and deer, in the judicious thinning out of the growing crop, and in the removal of the mature seed-bearing trees by successive fellings as the young forest grows up and acquires more vigour. . . . If every year certain positions of the forest best capable of supporting it were marked out for grazing the quality of the pasturage would be greatly improved, and the heather would quickly disappear under the cover."

But although the regeneration of a forest will be assured by the exercise of a discreet control over the grazing, "something more must be done if it be desired to turn the land to the best possible account. It is therefore a matter of regret that nothing has yet been done to place forest management in Scotland on a sound economic basis. The productive power of the soil and of the climate have been made use of by able and intelligent planters, who have thereby enabled Nature herself to accumulate a considerable store of timber; but all this wealth is exposed to the carelessness of some and to the ignorance of others, until the hand of a forester manages it properly, and places it on the only sound economic principle of all agricultural and forest property—a constant annual revenue and a constant improvement in production." M. BOFFE is careful to hold foresters exempt from the responsibility of the present state of affairs, as they are powerless to effect improvements until the landowners can be brought to appreciate the manifold advantages to be derived from a regular and methodical management. A parting word of advice is given to forest owners, not to allow their forests to be overworked—a temptation to which they are now exposed when ordinary Fir timber fetches 8*s* per cubic foot, and Larch nearly double that amount.

The proper system of management is detailed in the following manner:—"Let the owner of a forest, after having made a careful and detailed inspection of it, divide it off into blocks or compartments so arranged that they shall be uniform as regards conditions of soil and planting, and then proceed to count and measure all the trees of 3 feet girth and upwards, classing them into categories according to their diameter. He should then open a debit and credit account for each compartment, placing on the debit side the actual volume of the standing crop, and on the credit side the volume of timber removed at each successive felling. This register should always be consulted before undertaking any forest operation, and when the annual fellings fall due it will show which compartment can best support the withdrawal of timber, and which require to be left untouched. Moreover, the balance-sheet will render an exact account, favourable or otherwise, of the condition of the

forest. Ten years of such systematic treatment would form in itself the basis of a regular forest working plan, and the doctor's prescription would no longer frighten the patient with its long words."

We defer for the present further notice of M. BOFFE'S comments on the Royal Forests of Windsor, the New Forest, and the Forest of Dean, to which we shall advert on a future occasion.

On their return from their tour of inspection the visitors were requested to report to the India Office and formulate their opinions as to the desirability and practicability of establishing one or more forest schools in Britain. On both points the Inspector gives a decided affirmative response, considering the establishment of Forest Schools a matter of primary importance, not only as regards Great Britain, but also as regards India and the colonies. A plantation, it is pointed out, cannot afford all the requisite facilities, so that study in a natural forest properly managed is an essential. The forest, to be used as a training school, must be absolutely under the control of the officers of the school. This can only be done in a State forest, which in case of need should be purchased or leased for the purpose. It is recommended that professorships of forest economy should be founded both in England and in Scotland, Cooper's Hill being advised as a suitable locality in the one case—Edinburgh in the other.

We reserve for another occasion the mention of the recommendation as to the course to be followed by the professors and as to their duties; we have said enough to show that the report of M. BOFFE is worthy of the fullest consideration, not only by State officials, but also by our landed proprietors. The report is clear, concise, and to the point. Practical readers may possibly object to some of the details, but they cannot fail to appreciate the thoroughly lucid, business-like character of the report, agreeable in style though free from verbiage, practical, and to the point, though written in a style which will prove attractive even to the general reader.

—WORK.—It is a curious result of the mild winter we have had that work should be apparently somewhat slack for the season, which is invariably a busy one. In towns large bodies of labouring men may be seen standing idle and waiting work, whilst in the rural districts, amongst the market gardens and fields, the complaint of the comparative slackness of labour is as evident. The reason is to be found in the open nature of the winter, which gave no check to work, so that it has gone on almost uninterruptedly since the autumn, and has thus been greatly accelerated. When, as in the preceding winter, a long interregnum of frost and snow locked up the soil from willing hands, work is thrown back for a month or longer, and extra help is needed in the spring to make up for the lost time. Garden and farm work has never been more forward than now, and the early running away to bloom of all green crops enables the land to be re-cropped earlier, and with more than the usual deliberation. There is no complaint as to slackness of work from the regular labourer; it is rather the workman on tramp who finds that the mild winter has put him on a level with Othello—his occupation gone. We shall some day have to face the solution of this great tramp problem, for it is growing a serious one, and is perhaps an outcome of that divorce of the labourer from the soil in rural districts. Farms falling into the hands of the owner are either left neglected or worked with one-half the usual labour, and thus some of the old hands are turned adrift to shift for themselves. They, as so many thousands have done in vain before, resolve to try their luck in the great towns, and getting no work, are, by force of the circumstances in which they are placed, soon converted into shiftless, loafing tramps, who at last get to think that a miserable existence by tramping from one union house to another and eking out a bare subsistence is better than absolute starvation. If our rural labourers had some such tie to the soil as real interest in it or ownership gives, we should not find them

so readily lapsing into the degrading position of loafing tramps and vagabonds.

— THE AURICULA SHOW AT SOUTH KENSINGTON.—Mr. SHIRLEY HIBBERD will give a lecture on the history of the Auricula in connection with the exhibition by the National Auricula Society at South Kensington, on April 25. The arrangements will be as on former occasions, the lecture to be given in the midst of the flowers in the conservatory at 3 P.M.

— THE NEW DOUBLE PINK ROUVARDIA.—This charming plant has already been referred to, and will shortly be offered for sale by Messrs. JAMES

interest of a less satisfactory kind, as showing that Greece is no more free from insect and fungus pests than other lands. The numerous pamphlets before us deal with the Phylloxera, the Anthracnose (*Phoma uvivicola*) of the Vine, its nature and treatment, scale insects, and various other plant diseases.

— THE WEATHER OF 1881.—Mr. EDWARD MAWLEY, whose careful diligence we have before had occasion to comment upon, has published a series of meteorological tables, forming a record of the climatal conditions observed throughout the year near London. The record is absolute and also comparative with reference to an average year, so that it will be very serviceable for reference, and with its two pre-

south-west wall of the Castle. The flowers are quite up to their normal size as seen under pot cultivation, and quite as vivid in colour as if they had the protection of the most modern glass structure. The plant is trained loosely to the wall, and the profusion of its flowers, nestling among its green leaves and surrounded by the beautiful verdure which is characteristic of the climate, and which Nature in her kindness affords to Luscombe in a remarkable degree, renders it at once an object of striking beauty at a season when one least expects to see a display of choice flowers out-of-doors.

— MAGNOLIA CONFUCIA.—To do full justice by way of description to a large tree in full flower of

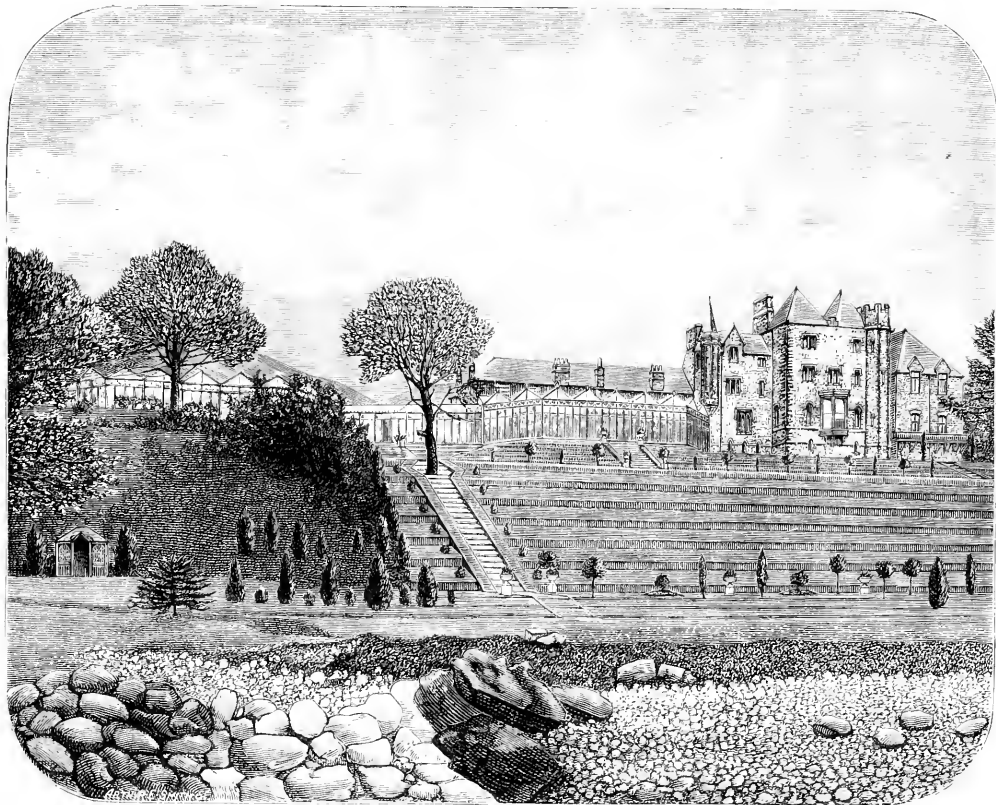


FIG. 75.—CRAIG-Y-NOS CASTLE, BRECON: THE RESIDENCE OF MADAME ADELINA PATIL. (SEE P. 464.)

CARTER & Co. It will no doubt make a handsome addition to this beautiful tribe of plants. It is described as follows:—"A sport from the double white; is very constant and beautiful, and in every way as desirable as its parent."

— BOTANY FOR BEGINNERS.—The second Dutch edition of this little book, originally published in these columns, has been published lately, with additions from the works of THOMAS and others.

— ΕΚΘΕΣΙΣ ΠΡΟΣ ΦΥΛΛΟΞΗΡΑΣ (a treatise on the Phylloxera).—It is not often we have to cite modern Greek publications in this journal, but the receipt of a whole packet of papers from M. GENNAIUS is at once interesting as a proof of scientific activity in a kingdom which has not hitherto greatly contributed to modern knowledge, and it possesses

decessors will form a trustworthy record of three years as extraordinary in their meteorological features as any three consecutive years in the memory of the oldest inhabitant. As few things pass more quickly from the unaided memory than weather statistics, the value of such records is the more evident. This convenient little publication may be had for a small sum from STANFORD, Charing Cross.

— HOVA GLOBULOSA.—We inadvertently omitted to mention in our report of the Royal Botanic Society's show, at p. 441, that the Cranston Nursery and Seed Company, Hereford, were awarded a Botanical Certificate of Merit for this plant.

— CAMELLIA IMERICATA OUT-OF-DOORS.—This well-known favourite variety is now in full beauty at Luscombe Castle, South Devon, upon the

this charming plant, one might use the choicest words which our language affords, and yet fail to convey with adequate force the true beauty and usefulness of the plant. A very large tree has been in flower for some time past in the American garden at Luscombe Castle, South Devon, and is just now at its very best. Those who have a hankering after the white *Lapageria* will find a strong rival in this lovely flower for decorating glasses or large vases of any kind, and it has this advantage over the *Lapageria*, that it emits the sweetest fragrance while its colour is the purest white. The blossoms are best gathered when about half open, and the effect they produce in contrast with scarlet *Rhododendrons* either out-of-doors or in a cut state, is transcendently lovely.

— CAMELLIAS FLOWERING IN YORKSHIRE.—Mr. ARTHUR BOOTY, Rose Villa Nursery, High

Harrogate, sends us a bloom of a striped *Camellia* cut from a bush, 4 feet high, which has stood the Harrogate winter without any protection.

— **THE FLORE DES SERRES.**—The seventh, eighth, and ninth parts of the twenty-third volume have just been issued. They contain numerous coloured plates, which we shall catalogue in our register of plant portraits, and a variety of miscellaneous articles, some of them having a special interest, as being posthumous publications of M. DECAISNE—one in particular, on the wild Pear. In the wild state the fruit has always the form of a depressed sphere, or of a top (pyriform); the colour is green, and never purplish; all become brown in ripening (blet), and their flesh, at first hard and astringent, softens, and assumes a vinous odour. Colour, form, size, flavour, aroma, season of ripening, all these are modified by cultivation. M. DECAISNE thinks that the brilliant coloration of some Pears cannot be attributed to intense light, inasmuch as in the sunny season of 1865 the Pears were not brightly coloured, but the reverse, while many of the varieties of the South of France are not more brightly coloured than those in the North. The cultivated Pears are all reduced to one species, *P. communis*, together with one variety, *P. communis subnuda*, characterised by rounded leaves, greyish above, pubescent beneath, and with the fruits borne on long stalks. This, M. DECAISNE thinks, may be a hybrid between *P. communis* and *P. parviflora*. M. PLANCHON'S article on the so-called Indian *Azalea* is reproduced from the *Revue Horticole* of 1854, without having been submitted to the author for revision—a circumstance the more to be regretted as, no doubt, after the labour of MAXIMOWICZ, M. PLANCHON might see cause to modify his views. Almost certainly he would not include the so-called *Azalea mollis*, then unknown to him except by name among the "Indian *Azaleas*," which are *Rhododendrons* of the *Tasica* sections.

— **PRIMULA MARGINATA.**—Amongst the numerous plants now flowering on the rockwork in the York Nurseries, this Italian species is very pleasing, and even gay. Its large trusses of bluish-lilac flowers contrast well with the silvery glaucous foliage of the plant.

— **CONVALLARIA POLYCONATUM** (SOLOMON'S SEAL).—This charming plant is used with good effect for the embellishment of the large conservatory at Hentez, near Bristol, by Mr. FARMER, gardener to S. DEKHAM, Esq., who also finds it a most valuable plant for general purposes of furnishing. It is a plant that can hardly be misplaced by the greatest tyro, and its cultivation is so simple that any one may undertake to grow it. Of course, it has to be forced to have it in flower at this season, and it has no equal among hardy plants with regard to giving effect. It can be obtained through any nurseryman at a cost that is not worth naming, and those who now grow a dozen or so of plants would find it an advantage to grow it in larger numbers. It is quite as useful out-of-doors as it is for forcing, and would make many a woodland walk that is now scantily furnished with living plants bright and cheerful during its season of flowering. There are scores of hardy plants—useful in their way—that one tires of reading about that will not bear comparison with it in the same breath.

— **A NOTABLE SIEPHANOTIS.**—So many questions are asked from time to time relative to the simplest method of cultivating this favourite sweet-scented flower that no plea need be offered for recording what may be called extraordinary results. The plant which is the subject of this notice covers the whole roof of an ordinary sized plant-stove in the garden of Mrs. MILLER, Brently House, Westbury, Bristol, and is under the charge of Mr. GIBSON, whose success in plant growing does him credit. The remarkable part of the history of this plant is that it is growing in a pot no larger than 11 inches in diameter. It is top-dressed with loam, and the top-dressing is raised several inches above the rim of the pot, "cup" fashion, in order to be able to supply the roots with water. Myriads of roots are protruding through the top-dressing. Some of the shoots are 25 feet in length, and as an instance of the wonderful floriferousness of the plant it may be mentioned that two trusses of flowers are produced at most of the joints, and as many as thirteen pipes may be counted to many of the trusses. Cultivators who may have found it difficult to obtain such marvellous results

would do well to inquire whether in addition to being over-generous as to treatment they do not also possess the wrong variety. With Mr. GIBSON the plant flowers at all stages; even in the cutting pots young plants are furnished with from one to two trusses of flowers. Admitting that much of this success may be due to cultural treatment and judicious restriction of the roots, it is still more probable that the variety is, like the *Elvaston* one, more floriferous than that commonly cultivated.

— **MUSK.**—The other day when a report got abroad that the gardens attached to Chelsea Hospital—so dear to the old pensioners and the Chelsea public—were to be closed, the matter evoked very considerable feeling, though perhaps there was no substantial foundation for it. But all who have been in years past favoured in a visit to these gardens cannot fail to have noticed the numerous patches of Musk grown by the old pensioners, and which they retail out in small clumps at the proper season to the intense satisfaction of the public and the old soldiers' profit. Were there no other indications existing, this one would suffice to show that the love for the simple and singularly unpretentious, yet sweetly perfumed perennial *Minimus*, is very strong, and is perhaps more evidenced in towns and cities than in rural districts. In the former the Musk is just one of those kindly plants that will thrive and flower admirably. Plants that are thus kindly under the blighting atmospheric conditions that exist in crowded centres are indeed few, and that they are thus rare renders the sentiment that is lavished upon them reasonable and natural. It was a natural result of this generosity that the now well-known HARRISON'S Musk should also become a favourite, though it does materially lack that rich perfume which so distinctly marks the old kind. But perhaps some of the popularity which is attached to the latter Musk is due to the fact that it presents almost the only variation from the normal type yet put into commerce. The old Musk is not a fertile breeder in the hands of the hybridist, hence the sterility that has marked the efforts of that enterprising section of horticulturists. Mr. A. CLAPHAM, now of Kensington, is perhaps the most successful of all in securing results, though his great aim, to secure a red-flowered Musk, has not met with the entire success he deserves. Having first obtained a variety that produces flowers of a pale lemon-yellow, he has now secured not only a robust kind that produces clear orange-yellow flowers, but one of less robust habit that carries reddish-buff flowers, of good size and form. These kinds perhaps mark the way to something yet more striking and novel.

— **SPRING SHOW OF THE PARIS HORTICULTURAL SOCIETY.**—This meeting took place in the rooms of the Society, 84, Rue de Grenelle, Paris. It was opened on March 30, and closed on Sunday night, April 2. The exhibitors were not very numerous, the Versailles nurserymen being the only great exhibitors, with M. LÉVÊQUE, the well known Rose grower. In the big meeting-room were nicely arranged some groups of *Azaleas*, *Camellias*, *Cinerarias*, and *Roses* in pots. In the several committee-rooms were staged some more *Azaleas*, a collection of *Orchids* from M. LUDDEMANN, and another from MM. THIBAUT & KEFFLEER. The arrangements appeared very good. MM. LÉVÊQUE had an enormous lot of *Roses* in pots, nicely flowered, not for competition; also some good *Camellias* in flower. *Pipl-me d'Honneur*. M. LUDDEMANN, the *Orchid* lover, of 20, Boulevard d'Italie, Paris, had a group of *Orchids*, also a few *Bromeliads*, *Orgiesia tillandsioides*, *Vriisia splendens*, *brachystachys*, and *Mazinei*. A Gold Medal was awarded. We are glad to see that French nurserymen are beginning to exhibit *Orchids*, when will French amateurs follow? It is very seldom that they exhibit at all. MM. THIBAUT & KEFFLEER, the nurserymen, of *Seaux*, exhibited a collection not for competition, their most remarkable plant being an *Odontoglossum vexillarium*, with four flower-spikes; flowers good, and a very healthy plant. M. ROYER fils, nurseryman, Versailles, showed some very good *Azaleas* in different groups, according to the sizes, and was awarded a Silver-gilt Medal. M. JACQUIN had a Silver Medal for a good lot of well-flowered *Mignonette*; and M. FORGEOT, 8, Quai de la Megisserie, a Silver-gilt Medal for *Hyacinths* in pots and in cut flowers; M. TRUFFAUT, 40, Rue des Chantiers, Versailles, received a Silver-gilt Medal for a lot of *Cyclamens* in pots, something after the Eng-

lish style of plants; the same exhibitor received also a Gold Medal for a fine group of *Azaleas* well flowered in best varieties. M. MILLET showed *Violets* of sorts, seedlings of his own and others. M. PAILLET, of *Seaux*, contributed a group of *Magnolia stellata*, very well flowered; and *Viola purpurea*, white, double, &c., and received a Silver Medal. M. LECARON, 20, Quai de la Megisserie, had a Silver Medal for *Calceolaria*, *Cineraria*, &c.; and to M. MOSER, nurseryman, of Versailles, who had a large lot of *Camellias*, well bloomed, a Gold Medal was awarded. MM. VILMORIN were awarded a Silver-gilt Medal for a group of *Cinerarias*, very good; also a Silver Medal for a white *Cineraria* and *Hyacinths*. Fruits and vegetables were sparingly represented, and of new plants we only noticed an *Anaryllis*, red, striped with white, exhibited by M. TRUFFAUT; a *Coleus*, dark red fringed green, and a few spots pale pink, from Messrs. THIBAUT & KEFFLEER; *Rhododendron Souvenir du Prince Imperial*, a free blooming variety, dark red, from M. ROYER, of Versailles; and the new bedding plant, *Gynura aurantiaca*, from the *Compagnie Continentale d'Horticulture*, we do not think this will ever take the place of *Coleus Verschaffelii*, speaking of course from an effective point of view—it has not the brilliant colours of these old plants. The great show of the season of this Society will take place in the Champs Elysées, from May 23 to 29, inclusive.

— **ARISTOLON SELLOWIANUM VARIEGATUM.**—A very interesting specimen of this excellent bedding variety has lately come under notice at Coombe Bank, Sevenoaks, the seat of W. SPOTTISWOODE, Esq., President of the Royal Society, which deserves a word of praise. The plant is growing in the plant-stove, and, owing to the conditions under which it is grown, the markings of the leaves present the most delicate tints of green and gold, canary-yellow, and pure white. Some of the white blotches change insensibly into the most delicate yellow tinted with green spots. A more suitable ornament for a sitting-room cannot well be conceived. When it is remembered what a striking plant this is in the subtropical garden, and the readiness with which it may be propagated, it will be seen what a useful subject it is, when grown in suitable sizes, for all modern purposes of decoration.

— **PYRUS MAULE.**—This charming spring-flowering shrub, originally described and figured in these columns, was exhibited in fine form at the late show of the Bristol Horticultural Society by Messrs. MAULE & SON, nurserymen, of that city, where its rich orange-scarlet blossoms contrasted beautifully with *Rhododendron multiflorum* and white *Azaleas*. The plant was most conspicuous in a group of plants set up for effect; it is indeed a plant that will attract attention anywhere, but it is especially adapted at this season of the year for grouping with other plants where a distinct effect produced in a natural way is the chief aim of the cultivator. Plants that produce such a rich display with a minimum of labour should find a home in every amateur's garden in the kingdom.

— **THE HYACINTH EXHIBITION AT THE EXETER NURSERY**, which has now become an annual thing, there being no other spring show in the city, this season formed a great centre of attraction to the flower-loving section of the populace, who patronised it largely. This was the fifth annual display, and far exceeded any of its predecessors, showing that the efforts of the DR. WOODMAN (the head of the firm) to promote the high-class culture of this popular spring flower have been crowned with success. The privilege of exhibiting for competition was confined to customers of the firm; the valuable prizes offered brought out strong competition. The 1st prize was awarded to Mr. COLE, gr. to J. LAWLESS, Esq., of Topsham Road, Exeter, with a very superior collection, comprising *La Franchise*, white; *La Nuit*, black; *Agnes*, pink; *Mimosa*, purple; *Grande Vedette*, pure white; *Robert Steiger*, a lively red; *Mont Blanc*, pure white; *Prince de Saxe Weimar*, double blue; and *La Tour d'Auvergne*, double white. The 2d prize was awarded to Mr. SPARKS, gr. to W. T. WALDY, Esq., Hewden Court, Tiverton, with two very nice blooms, conspicuous among them being *Ornement de La Nature*, rose, striped pink; *Marie*, blue; *Mimosa*; *Vulcan*, blue; and *Queen Victoria*. The 3d prize went to Mr. BAKER, gr. to T. ROWE, Esq., Lafonda, Exeter; equal 3d to Mr. STEVENS, Alphington. The collec-

tions sent by Mr. Hart, Alpbington, STAFFORD GREEN, Esq., HEWITT, and Captain HALFORD THOMPSON, were commended; several other exhibitors competed. Additional collections were staged by many of the exhibitors, not for competition. Messrs. LUCOME, PISCHE & Co. staged a great many themselves, of superior merit. The plants were staged in their long span-roofed show-house, backed up on each side with productions from the nursery, such as white Arums, Acacias, Deutzias, &c. with Palms and tree Ferns skillfully arranged; the same gave a charming finish and effect to the display. The whole of the houses in the nursery were thrown open to the public, who were admitted free—these being principally their large and noted Camellia-houses, one filled entirely with Cinerarias—a fine display, another full of Anthurium Scherzerianum in full bloom; some hundreds of flowers, of varied shades of colour, among them a seedling of superior merit, of a deep crimson-scarlet. The Orchid-houses contained many specimens in bloom, such as *Acinetia Humboldtii*, *Phaius giganteus*, *Phalaenopsis grandiflora*, &c. With the many other houses, containing much to please and interest, a very pleasant afternoon could be spent, thanks to Dr. WOODMAN and his employees, who are to be complimented on the marked improvement of the nursery as seen from year to year.

— **HIBISCUS ROSA SINENSIS**.—A flower of a superb variety that we have lately examined is so remarkable in its conformation that its peculiarities are worthy of being placed on record. All goes on as correctly as should be the case with a properly conducted *Hibiscus* till after the corolline whorl is reached; then the flower breaks out into the wildest extravagance, so that it is difficult to reduce the tangled mass of petals to anything like order. In the ordinary course of things there should be within the petals a tube, bearing at its upper part an agglomeration of anthers, and forming the column or tube of stamens so characteristic of well conducted Malvaceae. Within and at the bottom of this tube of united stamens is, or should be, the ovary whose slender style traverses the tube and breaks up above its edge into five branches, each tipped with a knob-like stigma. In the flower before us we have a very different arrangement. Instead of the staminal tube we have six solid branches or axes clothed with petals of all sizes and shapes, and each bearing at the top a few stamens surrounding the base of a small but perfectly formed ovary, whose styles and stigmas, however, though present, are but small. It would therefore seem as if the main axis of the flower, after throwing off sepals and petals as usual, suddenly branched into five or six divisions, each provided with an irregular number of petals, and terminated by an ovary. It is difficult to suppose any real transformation here; but if such a phenomenon be invoked, then the five or six branches of the flower must be stamens, but stamens must be very much indeed to bear complete ovaries at their tips, though we are far from denying the possibility of such an occurrence.

— **TESTIMONIAL TO MR. W. MUIR**.—Mr. WILLIAM MUIR, who for nearly seventeen years occupied the post of head gardener to the late Sir PHILIP DE MALPAS GREY EGERTON, of Oulton Park, near Little Budworth, Cheshire, has received the more important appointment of head gardener to the Earl of HOPETOUN, of Hopetoun House, near Edinburgh, and his departure from Oulton is deeply regretted by a large circle of friends. Last week he was the recipient of a "keepsake," which testified in a most unmistakable manner to his popularity in the neighbourhood in which he has so long resided, consisting as it did of a purse containing fifty sovereigns, together with a handsome black marble timepiece, upon which was a gold plate bearing the following inscription:—"Presented, together with a purse of money, to Mr. WILLIAM MUIR, by friends, as a mark of respect and esteem, on his leaving Oulton Park, March, 1882." Mr. MUIR was also presented with a very handsome pipe, tobacco-box, and an illuminated address by the gardeners and farm workmen of the Oulton estate. The address was surmounted with the arms of Sir PHILIP EGERTON and the Earl of LONDONDERRY, with crest and motto of the first, and enclosed within a rich border of cinque-cento design upon a ground of gold filagree work.

— **PERIODIC PHENOMENA OF PLANTS**.—Dr. H. HOFFMANN and Dr. EGON IHNE, of Giessen, who are engaged in preparing a map of the plant-phenology of Europe, are desirous of obtaining accurate dates of the flowering and fruiting of the under-mentioned plants in this country, from as many localities as possible. The observations are to be made (on isolated trees, not protected by walls, nor trained in espalier) during the present year, or from previous years, if not already published. An example of the work intended may be seen in a map published in PETERMANN'S *Geographische Mittheilungen* for January, 1881, entitled "Vergleichende phenologische Karte von Mittel-Europa." The dates are the average observed at Giessen:—

A. First Flowers Open.

1. Ribes rubrum. Red Currant	April 14
2. Prunus avium. Wild Cherry	" 19
3. P. spinosa. Sloe, or Blackthorn	" 20
4. P. Padus. Bird Cherry	" 24
6. Pyrus communs. Pear	" 23
*7. Malus. Apple	" 25
*8. Syringa vulgaris. Lilac	May 4
9. Lonicera tatarica. Tartarian Honeysuckle	" 5
*10. Narcissus. Pleasant-scented Narcissus	" 5
*11. Asculus Hippocastanum. Horse Chestnut	" 5
13. Crataegus oxyacantha. Hawthorn	" 9
13. Cytisus Laburnum. Laburnum	" 15
14. Sarcodanthus vulgaris. Broom	" 14
15. Cydonia vulgaris. Quince	April 16
16. Sorbus aucuparia. Mountain Ash, or Rowan	" 17
*17. Samolus nigra. Elder	" 21
18. Scutella cretica. Rye	" 28
19. Atropa Belladonna. Deadly Nightshade	" 29
20. Vitis vulpina. Vine	June 12
21. Thia grandifolia. Ehrh. Line	" 12
22. Lilium candidum. White Lily	July 1

B. First Fruit Ripe.

23. Ribes rubrum. Red Currant	June 21
24. Lonicera tatarica. Tartarian Honeysuckle	July 1
25. Sorbus aucuparia. Mountain Ash, or Rowan	" 30
26. Atropa Belladonna. Deadly Nightshade	Aug. 2
*17. Samolus nigra. Elder	" 11
*28. Asculus hippocastanum. Horse Chestnut	Sept. 17

Particular attention is requested to the species indicated by an asterisk. Communications to be addressed to Dr. IHNE, Giessen, Germany.

— **THE GENERAL HORTICULTURAL COMPANY (JOHN WILLS), LIMITED**.—This case came before Mr. Justice FRY on Tuesday. The Company was represented to be doing a large business, and it was stated that the shareholders and the bulk of the creditors desired the Company to continue its business on the idea that it would be ultimately successful. The petitioner did not object, and accordingly, notwithstanding the opposition of certain creditors, his Lordship, considering it to be in the interest of all parties, directed the petition to stand over for three months, and in the meantime continued two provisional liquidators, Messrs. STAGG and SMITH, for the purpose of carrying on the business of the Company.

— **THE WEATHER**.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending April 3, issued by the Meteorological Office, London:—The weather has been cloudy or dull in all places with rather frequent, but slight, falls of rain. A sharp thunderstorm passed over central England on the 2d. The temperature has been much higher than that of last week, and was above the mean in all districts, the excess over southern and eastern England being as much as 6°. The highest reading recorded (64°) was registered at Southampton on the 3d, while the lowest reading (29°) occurred at Hillington on March 31. The rainfall has been rather more than the mean over Scotland, in England, S.W., and "Ireland, S.," and equal to it in "England, S.W.," but in all other districts the fall was a little less than the mean value. Bright sunshine shows a further decrease, the percentages varying from 8 in "Scotland, E.," and 17 in "England, N.W.," to 38 in "England, S.," and 39 in the "Midland Counties." Depressions observed: During the first few days the barometer was highest over the southern part of our area, and depressions travelled in an easterly direction over our northern coasts and Scandinavia. The prevailing current was consequently south-westerly or westerly, and generally moderate or fresh in force. On the 31st, however, there were indications of a change in the distribution of pressure, and from April 1 until the close of the period the mercury was highest over Scandinavia and lowest to the south-westward of our islands, so that the wind became easterly and south-easterly in direction, and moderate to strong in force.

— **GARDENING APPOINTMENTS**.—Mr. M. GLEESON, Foreman to Mr. ELPHINSTONE, The Gardens, Shipley Hall, Derby, has been engaged to succeed Mr. MILLER, as Gardener to the Duke of NEWCASTLE, at Clumber.

LIST OF GARDEN ORCHIDS.

- DENDROBIUM.
- (Continued from p. 397.)
124. D. INFUNDIBULUM, Lindl., *Journ. Linn. Soc.*, iii., p. 16; ex Bateman, *Gard. Chron.*, 1862, p. 1194; *Bot. Mag.*, t. 544; *Ill. Hort.*, n.s., t. 172; *Gard. Chron.*, 1864, p. 269; n.s., ii., p. 167; *D. mouli-mensis*, HORT., n.s., introduced by the Rev. Mr. Parish for Messrs. Low about 1865. A handsome white-flowered Dendrobium, which I should regard as a narrow-leaved variety of *D. formosum*. I doubt its being Lindley's *D. infundibulum*, as this is described as having large, round, lateral lobes to the labellum.
 125. D. INTERMEDIUM, Teijsm. et Binnend, *Nederl. Kruidb. Arch.*, iii., p. 399, reprint, p. 6.—Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.
 126. D. (NIGRO-HIRSUTA) JAMESIANUM, Rehb. f., *Gard. Chron.*, 1869, p. 554; *Jardin et Potager*, 1869, p. 187, with a woodcut.—Birma. Discovered and introduced by Colonel Benson, and acquired by Messrs. Veitch. Described as a splendid species, allied to *D. infundibulum*, having large snow-white flowers, with a cinnabar-red lip. Dedicated to the late J. James, Esq., Kew.
 - D. JAPONICUM, Lindl. = *D. noniflorum*.
 127. D. JAVANICUM, Lindl.; Miquel, *Fl. Nederl. Ind.*, iii., p. 644; *D. sarcoctoma*, Lindl., *Gen. and Sp. Orch.*, p. 80; *Sarcoctoma javanicum*, Blume, *Bot. Burck.*, p. 154, t. 15, f. 15.—Java. Discovered in the garden of Lady Louisa Ashburton. Flowers small, cinnabar-red, with a dark purple labellum.
 128. D. (BOLBOPHILA) JENKINSII, Wallich, *Bot. Reg.*, 1839, t. 37; Warner, *Sel. Orch.*, ser. 2, t. 28.—Gualpara, Assam, India. Discovered by Captain Jenkins; introduced into this country by Dr. Wallich, and flowered by Messrs. Loddiges in 1838. A dwarf ornamental species. Flowers wholly yellow.
 129. D. (NIGRO-HIRSUTA) JERDONIANUM, Wright, *lc. Pl. Ind. Or.*, v., t. 1644; *Gard. Chron.*, 1868, p. 865; *D. villosulum*, Wallich, = Neighley Mountains, Sikkim, India. Discovered in the garden of Lady Louisa Ashburton. Flowers small, cinnabar-red, with a dark purple labellum.
 130. D. JOHANNIS, Rehb. f., *Gard. Chron.*, 1865, p. 890; n.s., ix., p. 163; *Bot. Mag.*, t. 5540.—North Australia. Discovered and introduced by John Gould Veitch, Messrs. J. and F. Anderson, but it has narrower leaves and smaller fragrant flowers, with chocolate-brown sepals and petals, and a yellow labellum with crimson pencillings.
 131. D. JUNCEUM, Lindl., *Bot. Beech.*, 1842, Misc., n. 11; *Gard. Chron.*, 1873, p. 261.—Singapore. Imported by Messrs. Loddiges, with whom it flowered in 1842. "Leaves terete; flowers medium size, green, with faint purple veins."
 132. D. (DENDROBIEUM) KINGIANUM, Bidwill ex Lindl., *Bot. Beech.*, 1844, Misc., n. 18; 1845, t. 61; Paxt., *Mag. Bot.*, iii., p. 97, with a coloured figure; *Bot. Mag.*, t. 4527; Lemaire, *Jard. Fleur.*, t. 143 (copied from the *Bot. Mag.*).—Queensland and New South Wales, Australia. Originally collected and introduced alive into this country by Mr. Bidwill in 1842. Flowers small, in racemes from the apex of the commonly two-leaved stems, violet-purple. Hort. Kew.
 133. D. KOHLEMEYERIANUM, Teysm. et Binnend ex Miquel, *Choix de Pl. Jard. Buitenzorg*, t. 24, fig. 1.—Java. Small, narrow flowers.
 - D. KUHLII = *D. thyrsoides*.
 134. D. LASIOGLOSSUM, Rehb. f., *Gard. Chron.*, 1868, p. 682; 1869, p. 277; 1870, p. 695; *Bot. Mag.*, t. 5245.—Birma. Discovered by Colonel Benson, and by him communicated to Messrs. Veitch, with whom it flowered in 1862. Allied to *D. areum*, but the flowers are wholly white, with the exception of some reddish streaks on the lateral lobes of the labellum, and the tuft of yellow hairs on the central lobe. A fine species.
 135. D. (AFORUM) LEONIS, Lindl. ex Rehb. f., *Walp. Ann.*, vi., p. 280; *Aforum Leonis*, Lindl., *Bot. Reg.*, 1840, Misc., n. 126; *A. indivium*, Lindl., *Gen. and Sp. Orch.*, p. 70, nec Blume.—Singapore. Introduced by Mr. Cunningham, and flowered by Messrs. Loddiges to the genus.
 136. D. (EUPHORBIOIDUM) LEUCOCHROUM, Rehb. f., *Gard. Chron.*, n.s., xi., p. 202.—Moulmein. Imported by Messrs. Veitch, with whom it flowered in 1879. Flowers white.
 137. D. (EUPHORBIOIDUM) LEUCUM, Rehb. f., *Gard. Chron.*, 1865, p. 67; *Acacia*, ii., t. 145.—Borneo. Introduced by Mr. Hugh Low. Allied to *D. pictum*, but the flowers wholly lilac.
 138. D. LINANUM, Teysm. et Binnend, *Nat. Tijdschr. Nederl. Ind.*, xxv. (1865), reprint p. 4, non Rehb. f. —Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.
 139. D. LINAWANUM, Rehb. f., *Walp. Ann.*, vi., p. 284; *D. noniflorum*, Lindl., non Swartz, *Bot. Beech.*, t. 134; *Bot. Mag.*, t. 4534; Paxt., *Mag. Bot.*, iii., p. 77, with a coloured plate.—A native of China and Japan. Introduced from the former country by the Horticultural Society of London. Flowered by W. Cattle at Barnet in 1829. A very handsome species, with large rose-purple flowers; the labellum tipped with crimson. Hort. Kew.
 - D. LINDLEYI, Steud. = *D. aggregatum*.
 140. D. LINEARIFOLIUM, Teysm. et Binnend, *Nat. Tijdschr. Nederl. Ind.*, xxv., p. 348; Miquel, *Choix de Pl. Jard. Buitenzorg*, t. 23; *D. lineatum*, Teysm. et Binnend, *l. c.*, t. 107, *Bogor*, p. 43.—Sumatra, Java. Buitenzorg Botanic Garden, 1862. An inconspicuous species.

41. D. LINGIFORME, Swartz; Denth., *Fl. Austral.*, vi., p. 284; *Bot. Mag.*, t. 5240; Lindl., *Gen.* and *Sp. Orch.*, p. 85; Rehb. l., *Beetr.*, p. 51.—North-east Australia. Introduced by Mr. Hill, of the Brisbane Botanic Garden, about 1860. A trailing species with small, oval, very thick leaves, and erect slender racemes of small white flowers. An elegant plant. Hort. Kew.
42. D. (EUCHROMIUM) LUTEIFLORUM, Lindl., *Gard. Chron.*, 1856 (May), p. 372; 1867, p. 264; *Bot. Mag.*, t. 6030; Warner, *Sci. Orch.*, vol. 2, t. 3; *D. Hainburyana*, Rehb. l., *Amphiblastia*, vi., Oct. 1856, p. 320.—Assam, Tenasserim, &c., India. First introduced, apparently, by Mr. E. S. Williams, and flowered by Mr. Hainbury. A handsome species, in the way of D. noble, but with longer slender stems, bracts and petals deep purple, lip with a yellowish white zone, extending nearly to the margin. Hort. Kew.
- Var. FREEMANI, Rehb. l., *Gard. Chron.*, n.s., viii., p. 744.—Assam, Freeman. Zone of labellum yellow. Hort. Kew.
- Var. ROSEI, Rehb. l., *Gard. Chron.*, n.s., viii., p. 781.—Larger and finer than the type.
- Var. CANDIDUM, Rehb. l., *Gard. Chron.*, n.s., xiii., p. 586.—A lovely variety, with white flowers.
43. D. LOBATUM, Miq., *Fl. Nederl. Ind.*, iii., p. 631; *Apocyn. Botanicum*, Blume, *Streeke*, *Nederl. Ind.*, p. 237; Lindl., *Gen.* and *Sp. Orch.*, p. 71.—Java. *Batuzorg Botanic Garden*, 1860. Inconspicuous.
44. D. LOBBI, Teijsm et Binndel, *Nederl. Kruidk. Arch.*, iii., p. 360, non Lindl.—Singapore. *Batuzorg Botanic Gardens*, from Mr. Lobbi, in 1852.
45. D. (PELHONUM) LONGICORNIS, Lindl., *Gen. and Sp. Orch.*, p. 80; *Bot. Reg.*, t. 1315.—Sihlet and Nepal, India. Introduced by Dr. Willich in 1828, and flowered in the garden of the Horticultural Society in 1829. A very distinct species, having slender, hairy, or bristly leafy stems, and lateral or terminal white flowers remarkable for their very long spur.
46. D. LONGIFOLLE, Lindl., *Bot. Reg.*, 1840, Misc., p. 172.—Singapore. Introduced by Mr. Cuming for Messrs. Ludlidge. Allied to D. amphim. Flowers pale straw-coloured, tipped with fine purple.
47. D. LOWI, Lindl., *Gard. Chron.*, 1861, p. 1046; *Bot. Mag.*, t. 5393; *Flora de Serravallo*, t. 2, 202, removed from *Bot. Mag.* (Borneo, at an elevation of 5000 feet). Introduced by Mr. Hugh Low. A handsome species of the same group as D. longicornis having flowers of a beautiful rich yellow, the labellum traversed by longitudinal lines of long hairs springing from crimson bases. Hort. Kew.
48. D. LUGENS, Rehb. l., *Bot. Zeit.*, 1863, p. 123; *Venus*, n., p. 132, t. 146.—Borneo. Discovered and introduced by Mr. Hugh Low for Messrs. Low & Co., of Ceylon, in whose nursery it first flowered in 1862. Allied to D. pictum. Flowers whitish, with some purple-brown; labellum with an orange disc.
49. D. LUTEOLUM, Bateman, *Gard. Chron.*, 1864, p. 264; *Bot. Mag.*, t. 5441.—Moulmein. Introduced by the Rev. C. S. Parish for Messrs. Low, of Ceylon. A beautiful flower-flowering Dendrobium of the D. aureum type, of which, indeed, it may be no more than an unusually luxuriant strain with primrose flowers, and a little orange and crimson on the lip. Hort. Kew.
50. D. LUTRACULUM, (L.) W. & A., Hooker, *Bot. Mag.*, t. 4899; *Gard. Chron.*, 1856, p. 102.—Ceylon, in the forests about Ratnapura and towards the hills. Stems long and slender, bearing leaves and flowers at the same time; the latter of the most gorgeous kind, the prevailing colour being a purplish rose. Hort. Kew.
51. D. MAYRATI, Lindl., *Gen. and Sp. Orch.*, n. 27; *Tournef. Linn. Soc.*, iii., p. 6.—Ceylon and Western Peninsula of India. Flowered at Kew in 1866.
- D. MAYRATHIUM, Hook.—D. superbum.
- D. MACROPHYLLUM, Lindl.—D. superbum.
52. D. MACRORHIZUM (*List of Orchids Cultivated in the Glasgow Botanic Garden*, 1881).—Australia? Apparently an unpublished species.
53. D. MENSCHINGII, (L.) W. & A., Parish for Messrs. Low, *Fl. de l'Archipel*, Atlas, t. 6, 133; *Heb. Ann.*, vi., p. 304; *Bot. Mag.*, t. 5540 (var. *Nottinghamii*); *De Vries Ill.*, t. 5; D. *Vestibulum*, Lindl., *Bot. Reg.*, 1847, sub t. 25. Java. Introduced by Mr. Thos. Lobb for Messrs. Venter. A tall-growing species, with broad leaves and long terminal spikes of greenish-yellow flowers, hairy outside; lip 3-lobed, stippled and spotted with purple. Hort. Kew.
- Var. PAVANUM, Hugh Low, *Hamb. Gartenz.*, xiv., p. 211.—Borneo. Introduced by Mr. Hugh Low, and cultivated by Messrs. Low, of Ceylon. A very fine variety.
- D. MACROSTACHYUM, Lindl., *Gen. and Sp. Orch.*, p. 78; *Bot. Reg.*, t. 1365; Wight, *Re. Pl. Ind.*, v., t. 1547, p. 85. Borneo. Described by Macrae, and cultivated from a fragment found in his dried collection. Mr. Bateman flowered it in 1830. Stems long and slender, bearing the flowers usually in clusters of three. Flowers pale yellow. Hort. Kew.
- D. MILENA, Hort. Belg.—D. MACROPHYLLUM, var., ex Planche, Hort. Donat.
55. D. MARGINATUM, Bateman, *Bot. Mag.*, t. 5154.—Moulmein. Introduced by the Rev. C. S. P. Parish for Messrs. Hugh Low & Co. Very closely allied to D. aureum, and perhaps better regarded

as a variety of this species. It has a showy orange and crimson labellum, bordered with white. I think I have somewhere seen a statement that this is the same as D. xanthophloeum.

W. B. HENSLY. (To be continued.)

NEW DAFFODILS.

NARCISSUS MASTERIANUS n. sp.—In May last I sent to you (*vide* p. 603 *Gard. Chron.*, May 7, 1881) what I there call a Polyanthus Daffodil (*Narcissus tridymus*), the first of its race, and differing from all other Daffodils in having more than one flower on a stalk. I now venture to send you a sketch of a very pretty Narcissus—I am almost afraid to call it a Daffodil, and yet it comes pretty near to the large trunked section of the genus. N. Macleani is perhaps its nearest relative, but we have here three flowers on a scape, and the colours are quite different. A glance at the illustration (fig. 76) will give a better idea of this novelty than any amount of mere description. It is a seedling raised by the Rev. J. G. Nelson, of Aldborough Rectory, near Norwich, and has been by him (or my friend Mr. Barr, perhaps) called N. Masterianus x. The perianth segments are creamy, or French-white, and the cup is of a soft pale primrose tint—together a very chaste and pleasing flower, quite



FIG. 76.—NARCISSUS MASTERIANUS.

unlike anything else I know in the genus. The scape is about 9 inches in height, and much fluted; the leaves, I presume, are flat. The perfume is faint and Daffodil-like—not the rich full fragrance of the Narcissus of the N. Tazetta group. Of its parentage, leaves, and habit of growth or constitutional vigour, Mr. Nelson may some day, at his leisure, I trust, tell us something, for of all men the actual raiser knows most worth the telling of these matters.

NARCISSUS GERTRUDE JERYLL.—Also from Mr. Nelson comes a most remarkable Daffodil of the N. moschatii bicolor group, a fine bold and distinct flower, of a clear sulphur yellow, stained or suffused with gamboge-yellow. The trunk, or corona, is 2 inches in length, also clear sulphur, with a deeper coloured rim. It has a beeswax-like odour, which suggests its being related to N. moschatii, but the perianth and trunk are of a finer texture, indeed in form and size the flower is that of N. bicolor Horsfieldii, but, as we have already shown, the colour is very different. It is named Gertrude Jekyll, in compliance to a lover of hardly flowers.

NARCISSUS OVALARIAS VAR. GRAND TRUNK.—Yet another Daffodil quite strange to me comes from Mr. T. Smith, of Newry. It is doubtless the N. ovalariis maximus, and quite different from N.

maximus, or College Garden Daffodil, from which it differs in having a shorter and broader trunk, the perianth segments being also broader and more imbricate than is the case in the flowers of the last-named kind. Mr. Smith's name of Grand Trunk Daffodil may well serve for this, which is doubtless a grand form of the smaller Tenly Daffodil, N. ovalariis. It is a grand flower. F. W. Barbridge.

INDIA-RUBBER.

ACCORDING to Messrs. Hecht, Lewis & Kahn's report for 1880, the total import of Para rubber (Hevea) into England during the year was 3768 tons, of which 3601 tons during the year went into consumption or was exported. Liverpool received 35 tons of Ceara scrap rubber (Manihot), 100 tons of Guayaquil and Carthagena (Castillo) most of which went its way to the United States, and 1300 tons of (West) African (Landolphia), of which "all kinds were readily taken by consumers and exporters," notwithstanding an increase in the imports of the year of 400 tons. London imported 370 tons from Assam (Ficus), 530 tons from Borneo (Willughbeia), and 900 from Mozambique (Landolphia).

The constant demand for caoutchouc for manufacturing purposes, and the efforts made by the Government of India to foster the cultivation of rubber plants, especially the South American kinds, has turned the attention of planters in our tropical colonies to the subject. A rather active correspondence has sprung up with Kew for information as to the little investigated native sources of commercial caoutchouc other than the South American, which has been so prominent a topic in preceding reports. A considerable body of information, especially regarding rubber-yielding plants of the natural order Apocynaceae, has gradually accumulated, as the result of inquiry, and this has been carefully examined by the Assistant-Director, who proposes to communicate the more strictly scientific results, with descriptions of the new species, to the Linnean Society. The following abstract of the economic aspects of the subject will, I trust, be found useful by our colonial and Indian correspondents. It is arranged under geographical heads.

AFRICA.—All the present commercial sources of African caoutchouc belong to the genus Landolphia. This is a group of woody climbers, all of which probably yield caoutchouc regular to Tropical Africa and the adjacent islands. African caoutchouc comes into commerce both from the west and the east coasts, and only one of the rubber-vines is common to both. The following are the rubber-yielding species at present known:—

West Coast.—1. L. owariensis is apparently the species possessing greatest latitudinal range. The genus Landolphia was founded upon specimens of it collected in Oware by Falisot de Beauvois, and it extends from Sierra Leone, where it was collected by Lin. to Angola, from which Kew possesses specimens from Welwitsch and Monteiro. It was collected on the Niger by Barter, and near the mouth of the Congo by R. C. Phillips (who states that it bears the native name of Mvoochi). A form, not specifically distinguishable, was found by Schweinfurth in North Central Africa. He remarks (*Heart of Africa*, i, 192) that "it is well known in the Guinea trade for its production of caoutchouc. From the fruit the source of which exceeds that of the cotton," the natives of Djur-lund manufacture "a beverage refreshing as lemonade."

The plant figured by Collins (*Report on Caoutchouc*, pl. 4) as L. owariensis, differs, especially in its minute flowers, from the species as defined by Falisot de Beauvois, and is possibly founded upon materials belonging to some other.

2. L. Mannii, sp. n.—A very distinct species, collected by Gustav Mann at Corisco Bay (lat. 1° N.), and not at present known from any other locality. Mann describes it as a climber 20 feet high, and yielding caoutchouc.

3. L. florida.—This beautiful species, originally described in the *Niger Flora* by Bentham, appears to be distributed over the whole of Central Tropical Africa. Its heads of large sweet-scented Jasmine-like flowers would render it a desirable introduction, from merely a horticultural point of view, in stove-cultivation. On the Niger, according to Barter, its fruit, which is very sour, is eaten by the natives under the name of Aboli. According to Monteiro, who collected specimens in Angola, the indiarubber of South-west Africa is derived from this.

Further information on the subject of Landolphia florida may be found in Thomas Christy's *New Commercial Plants* (No. 1, accompanied by a good figure) as well as below, amongst the East Coast species. *Report of Royal Gardens, Kew*, 1880.

(To be continued.)



HOME CORRESPONDENCE.

Wild Flowers at Matlock.—The remarks on p. 436 about the depredations to which wild flowers are now subjected met my eye on Saturday last, just as I had returned from a visit to Matlock, a place I have known well all my life. It used to be one of the most favoured homes in England for rare and pretty wild flowers and Ferns, but they are fast disappearing, and the most conspicuous of them are already extinct. Fifty years ago I was told by an old lady, my grandmother's contemporary, how, when a girl, she had seen *Cypripedium Calceolus* growing wild on the Heights of Abraham, just opposite to the Matlock High-Tor. In my boyhood the Bee and the Fly Orchis were common plants on the steep limestone sides of Masson Hill. These have been for long becoming rarer year by year, and are now probably extinct. I knew of a colony of Fly Orchis in a secluded spot, consisting of about a dozen plants, and visited it three weeks ago, when they were all safe and just above-ground. Last year I went past the spot and found every plant gone, and the marauders had not even had enough regard for appearance to fill up the trowel holes, which were less than a week old. I mentioned lately how entirely *Helleborus foetidus* has disappeared. Twenty years ago I saw many plants of that finest of the Dandelion tribe, *Hypochaeris maculata*, in a field close to Matlock Bath Church, but this too has quite disappeared. Of Ferns, *Polypodium calcareum*, formerly common, is extinct. *Cystopteris fragilis*, which used to cover the walls by the side of the turnpike road, has to be hunted for in remote corners, and even the common Hart's-tongue is rare in places of public resort. But there is much near Matlock still to interest the botanist; some plants, so conspicuous that it is a wonder how they have hitherto escaped, had better not be mentioned: but two or three, which are defended by their local abundance, or their obscurity, may be noticed. The mine hillocks are crowded in May with large plants of *Arenaria verna* covered with snowy white flowers. The sides of the limestone hills, where the grass is short, contain abundance of *Thlaspi alpestre* now in flower, I suppose of the variety called by Sowerby virens, for which Matlock is given as the only habitat. *Draba muralis* occurs more sparingly, and is easily overlooked, and *Cardamine impatiens* grows on the walls by the roadside in the very town of Matlock Bath. The Lily of the Valley grows in abundance about 3 miles from Matlock, but is so persecuted by marauders that the owner of the wood where it grows has established a regular society of watchmen to preserve it. *C. Woley Dod, Edge Hall, Malpas.*

Rhododendron Dalhousie.—Will you permit me to mention in your journal, as I did to the Scientific Committee, that I owed the truss of R. Dalhousie to Messrs. Downie & Laird, of Edinburgh, whose magnificent plant I saw last year in their nursery. The greenish-yellow form, as stated by Sir J. Hooker, is the most common in cultivation, and also its native home. The white form, curiously enough, is almost exactly presented by a hybrid raised by Mr. Anderson-Henry between the true species and R. formosum. *J. H. Mangley, Valewood, Haslemere.*

The Fruit Crop.—Notwithstanding the adverse change that took place in the weather when the country was visited with a fall of snow and pelting cold rain, succeeded by sharp frosts and cutting winds, I am glad to be able to state that the fruit crop round about here has taken but little harm, and that the "set" of Peaches, Nectarines, and Apricots is something prodigious. If all goes on well from now we shall have a pleasure we have not had for years past, that of thinning and making choice of fruit, and having it regularly distributed over the tree; but we are not yet out of the wood, for while I write the wind is blowing from the north-east and has the sting in it usually has when it comes from that quarter. Pears are sure to be thin, as the trees have but little bloom showing, the paucity of this arising from the heavy load most of them had to bear last season. Cherries are very full and will soon be quite a sight, as the blossoms are now fast expanding, and Plums are equally promising and look strong and well. Apples are not so regular, some sorts being crowded with bloom-buds, while others are thin or have none at all. The mild winter has just suited Figs, the wood of which is studded with embryo fruit, and if half of it stands there will be a fine crop. Gooseberries have got a little touched by the frost, but the bushes were so full they could well bear the loss of a few. Currants were not sufficiently forward to be injured, and

from present appearances the crop of these will be good. Strawberries could not possibly look better, the summer and autumn of last year being particularly favourable for the development of fine crowns, and the plants are therefore very strong and robust, with plenty of old foliage to protect the young when it comes. *J. S.*

Wholesale Destruction of Wild Flowers.—I am very glad to see this latter mooted in the *Gardener's Chronicle*, and I do most sincerely trust that the ruthless traffic now carried on in some country districts may be put a stop to. I went yesterday to a copse about half a mile distant from this place, which is in spring full of Primroses. There was not a single flower to be seen. I at first thought that the village children had been gathering them, although if they had blossomed this spring as plentifully as they had been wont to do, it would have taken several hamper to hold their bloom. A closer investigation showed me that roots and all were gone, and then I remembered the Fern-gatherer of the neighbourhood—a man who has nearly destroyed every vestige of Fern and moss for miles around, in order to start large baskets full to London by train. He gets well paid, he says, at Covent Garden, and, alas! spends his gains in drink, leaving his really hard-working wife to toil for herself and numerous family, likewise keep a house for him when his flower and Fern money has been spent in the public beer shop. The country, God-made country, would no longer be a country without those beautiful "wildlings of Nature." As Ann Pratt says—

"I love the field flowers too,
Because they are a blessing given
Even to the poorest little one
That wanders 'neath the vault of Heaven.
The garden flowers are raised for few,
And to that few belong alone,
But would the flowers of the vale or stream,
Each one may claim them for his own."

If its own to enjoy, but not cruelly uproot for sale, leaving the hedges and woodlands bare of floral beauty. *Allen E. Watney.*

Evergreen Berberis.—Among the Berberis that stand out most conspicuously for beauty and general usefulness is B. Darwinii, which is just now laden with its racemes of orange-coloured blossoms that quite light up shrubberies or borders in which plants are growing. Rich and glowing as the flowers are the beauty of B. Darwinii does not end with them, as by-and-bye the branches will be borne down by the weight of the rich blue-black berries, that are almost as great an ornament as the bloom, and all the year through it is one of the most pleasing-looking shrubs on account of its graceful habit and foliage. Next, or perhaps equal to it in point of merit, is B. stenophylla, which is more prostrate and spreading in its manner of growth, and is therefore better adapted for banks or mounds and rockwork, or other similarly elevated positions; so placed, plants of this kind arch and droop over in the most pleasing manner possible, and look quite at home. B. Aquifolia is too well known to need any notice, as it is one of the shrubs that may be met with almost everywhere, and one that can hardly be misplaced, as it will succeed under the drip of trees, in woods, in dense shade, and in dry black situations where nothing else will grow. B. Darwinii needs shelter, as in exposed positions much open to the wind and cold it gets much cut about if the winter or spring happens to be very sharp or cold, and the same with B. stenophylla, which is a hybrid raised from the above named. The transplanting of Berberis is a ticklish operation, and unless caught just at the right time many losses occur. The best season, or at least the one I have always been most successful in, is early in April, just as they are beginning to grow, as then root action is simultaneous, and they soon send out hosts of young feeders, and get fresh hold of the ground; planted earlier, the winds dry them through, and the bark shrivels, and when this occurs, if they live, they seldom do well. In planting Berberis the most important point to attend to, next to lifting them carefully, is to well wash part of the soil in about the roots before finally filling up the holes in which they are placed, and if, after that, they are mulched, scarcely one in a hundred will fail, as the mulching prevents any drying or cracking of the earth around, and greatly encourages the formation of fibrils, which, under its fostering aid, soon extend and get firm hold of the ground. *J. Sheppard.*

The Two Tacsonias, Van Volxemi and exoniensis.—Permit me to endorse all that "J. H." so well says of the extreme beauty and chaste and graceful appearance of these two superb climbers. I have not had the pleasure of seeing the fine example at Longford Castle that your correspondent describes, but have seen one or both in fine condition at many places, and have had them mixed on our roof here for some years. They are best mixed, for several reasons, and the roof or arch,

not the wall, is the best place for them. The mixture has the merit of being earlier in flower, as exoniensis precedes by a month or more Van Volxemi; it also flowers later—in fact, with us *Tacsonia exoniensis* is hardly ever out of flower. Again, the colours, though closely related—crimson and bright pink—harmonise beautifully, and the two together form a richer display than either alone, though any one of these forms a glorious drapery by itself. The leaf-stalks are also of different lengths—that of Van Volxemi being nearly double the length, and much more slender than exoniensis. The result of this is extremely beautiful; the longer and more brilliant flowers seem suspended on invisible cords, and drop away, seeming almost to fall down or be suspended on gossamer-like threads in mid-air, close to the spectator; while the higher roof-sphere, to coin an expressive phrase, is draped with the lighter, larger, and more strongly stemmed blooms of *Tacsonia exoniensis*. The foliage too differs widely, as in the flowers, enhancing the effect of the verdure. The tendrils again—an important feature of the beauty of these plants—also differ as widely as the flowers. And yet somehow all these differences seem to link the two plants into a more homogeneous and lavish wealth of beauty. Much of this beauty is necessarily lost when the Tacsonias are grown on walls. It is only as they weep gracefully over arches, eliche and drape with drooping pendants girder or rather, that the full face and charm of character of these plants can be fully seen. Exquisitely beautiful when at rest, they are still more so, as "J. H." points out, when swayed softly to and fro by the wind, or violently tossed aside by a rush of air from open doors or ventilators. The effect has been tried here of converting this matchless unity into a trinity of colour as well as form. Two white plants succeeded in doing this more or less perfectly; both are old-fashioned and little grown, but none the less valuable on that account. They are the Mandevilla, saulevallis, and the Solanum jasminoides. Both are graceful if grown and trained in the free and easy style suited to the Tacsonias, and the first is one of the sweetest plants in cultivation. Unless grown in pots, tubs, or portions of borders, barricaded against the greedy gross roots of the Tacsonias, neither of these plants are able to compete against them for any length of time. Where they can be made to thrive and add their white sheen to the brilliancy of those of the Tacsonias, it matters little what or whether anything else be in the plants can be rivets all eyes, and holds them so firmly in its attractive grasp with its three-stranded cord of colour, form, grace, that hardly a glance can be spared for aught below or around it. The individual flowers are penshable, and of little value for cutting; still branchlets in full bloom, leafage, and tendrils, may be carried through a dinner or evening party, and give a unique character to large baskets, vases, &c. Single flowers placed in damp moss mass well with Eucharis, Panchatanus, or Lilies. As to the plants and forms these draping the roof with a wild profusion of growth and bloom that the full beauty of these glorious Tacsonias is fully revealed. *D. T. F.*

The Early Spring.—The spring has been remarkable for the strange way in which some flowers have put in an appearance. The first that appeared was *Muscari botryoides azurea*, which has been in flower since the first week in January, in fact there were flowers gathered before Christmas. *Saxifraga Borsieriana* lost its place this year, having been forestalled by *S. Kocheliana* by a week or ten days. The yellow vernal Crocus, contrary to rule, was in full flower before the Snowdrop in my garden, and I have heard several persons make the remark as having occurred with them. The double dark crimson Primrose was one of the first to show in that family, having only the single white before it. *Primula nivalis* or *rosea*, *P. marginata*, *P. purpurea*, are past and gone—*P. nivea*, *P. denticulata*, and the Cashmere variety being now in full beauty. *Erythronium giganteum* is very fine, and the yellow americana fuller of flower than usual. *Chionodoxa Lucida* (established bulbs) has been particularly fine, as well as its near relative *Fuschkina*, a plant too seldom met with. *Corbularia Clusii* has been larger and finer than usual; and many other spring flowers fully six weeks earlier than last spring. At the same time I am under an impression that, on taking stock, it will be found that more alpine and hardy herbaceous plants have died than in the springs of 1880 and 1881. *Alpha, Cheshire.*

Bees in Peach-houses.—I quite believe with Mr. Muir that these are good for the trees and ensure a good set; but what of the effects on the bees? The other time I have tried it I have been unfortunate. The first time a gamekeeper promised me a hive, going into the house shortly after I found an empty skep. That was many years ago, and the good man thought the bees were wanted as a charm, and that a skep would do as well as the hive; the house proved as potential for good as the busy tenants. The next time the bees rushed out, set to work with vigour, but as soon as the clouds obscured the sun and evening drew near, the bees, instead of returning to the

hive, proceeded to batter and bruise themselves against the glass, where many of them seemed to die in the morning. The next day few of them seemed inclined to gather honey from the myriads of open Peach blooms and so set the fruit. Home sickness seemed to come over the bees, and they did not recognise their old home in the new quarters, but tried hard to get back to the old place of last year, a mile distant as the bee or crowd flies. Those that could escape did so and perished under the old house, those that remained killed themselves so fast or bruised themselves so much, and became so restless and enraged, that on the second night any that had returned to or remained in the skep were carried home. That hive did little good the next year, which leads me to ask Mr. Muir how his bees fared after his work of setting was over, and what of their present condition, and how many were left dead in his Peach-house. D. T. F.

Primula rosea.—This is certainly one of the prettiest, if not the prettiest, of all the hardy Primroses. It is now a blaze of beauty, and its bright rosy blossoms make it the most conspicuous thing on the rockery. It is very dwarf in habit, and very easy of culture. The year before last we had but one plant; last year I divided it up into twelve or thirteen small crowns, and all grew, and all but two were flowering this spring. The crowns are from 4 to 5 inches across, with five or six stalks of bloom, bearing in some instances as many as thirteen individual blooms; it is about 4 to 5 inches in height. For the front row of the herbaceous border, or allowed to grow into masses on the rockery, it scarcely has a rival, and those who do not know it should get a plant or two. W. L., *Bromsgrove*.

Rose Gloire de Dijon.—We cut our first well blown Rose Gloire de Dijon on March 7; since then we have cut two more perfect flowers from the same tree in the open border, and it is now covered with well-formed, clean buds, ready to open when the present cold east wind ceases. *Gertrude Hope, Belmont, Murrayfield, Mid-Lothian, April 3.*

Miles' Egonette.—I think it is hardly possible to over estimate the value of this splendid variety. We have now some plants in full bloom, some in 6-inch and others in larger pots up to 9-inch. The seed was sown last August, and the pots were placed in a cold pit, the frost just kept from them until about the middle of December, when they were removed to the Pelargonium-house, and soon began to grow away very strongly; and now some of the plants in 9-inch pots are nearly 5 feet through, and about 2 feet in height—a mass of bloom, and exceedingly effective in the conservatory. T. Pope.

Fruit Prospects in South Wilts.—Thanks to well ripened wood and well matured buds, consequent on our being favoured last year with more than an average amount of sunshine, fruit prospects in and around this district are extremely promising at the present time, and should the weather continue anything like as favourable in the future as it has been in the past we may confidently look forward to an abundant crop all round. Apricots, Peaches, and Nectarines have presented a most picturesque appearance during their flowering period, so abundant was the blossom; those growing on south aspects have set wonderfully well, and indeed their numbers—untoward events and circumstances excepted—will have to be considerably reduced. Of those growing on east and west aspects it is as yet too early to speak with anything like confidence; the flowers, however, are quite firm to the touch, and that of course is an encouraging sign. Plum and early varieties of Pears, which are now in full blossom, are all that one can desire, the flowers being strong and plentiful. Apples and Cherries are also showing well, and promise to be, as last year, one mass of bloom; good Apple years, however, in our immediate locality are so few and far between, owing to our situation being low and damp, that we are compelled to look forward to the next few weeks with a certain amount of scepticism, and mixed with hopes and fears and feelings of interest and anxiety, as to whether we are to have our usual number of late frosts, which frequently prove so destructive. If it were possible to apply the *clitao* to Jack Frost we should most decidedly do so this spring, as we have not had a good crop of Apples since 1875, and we have begun to think that by this time we are fairly entitled to one.

Small fruits, with favourable weather, are likely to be plentiful judging by present appearances; but, of course, a sharp frost or two within the next few days would very materially damage the crop of Gooseberries and Red Currants, owing to their now being in full flower. Strawberries, Raspberries, and Black Currants, look promising and well, the same remark is applicable to Figs, Medlars, Quinces, and Filberts. We are not yet out of the wood, and will not be, so to speak, for six or eight weeks; it would therefore be alike unwise and unsafe to prophesy this early. The outlook, at all events for the time being, is cheerful and encouraging. J. Horsfield, *Heywood, April 3.*

Rock Plants in Flower at Hooles House, Chester.—Admirers of alpine plants would do well to visit Hooles House, the residence of Mrs. Hamilton. The place is situated about 1 mile from Chester, and is within easy access of either the general or Victoria stations. Having occasion to visit this place a day or two ago I was amply repaid for my journey. The rockery, which is built chiefly of white coral stone, is a sight difficult to describe. *Aubrietia purpurea* is now a perfect sheet of bloom, here and there dotted amongst it being specimens of *Arabis alba* and *Alyssum saxatile*, and the common *Primrose*, the yellow and white contrasting nicely with the *Aubrietia*. On the lower part of the rock I noticed nice patches of *Anemone pennina* and its white congener *alba*. Various *Saxifrages*, *Burscheriana*, *Wallacet*, *crassifolia*, *Rocheletiana*, muscoides, and all muscoides, *Androsace*, *Primula*, too, seem to grow luxuriantly here; fine examples of *cashmiriana*, *marginata*, *farinosa*, *claviflora*, and *platyptala plena*, the latter having five-four expanded flowers on a small plant. I may also mention *Iberis gibraltarica*, which has done well; this winter seems to have suited it. Also a nice specimen of *Gentiana verna* with its pretty blue flowers seems quite at home in a shady nook, and *acaulis* seems to be well established and producing a considerable quantity in full flower. I could add that everything looked neat and clean, which reflects great credit on the gardener, Mr. Thompson, who takes a deep interest in herbaceous and alpine plants. *James McNab, Chester.*

Mildness of the Season in Edinburgh.—It may interest you to have some other proofs of the remarkable mildness of the past winter from this quarter. On March 20 a Horse Chestnut tree was in leaf here, and since that day and before the end of March several others have come into leaf, as also several Sycamore, Elm, and even Lime and Birch trees. A standard Pear tree about 18 feet high is covered with blossom, the greater part only in bud, and a considerable quantity in full flower. The Camella of which I wrote you in my last, and which is about 6 feet and not 4 feet high, has been going on flowering ever since, and has now no fewer than twenty-four open flowers upon it. Might I suggest that an annual tabulated statement, collected by reliable persons at different selected parts of the kingdom in answer to a list of the same questions annually furnished to them by yourself bearing upon the times of first flowering and first coming into leaf, &c., would not only be very interesting, but in course of years would be valuable? As far as my own observation has hitherto gone the Sycamore is usually the earliest of the trees above-mentioned in leaf here, but this year the Horse Chestnuts have been the earliest. Can you inform me which is usually the earliest in the South? The effect of different kinds of winter weather upon the different trees seems to offer an interesting field for observation. The priority in some years of the Oak and in others of the Ash is a well known instance. T. Ivory. [It is essential to observe each year some individual tree, as there is a great variation in different trees of the same species. Ed.]

African Tuberoses.—Early last autumn a quantity of these bulbs were imported from the African continent, and being very much larger than those imported from America (which by the way generally arrive in this country about Christmas) they were readily picked up by enterprising growers, who well know that the earlier these blooms are sent to market the more money they realise. An ample return was naturally expected for the capital invested, and the trouble bestowed upon them. Accordingly the bulbs were planted and tended in the usual manner, and in due time a strong and vigorous spike was thrown up, which gave promise of abundant bloom, but, alas! just as the flower-buds were on the eve of expanding they withered and decayed, and where success was expected failure occurred. Some of the growers may be deterred from relating their experience in this case lest they might be accused of bad cultivation or neglect; but after having visited the grounds of one who has for years been a successful grower of Tuberoses, and found that about 2000 African bulbs behaved themselves in the manner indicated, and that the sad tale that has to be told of them is that none produced a solitary bloom, and having heard similar reports from other friends, I am convinced that the failure of the African Tuberoses is not due to bad cultivation; we must look elsewhere for the cause. The opinion of many is that only large bulbs produce the best blooms, but the African Tuberoses, with its fine large bulb, militates against this idea, while careful and enquiring cultivators have observed that large bulbs throw up a strong spike and make very few roots, so that when all the material stored in the bulb has been exhausted in building up the spike, and just as the flowers are to open, the plant has no communication with the soil by which to obtain more nourishment, and consequently perishes without having fulfilled its function. J. McK.



Florists' Flowers.

AURICULAS IN THE NORTH.—As far as Cheshire is concerned, we are fully six weeks earlier than last year. In looking over a collection (March 24) of from 1200 to 1600 blooming plants, I was surprised to find so many fully expanded, and am of opinion that we are quite as early as the South, having had better weather I believe. It is a general complaint that the plants have been growing all the winter, and have never been less trouble to keep free from fly. Complaints are made in some places that more plants than usual showed bloom in autumn, which will tell against a good spring bloom. I do not know that I ever saw a stronger or finer bloom of *Acme* (Read) than is now open; Colonel Champneys (Turner) is past its best; Kinglander (Kenyon's), Mrs. Butcher (Clegg's), Duke of Wellington (Dickson's), Meteor Flag (Lightbody), Pizaro, are now at their best; Blackbird (Spalding's), Lord of Lorne (Campbell's), Glory (Taylor's), Freedom (Booth), and Prince of Greens (Trail), are very strong, and showing well. Polyanthus are now at their best; Alexander (Pearson's) has been in flower since Christmas, and is very fine; Lancashire Hero, George IV. (Buck's), Lord Lincoln, and Exile, are very fine, and if the present warm weather continues I fear there will be few flowers for the Northern show on May 2. *Exile*.

THE AMARYLLIS.—There is no doubt a great future in store for this showy exotic; indeed, the demand already for bulbs of the best varieties is much in excess of the supply, and as they are very expensive it is important that they have the treatment best suited to keep them in good health. The bulbs having been rested in the winter, they are usually started very early in the year—January and February. They are grown on in heat; probably the pots in which they are growing have also been plunged in bottom-heat; and as soon as the flowers open, which is in March and April, probably they are removed to the greenhouse. There is no doubt but that this gives the plants a considerable check; and what is worse, in many cases they are not well attended to after flowering is over. If it is necessary to remove the plants to the greenhouse while they are in flower, if possible keep the house a few degrees warmer, also closer, while they are there; and as soon as flowering is over take them back to the warm house immediately, as they have nothing like half completed their growth when flowering is over; indeed, they should be kept in a growing condition until the end of August, when water must be gradually withheld. When the plants are in growth they must not be exposed to too much sunshine, and the house must not be too freely aired. If the pots are plunged the bulbs may easily be injured by getting too much water; once or twice a week may be sufficient, while those arranged on stages may require it every day, or at least every alternate day. I have frequently seen good healthy bulbs injured by having too much water given to them before a sufficient number of roots had been formed to take it up; when the plants have formed leaves, and are growing freely, there is not so much danger. J. Douglas.

THE CARNATION AND PICOETE.—From observations made in our own garden, and by what I can hear from other districts, these are earlier in proportion than some other flowers. Mr. Gorton writes from Manchester to say that his Auriculas are not earlier than usual, but that the Carnations are very much earlier, so much so that he finished potting on March 10 this season, while they did not finish last year until April 10. Our own were finished in February, and they are already spindling for bloom. I fancy the repotting of Carnations and Picoetes is often delayed until it is too late, and the flower-stems run up if warm weather sets in very rapidly before the roots have taken good hold of the new compost. These, therefore, who have not yet repotted their plants should see to it without any delay. We look over our potting material at least three times for wire-worms, and even after this careful inspection some of

them are missed, and much injury is caused to the collection, as if one of these dreary pests gets into a pot it is sure to destroy the plants. Many persons do not report until this time because they are obliged to put their plants out-of-doors as they are potted; and that is the case early potting would not be desirable. We are always able to put our plants under glass lights until they are well rooted into the new soil. The best compost is good loam from the top spit of an old pasture; four parts of this to one of rotten stable-manure, one of leaf-mould, and nearly as much sharp river-sand. It is now a good time to propagate and pot off young stock of tree Carnations. The first batch of cuttings ought to have been put in during the month of January or February, at the latest; the best place for them being a propagating-house where the temperature is not too high—55° at night is quite high enough. As soon as they are rooted the young plants ought to be potted off singly in small pots, still keeping them in this house until they are established, when they may be put out into cold frames. They are subject to the attacks of greenfly, which must not be allowed to remain on them. They must be potted on and carefully treated, else they will not make strong flowering plants by the end of the year. J. D.

FORCING PINKS.—The first of these are now coming into flower, and those in cool-houses or frames are making strong healthy growth. As soon as small side-growths can be obtained they should be taken off and be put in as cuttings; they will strike out roots as freely as *Verbenas* in a hot-bed. It is very desirable to get off the cuttings as early as possible after April 1. Unless they are put in as early as this they will not form strong clumps for forcing. We get a score or more of good flowers from each plant propagated in April. They require but little attention, as they are merely planted out on a vacant piece of ground in the kitchen garden as soon as they are well rooted. J. Douglas.

Notices of Books.

Paxton's Flower Garden. By Professor Lindley and Sir Joseph Paxton. Revised by Thomas Baines. Vol. I. (Cassell & Co.)

The original edition of this work appeared some thirty years ago, and was the joint production of an eminent gardener and an eminent botanist. It was, therefore, no mere compilation, but a work of authority and original research, and as such it is often quoted and its figures frequently referred to. There is no need, therefore, to advert at length to the value of a book which those conversant with horticultural literature have long ago appraised. That Mr. Baines' personal contributions to the new edition are of great value no one who knows him will doubt, but of his editorial supervision of other men's work we cannot speak so highly. Indeed we can but feel that an injustice has been done by the publishers to the memory of Paxton and Lindley in issuing this edition under the old title. Many of the plants of which coloured representations are given are new introductions since the time of Paxton and Lindley—a fact mentioned indeed in the preface, but which the ordinary reader turning to any particular plant will not always be able to recognize. Surely such introduction of new material should have been indicated with the Editor's initials, or some other means of making apparent the distinction between the original text and his additions have been adopted. The numbering of the plates is necessarily altered in the new edition, so that in quoting them it will be needful in future to specify the second edition. The execution of these plates, especially as regards the colouring, is often anything but satisfactory.

In turning to the Gleanings and Original Memoranda—perhaps the most valuable part of the former edition—we find no indication of what is new and what is old. For instance, on p. 6, *Dracena Goldiana* is sandwiched in between *Metrosideros Tomentosa* (why is a capital T used in this and other cases where its use is unusual?) and *Berberis japonica*. A quotation from this journal does, indeed, afford to those who are already familiar with the date of the original publication of the *Flower Garden* an indication of the intercalated matter, but to the amateur, or young gardener, with his business to learn, there is nothing to show that *Dracena Goldiana* was unknown to Paxton and Lindley—it might, indeed, be

paradoxically inferred from this book that it was. On the other hand, in cases where editorial revision was needed, it has been withheld—for instance, the plant figured as *Abies jezoensis* in the old edition is still allowed to retain that name, though it was pointed out many years ago by Mr. Andrew Murray not to be that species, but rather a new one, to which Murray gave the name *A. Fortunei*, and which has ever since been known under that name. Of course, owing to the lapse of time and the increase of knowledge, there are many cases of similar nature which an editor would be justified in altering so as to bring the information down to the most recent date. It is abundantly certain that Dr. Lindley, were he still living, would not have failed to make such alterations as the necessities of the case demanded.

The practice of giving English names, which Lindley, among others, advocated, and to a certain extent succeeded in introducing, and which is carried out here, is surely one which must be adopted or rejected as convenience, common sense, and good taste dictate; for instance, is it not easier and less open to misconception to say *Cypripedium venustum* rather than "the handsome lady's-slipper"; *C. javanicum* rather than "the Java lady's-slipper"; *C. barbatum* rather than "the bearded lady's-slipper"; *C. purpuratum* than "the purple-stained lady's-slipper"; *C. Lowii* than "Low's lady's-slipper"; *C. glanduliflorum* than "the glandular lady's-slipper"; *C. insigne* than "the bannered lady's-slipper"; *C. carolinianum* than "the sedgy lady's-slipper"; or *C. caudatum* rather than "the long-tailed lady's-slipper" (p. 59)? The Latin designation is the simpler of the two, and although in the English version the connecting hyphen conveys the proper meaning to the eye it would often be omitted in writing, while in conversation the difficulty of correctly indicating the meaning might possibly lead to embarrassing complications.

While we have deemed it necessary as an act of justice to the memory of our predecessors to allude to the manner in which this new edition has been issued it would be quite as unfair to the present editor to omit reference to those portions of the book which are distinctively his. The opinion of no one is more highly valued on cultural matters than that of Mr. Baines, and his experience, taste, and judgment in the selection of plants, especially worthy of cultivation from a decorative point of view, will give special value to this edition. As a record of what is best among both old and new plants Paxton's *Flower Garden* in its new guise will be as useful as before, and in its cultural details even more so.

Elémens de Botanique Agricole, &c. Par E. Schribaux and J. Manot. Paris: Baillière.

A treatise on the morphology and physiology of flowering plants adapted for use in agricultural schools, and containing, therefore, fuller information as to certain cultural processes, such as grafting, layering, &c., than is usual in books of this character. A supplemental chapter or two are devoted to the distribution of plants, and the occurrence of certain crops, according to the geographical features and geological conditions of the country.

Bulletin de la Fédération des Sociétés d'Horticulture de Belgique.

The volume for 1880 has lately been published. It contains, in addition to the statutes, which are, as it seems to us, seeing that they occupy so much space, unnecessarily repeated year after year, reports of the proceedings of the several federated societies, notices of the National Exhibition at Brussels in connection with the celebration of the fiftieth year of Belgian independence, the horticultural congress held at Antwerp, the *correspondance botanique*, and the notice of Brazilian Bromeliads by Dr. Wawa previously alluded to.

Correspondance Botanique.

The ninth edition of Prof. Morren's useful directory for botanical gardens, museums, professors, horticultural and horticultural societies throughout the world, has lately been issued. It is an address-book which those who have dealings with the colonies or foreign countries, as well as our own, cannot well be without—*Éloge à la Boverie!*

The Bible Educator.

Messrs. Cassell send us the first part of a new edition of this useful publication, edited by a ripe

scholar, the Dean of Wells. The articles on the plants of the Bible are from the pen of Mr. Carruthers, who begins at the beginning with *Kanunculaceæ*, and follows the Candollean sequence. The brilliant *Anemone* is considered as possibly having been the "lily of the field," while the *Nigella sativa* represents the Fitches of Isaiah.

— *Book of Sports and Pastimes*,—Messrs. Cassell send us the first part of an illustrated periodical devoted to such subjects as cricket, tennis, golf, football, and the like, which we commend to the notice of those interested.

— *May's Press Manual*, 1882.—This purports to be a complete list of newspapers and periodical publications published in the United Kingdom, with indications of the population of the various towns and counties and of the principal branches of industry followed in them. Even as we write a new candidate for insertion appears in the form of Mr. ROBINSON'S new venture, the *Farmer's Gazette*, a penny journal of large size and mixed contents, published weekly, to be devoted to the interests of the farmer.



Reports of Societies.

Bristol Spring Exhibition.—The twelfth spring exhibition of this Society was held in the Victoria Rooms, Clifton, on the 22d and 23d ult., and was admittedly the best exhibition of the kind ever held under the auspices of the Society. The general arrangement of the exhibition was excellent, as is always the case at Bristol, the centre table of the large room was furnished with tall Palms and other foliage plants, and flanked upon either side by a fine display of bulbs—the sides of the room being effectively decorated with banks of choice plants, forced flowers and bulbs, a fine display of the latter being furnished by Messrs. Garway & Co., of the Lurdham Down Nurseries, who alone set up over 300 choice named *Hyacinths* in their collection—quite a little exhibition in itself. Choice Ferns, table and room plants—the latter a very attractive feature of the exhibition—and cut flowers, made a good show in a separate room by themselves. Fruit and vegetables were not largely represented upon this occasion, but Mr. Fisher and Mr. Whitwell showed some good dishes of Pears and Apples, and Mrs. M. Miller sent a dish of early Strawberries. In class 1 (prize given by the award, Walter Derham, Esq., M.A.), for the best twenty-four *Hyacinths*—not less than eighteen varieties—and twelve pots of Tulips Mr. W. Perry, gr. to H. C. Mills, Esq., easily carried off the Silver Cup with a collection in every respect worthy the prize.

Mr. Marsh, gr. to Mr. Dunlop, Esq., was 2d, and Mr. Obmen, gr. to Mrs. R. P. King, 3d, also showing creditable collections. In class 2, for six named *Hyacinths*, distinct, gr. to W. Fox obtained 1st place. Mr. George Howe, gr. to Lewis Fry, Esq., M.P., 2d; and Mr. H. Spry 3d. Tulips were well shown by Mr. Obmen, gr. to Mrs. Fox, to Mrs. Harle, and Mr. H. K. Ward. Class 3 brought out some excellent exhibits, the Society offering a Silver Cup value four guineas for a collection of plants in bloom (Orchids excluded), arranged on a space 14 by 4 feet. Mr. Perry, gr. to H. C. Mills, Esq., secured the 1st prize. His 1st prize collection contained fine examples of *Antirrhinum Scherzerianum*, *Chorozema cordatum*, *Aphellex humilis*, *Pimelæa spectabilis*, and finished off with a neat border of dwarf flowering plants and Ferns. The other collections were also very nicely arranged. Analysis were well shown by Mrs. R. P. King, and in class 10, for the single specimen Orchid, Mr. Perry had the 1st prize for a magnificent specimen of *Dendrobium Wardianum*, Messrs. Maule & Son had the 1st prize for forced Rhododendrons, and in class 11, for ornamental foliage plants, distinct varieties, the plants of J. Derham, Esq. (W. Rye, gr.), were awarded the 1st prize, and Mr. T. Bush, 2d, both exhibitors showing good collections. For forced hard-wooded plants, Messrs. Maule & Son exhibit *Pyrus Almond*, *Ribes albanum*, *Ledum latifolium*, *Kalmia latifolia*, and *Azalea pontica*, and easily carried off the 1st prize. In class 18, for a collection of plants arranged on a space 10 feet by 4 feet, Mr. Perry, gr. to H. C. Miller, Esq., was again well to the front, his collection winning the 1st prize, and also being awarded the Knightiana Silver Medal of the Royal Horticultural Society as being the best collection of plants in the show. This collection was conspicuous for quality throughout, containing, as it did, many choice Palms, and a large proportion of well-flowered Orchids, including handsome specimens of *Cattleya*, *Odontoglossum* in variety, *Lycaste*s, and others artistically arranged, and making in all a splendid display of really choice plants. Messrs. Maule & Son obtained 2d place for a very fine collection, scarcely less interesting in appearance, but rather behind in quality, considering the large number of valuable plants contained in Mr. Perry's collection. Next in importance to awarding the Silver Medal was the task of awarding the Bronze Medal of the Royal Horticultural Society for the best twelve *Hyacinths* in any

class, No. 1 class excluded, and the post of honour was taken by Mr. George Welby with an even lot, well grown throughout, and the colours blended to advantage in arrangement. There were five other competitors or more of the collections being exceedingly meritorious in point of general culture. For four stove or greenhouse plants in flower Mr. Perry was again successful with fine plants of *Darwinia fascioides*, *Azalea trichophylla*, *Erica*, *Wendlandia*, *Dendrobium* and *Nobile*, the 2d prize going to Mr. E. Cole, gr. to W. Pettick, Esq., who had naturally trained plants, which had a very good effect. Mr. Rye, gr. to J. Derham, Esq., took the 3d prize. Special prizes were offered by many leading gentlemen of the neighbourhood, and for these there was spirited competition. For four ornamental foliage plants (prize offered by the High Sheriff, W. Edwards George, Esq.), Mr. Rye, gr. to J. Derham, Esq., was 1st, and Mr. T. Bush ad., and a prize offered by R. Hassel, Esq., for two *Azaleas* suitable for table decoration was won by Mr. Budget's gardener, who showed very good plants. The 2d prize was offered by Mrs. G. H. Ames, for six plants suitable for table decoration, not less than three distinct varieties, and 1st honours were awarded to Mr. Stevens, gr. to N. Budget, Esq., who had neat examples of *Coccos* *Wendlandia*, *Pteris*, *Polka*, and *Adiantum*; Mr. Cole was 2d, and Mr. G. Howe, gr. to Lewis Fry, Esq., M.P., was 3d, in a very good class indeed. For six stove and greenhouse Ferns Mr. Bannister, gr. to H. St. V. Ames, Esq., was in his old place with a finely grown collection, well handled and arranged, and these it need hardly be added came in for a large share of attention from the visitors, being the principal exhibit in the smaller room occupied with table plants, cut flowers, &c. Mr. Rye, gr. to J. Derham, Esq., was awarded the 2d place. Class 3t brought out a strong competition for six plants in flower suitable for sitting-rooms, and Mr. G. Howe, gr. to L. Fry, Esq., M.P., took the 1st prize, with finely grown plants of *Cyclamen*, *Lachenalia splendens*, *Mignonette*, and a model plant of *Thyrsanthus* *rutilans*. The ad and 3d prize collections, from Mr. Rye and Mrs. Hunt, were also very good, some of the plants being remarkably well grown and judiciously selected. *Azaleas*, *Clematis*, *pot Roses*, &c., were also well shown, and bouquets and devices for the dinner-table were tastefully and artistically arranged. (From a Correspondent.)

Glasgow and West of Scotland Horticultural, &c.—The spring show of this Society was held on Monday, Tuesday, and Wednesday, at the City Hall, but was not very well attended, owing to the inclemency of the weather. The principal features of the show were the *Hycacinths*, and a magnificent collection of plants sent, not for competition, by D. Tod, Esq., of Eastwood Park (gr. Mr. Ewart). This collection contained the best lot of *Orchids*, &c., I have ever seen put up by a local exhibitor out of London; they were splendidly arranged, and very much admired. The competition for *Orchids* was very good, 1st prize falling to Mr. P. Mackenzie, nurseryman, for good specimens, well-flowered, 3 feet through, of *Cologyne cristata*, *Cypripedium* *willsonii*, and a good *Meloblossum Alexandrie*, with two spikes; 2d, K. Smith, Esq., Bretherton Park, Stirling (Mr. McLeod), who had a fine *Cymbidium* *Lowii*, *Odontoglossum* *Chestertonii* and *Hullii*; 3d, J. Gordon, Esq. (gr. Mr. Hogge). This collection contained the best lot of *Orchids*, &c., I have ever seen put up by a local exhibitor out of London; they were splendidly arranged, and very much admired. The competition for *Bouquets* brought some seven or eight competitors, but good flowers were entirely spoilt through overcrowding. Some excellent bouquets were shown by Mrs. Mackenzie, not for competition. The other competitors would do well by taking a lesson from those exhibited by this lady. The amateurs' classes were well represented; some of the specimens shown reflected credit upon those who exhibited them.

Vegetables were poorly represented, but the 1st prize went to some good samples of *Peas*, *Beans*, *Mushrooms*, *Carrots*, *Cauliflowers*, &c. Messrs. Aplin & McAlister contributed a fine collection of hardy *Rhododendrons*, *Azalea indica* and *mollis*, which contained many novelties of sterling merit, well flowered. Messrs. Smith & Sissons had a good table of miscellaneous stove and greenhouse foliage plants, including *Aspidistra*, *Polka*, *Adiantum*, &c., which brought a grand lot of *Sprengs* and *Lily of the Valley*, and some nice young well flowered *Azalea indica*. (From a Correspondent.)

The Poultry Yard.

SITTING HENS.—What may be termed professional poultry-keepers, who make exhibiting fowls their main consideration, always try to have their earliest chicks hatched shortly after the new year, and during January and February, and to address any words to them at the present time would be a superfluous matter; but the great majority, who keep fowls for domestic purposes, will hardly have thought of beginning to hatch yet, and it is their benefit we have in view. Further, they may be assured that it is not yet too late to hatch prize fowls; many of ours which took high honours at the leading shows last autumn, including the September show of the British Dairy Farmers' Association, were not hatched until

April. This is an excellent time to get them out, and the present is a good time for sitting the hens. As to the best sitters, we are of opinion that all kinds are good. No hen will become broody until she has laid a number of eggs. If they do this in November and December they are almost sure to want to sit in January, and by trying to get them to lay early in this way broody hens need never be scarce from the beginning of January. However, if it is difficult to get them, they are plentiful enough now, and every one who wishes to hatch chickens should begin at once. For a day or two at first the hens may only go a short time on the nest, and if any one goes near them they may fly off hurriedly, but by putting two or three eggs in the nest, and allowing her to remain quiet for two or three days, nothing will cause her to leave it afterwards, and it is then the eggs for hatching should be put down. When a strange hen is had for hatching always let her settle on useless eggs before risking the good ones. By not attending to this we have sometimes been disappointed. Pullets are never very sure sitters at first. They may remain on the nest for a fortnight and desert it afterwards. Old hens seldom do this, and these we always secure for valuable eggs. As to the best position for the nest, it is a difficult matter to select. Generally the hen will do this, and she is a good judge. Ours are very fond of sitting under the roots of old trees, and in quiet corners in the woods, and they answer so well that we seldom remove them indoors. Some say, always keep the eggs on the ground; but few advise having the nest any great distance from the surface; and yet we have had as successful hatches from our 4-feet high nests as ever we had on the level. A repetition of this has caused us not to be very particular about the position of our hatching-nests, providing they are not likely to be disturbed by dogs, cats, or any other thing. A good quantity of straw or hay should form the nest, and the air which surrounds it should not be too dry. This, especially when hatching is taking place, protracts incubation, and is injurious to the young chicks.

We never like to set eggs which are more than ten days old, and if they are only newly laid when put under the hen, so much the better. Fresh eggs always hatch out to time better than old ones; but this depends a little on the way the hen has behaved. Close sitters with fresh eggs may have them out on the twentieth day, while those of an opposite kind may not be seen until the twenty-second day. The earlier and quicker they hatch the better are the chicks. Those over-due are always weakly, and when some hatch to-day and others to-morrow, loss is almost sure to occur, as the mother gives extra attention to those who call, and neglects the others. Many late chicks have been hatched out by us by the fireside in a wool bag. Only the other day a hen which had never brought out chicks before hatched a few, and immediately destroyed them by eating their heads off. Mothers of this kind are sometimes to be found, but they should never be used a second time, and as soon as they are fat should be sent to the kitchen. Beginners at looking after sitting hens generally give them too much attention. It is often supposed that there is some stated time they must be off the eggs daily, but this we do not look upon as of great importance. Some of our hens are off about five minutes, others fifteen, and some even more than that; but from five minutes to twenty minutes is our time, and daily as a rule, but no harm will result through their only being off every other day. In consulting poultry books on this subject, and watching the hens, much difference may be observed. Some hens which have brought strayed broods from the woods have never left their nest and hiding-place above twice weekly during the whole period, and broods of the kind are not the fewest in number or the weakest in health, as a rule.

Notes on treatment of young chickens must stand over to another number; but I may say to all, let the broody hens have as much of their own way as possible during the sitting period, and the results may be better than a continual opposition to Nature.

CHICKEN RAISING.—There can be no doubt but that there is not only a frightful mortality amongst early chickens, but it is a mortality that largely may be prevented. Two things are chiefly responsible for this undesirable result. First, hens are set in cold or unsuitable places, and the hatching process is often interfered with; hence the chickens are weakly, and in-

capable of enduring sudden chills or cold rains. I have always found it to be of the first importance that nests should be made on the ground in a slight hollow, and in a warm cosy corner. The small amount of moisture extracted from the earth in the process of incubation helps to soften the egg-shell, and to greatly facilitate healthy hatching. Sitting hens should be fed at a regular hour each morning, and should be seen again on to their nests before leaving. If the morning is very cold a piece of flannel dropped over the eggs will enable the hen to have an additional minute's run with safety. Success depends so much upon attention during the early months of the year. Late sittings, never half so valuable, may often be left to take care of themselves. If we could not only rear all the chickens hatched in March, but all the eggs set, we should have many more winter layers, and eggs would at that season be far cheaper. Of course it is well to set the eggs of regular winter layers, but then the earliest eggs must of necessity be from such fowls. A friend who has white Leghorns said that all through the winter he had been getting eight and nine eggs per day from ten hens. Of course the past winter has been an exceptional one, but still the Leghorns are without doubt first-rate winter layers. Then, secondly, after chickens are hatched they want a good warm run and shelter from cold wind and rains for a month at least; after that time, the weather becoming warmer, they can pretty well take care of themselves. It will shock some gardeners perhaps to find me advocating the use of a late vinery, in which there are no plants or stages, as an early chicken run, but it is just the place for them, and the warmth found under the glass would help them amazingly. If any one were to start chicken raising on a large scale they would find a glass house of this kind indispensable. *Dorking.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, APRIL 5, 1882.

MONTH AND DAY.	BAROMETRE.		TEMPERATURE OF THE AIR.		HYGROMETRIC DEGREES (from tables 6th Edition).	WIND.	RAINFALL.
	Mean Reading Reduced to Average of 48 Years.	Highest.	Range.	Direction of Mean Wind for the Day.			
Mar. 30	29.43	+0.33 57.9	17.0	15.0	47.7	4.9	W. 0.00
31	29.46	+0.35 55.5	16.0	15.5	46.0	2.0	W. 0.00
April 1	29.65	+0.60 57.0	16.5	15.2	50.7	4.9	S. E. 0.00
2	29.71	+0.63 58.0	16.2	15.5	49.6	5.4	S. E. 0.00
3	29.79	+0.63 53.5	15.5	15.0	47.9	3.3	E. 0.00
4	29.90	+0.65 57.0	16.2	15.0	47.7	3.8	S. E. 0.00
5	29.89	+0.55 52.2	16.0	15.8	40.0	3.6	N. E. 0.00
Mean	29.60	+0.65 56.0	16.2	15.4	47.6	3.3	E. S. E. 0.00
Mar. 30.	A very fine bright day, sun shining brightly. Fine night, clear and cloudy.						
31.	A fine day, sun shining brightly, blue sky. Fine night, generally clear.						
April 1.	A very blue bright morning, sun shining brightly, blue sky. Clear night.						
2.	A fine day, sky overcast from 3 P.M. Fine cloudy night.						
3.	A dull morning. Fine bright afternoon, blue sky. Fine night.						
4.	A very fine bright day, blue sky. Fine night, but cool.						
5.	A dull overcast morning. A gleam of sunshine at noon, and occasional bright gleams afterwards. A fine day.						

LONDON: Atmospheric Pressure.—During the week ending April 1, the reading of the barometer at the level of the sea increased from 29.37 inches at the beginning of the week to 30.14 inches by 9 A.M. on the 27th, decreased to 29.13 inches by 3 P.M. on the same day, increased to 29.22 inches by 9 A.M. on the 28th, decreased to 29.54 inches by midnight of the 30th, increased to 29.62 inches by 9 A.M. on the 31st, decreased to 29.05 inches by 3 P.M. on the same day, and was 29.86 inches by the end of the week. The mean reading for the week at the level of the sea was 29.85 inches, being 0.03 inch lower than last week, and 0.09 inch below the average of the week.

Temperature.—The highest temperature in the

shade in the week was 62° on April 1. On the 26th the highest temperature reached was 49°. The mean of the seven high day temperatures was 54°·3.

The lowest temperature in the shade in the week was 35°, on the 26th of March; on the 29th the lowest temperature was 40°. The mean of the seven lowest temperatures was 40°·1.

The greatest range of temperature in one day was 21°·5, on April 1; the smallest was 6°, on March 29. The mean of the seven daily ranges was 14°·2.

The mean temperatures were, on the 26th, 40°·9; on the 27th, 43°·9; on the 28th, 46°·9; on the 29th, 48°·7; on the 30th, 47°·7; on the 31st, 40°; and on April 1, 49°·1. Of these that of the 26th was 1°·6 below its average, and those of the 27th, 28th, 29th, 30th, 31st, and April 1 were 1°·7, 2°·0, 3°·4, 5°·4, 4°·2, and 4°·9 respectively above their averages.

The mean temperature of the air for the week was 46°·2, being 1°·8 higher than last week, and 5° above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 130°·5 on April 1; the highest on March 29 was 77°. The mean of the seven readings was 101°·9.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 32°, on March 26; the mean of the seven readings was 36°.

Rain fell on March 26 to the amount of 0·37 inch.

ENGLAND: Temperature.—During the week ending April 1 the highest temperatures were 65° at Sunderland, 63°·2 at Leicester, and 63°·1 at Cambridge. The highest temperature at Bradford was 54°·8; at Bolton 54°·8, and at Wolverhampton 55°·4. The general mean was 58°·1.

The lowest temperatures in the week were 20°·6 at Nottingham, 30° at Hull, and 30°·8 at Wolverhampton. The lowest temperature at Liverpool was 38°·5, at Leeds 36°, and Plymouth 35°·2. The general mean was 33°·6.

The greatest ranges of temperature in the week were 32°·2 at Leicester, 30°·1 at Cambridge, and 30° at Sunderland. The least ranges were 17°·1 at Liverpool, 19°·3 at Bradford, and 20°·8 at Plymouth. The general mean was 24°·5.

The mean of the seven high day temperatures was highest at Sunderland, 58°·5, at Cambridge 57°·8, and at Leicester 55°·6; and was lowest at Bolton, 49°·5, at Wolverhampton 50°·4, and at Bradford 50°·5. The general mean was 53°·4.

The mean of the seven low night temperatures was highest at Liverpool, 42°·1, at Truro 41°·7, and at Plymouth 41°·4; and lowest at Hull, 35°·4, at Wolverhampton 36°·8, and at Leicester 37°·5. The general mean was 39°·2.

The mean daily range was greatest at Sunderland, 19°·8, at Cambridge 18°·8, and at Hull 17°; and was least at Liverpool, 9°·1, at Bradford 10°·2, and at Leeds 11°·4. The general mean was 14°·2.

The mean temperature for the week was highest at Sunderland, 47°·4, at Cambridge 47°·2, and at Truro 47°·1; and was lowest at Wolverhampton, 42°·4, at Bolton 42°·5, and at Hull 42°·7. The general mean was 45°·1.

Rain.—The largest falls were 1·22 inch at Truro, 1·20 inch at Leeds, and 1·03 inch at Nottingham. The smallest falls were 0·03 inch at Leicester, and 0·06 inch at Cambridge. No rain fell at Brighton. The general mean was 0·45 inch.

SCOTLAND: Temperature.—During the week ending April 1 the highest temperature was 59°·2, at Aberdeen; at Glasgow, Greenock, and Paisley the highest temperature reached was 55°. The general mean was 50°·4.

The lowest temperature in the week was 31°·5, at Glasgow; at Leith the lowest temperature was 37°. The general mean was 34°·1.

The mean temperature for the week was highest at Edinburgh, 44°·1; and at Leith 43°·2; and was lowest at Aberdeen, 43°·3. The general mean was 44°·4.

Rain.—The largest fall was 1·47 inch, at Greenock; the smallest was 0·15 inch, at Dundee. The general average fall was 0·54 inch.

JAMES GLAISHER, F.R.S.

Variorum.

THE DOUBLE CRIMSON PRIMROSE.—What a pity it is this exquisite gem so difficult of management! It is the queen of all the double Primroses, old and new, there is nothing in this way that can measure itself with any chance of success against its superb beauty. It is known in the North of Ireland as Madame de Pompadour, and in other places as the Crimson Velvet, and when it is seen in flower, under whatever name, and at its best, it is like a floral star of the first magnitude, attracting to itself all who have the perception of beauty in flowers. Somehow,

the plants that have been obtained from any part of the country this season are poor in appearance and dear in price. From Scotland and from Ireland alike poor examples are forthcoming. Where grown with care they establish themselves a little, and appear to be flourishing, and then a time of deterioration comes, and the plants gradually die away. The most beautiful of the double Primroses appear the most difficult to manage; the true old double purple, the fine old late golden-yellow, and the beautiful and distinct double blush are all liable to decay in the same way as the double crimson, and they are always scarce. The main difficulty appears to be to induce the tap-roots to throw out young rootlets to give added vigour to the plants; but, instead of doing this root sets in at the tap-root, and spreading upwards results in entire decay. In the case of imperfectly rooted plants the best plan is to put the plants round the sides of the pot, two or three in a pot, using a light sandy soil on a well drained bottom, pressing the soil firmly about the plants, and keeping the pots in a shady cold frame. The scarcity of the choicer varieties makes the demand large, and constant division has to be resorted to, and deterioration of constitutional vigour ensues. Happy are they who have succeeded in growing these plants into well established specimens. Sometimes one hears of places where these exist, but they are few. If some one were to rise up who could inform us how to treat the beautiful old double crimson Primrose so that it could become as common in our gardens as the double lilac or the double white, they would do a substantial service to practical horticulture. This remark would prove equally desirable in the case of other plants; meanwhile, allow a claim to be put in for a lovely hardy spring flower that is too seldom seen, but when once seen in all its rare beauty is seldom forgotten.

THE ORANGE TRADE IN THE AZORES.—In a review of the produce of the Azores, dated about the middle of last year, it is stated that the Orange trade shows indications of decline; 220,678 "malotes" boxes of Oranges, of the value of £42,312, were exported to England, and notwithstanding this apparently large number the season was stated to be a most disastrous one for St. Michael's, the Orange trade every year getting less and less, and the population emigrating because they are unable to find employment and subsistence. Several circumstances, however, have tended to circumscribe the exportation of Oranges to England; firstly, the old trees have been left, young ones have not been planted in sufficiently large numbers to replace the old ones, and a corresponding diminution of fine Oranges has been the result; secondly, a series of rainy seasons has caused the Oranges to drop off before maturity. Instead of 401,191 "malotes" or flat boxes of Oranges, which were exported in 1878 and nearly as many in 1879, only 220,678 were exported last year, being little more than half. On the other hand the anticipated falling off of the Orange trade has stimulated the cultivation of Pine-apples, which has been raised to 57,232 Pines exported during the season under review against 35,207 and 49,809 exported in 1878 and 1879 respectively. But what has tended more than anything to paralyse the Orange trade with England has been the arrival of Oranges from Valencia in Spain, and the islands of the Mediterranean. In 1872, 417,026 cases of Oranges were exported to Great Britain from Valencia, and in 1878 this trade had increased to 645,000 cases, and no doubt during the last two years the importation of Oranges to England must have been more important. It is stated further that another cause of the diminution of this trade has been the employment of steamships instead of sailing vessels, for one of these large steamers will take six times as many Oranges as the former sailing ships did, and on that score landing in England at one time, and delivering in a few weeks the whole of the Azores crop of Oranges and meeting at the same time the shipments from Valencia, the market in England became glutted, and this at a cold winter season when the state of the weather limited the consumption. In 1872 and 1873 steam vessels were purchased by a company in St. Michael's; no doubt the speculation has proved remunerative to the company, but detrimental to the interests of the proprietors of Oranges in the island and to the public generally, by depreciating the value of the Oranges from St. Michael's, for the arrival of Oranges by steam vessels could be calculated while that of sailing vessels could not, and the market rigged accord-

ingly. The prices latterly have been so low as to give cause for speculation on the advisability of some other article of export being found to replace the Orange. The Coffee tree has been tried and found to succeed very well—that is, that the trees grow very well in sheltered situations and produce fine Coffee beans, but it has still to be ascertained whether the damp climate of the Azores will allow these beans to be dried sufficiently for exportation. Great difficulty attends the drying of the Indian Corn cobs, but as in several forms one of the principal articles of food for the inhabitants and for the towns on the continent of Portugal, the difficulty has been overcome. The Tea plant has also been tried and found successful, and two Chinamen were sent for to teach the means adopted for curing the leaf, which has also to contend with the extremely damp climate of these islands. In doing so it was found that the leaf requires an immense deal of manipulation before it can be presented for sale, and a great part of this manipulation can only be accomplished by mixing up with the hands the Tea leaves. Perhaps some better way may be discovered in process of time when this cultivation comes to be better known; and in the meantime the plant thrives very well, and does not appear to require more shelter than the Coffee or Orange trees.

Enquiries.

He that questioneth much shall learn much.—BACON.

CARPENTANA CALIPORNIA.—Does this plant require a wall? *H. N. G., Milton.*

DENDROBIUM NOBILE.—In what year, where from, and by whom, was *Dendrobium nobile* introduced into this country? *A. G.* [In 1836, from Macao, an island at the south-western mouth of the Canton River, China. *Ed.*]

PRIZE MONEY.—ALEXANDRIA PALACE.—Will you please tell me what are the proper parties at the Alexandria Palace to apply to for any sum of prize-money? There seems to be great difficulty in getting it. *Exhibitor.* We presume the Messrs. Harber & Jones, are the responsible persons. *Ed.*

Answers to Correspondents.

CALVILLE APPLE. *J. H. O.* The name Calville dates from the latter part of the sixteenth century. It is, I presume, doubtful, but is probably taken from Calville, a parish in Normandy. The matter is not an old one, as is noticeable enough in Leroy's *Journalnaire de Pondichéry*, but we cannot say that any very definite result is obtained.

DENDROBIUM NOBILE. *H. L. Bromberg.* Your plants of *Dendrobium nobile* now growing freely will not flower this season, but you may reasonably expect a good show of flowers next season, on the growths made last year, provided you give the plant a good rest through the winter in a temperature of 50° to 55°. During the resting period give scarcely any water to the roots till the flower-buds appear in spring, and keep the atmosphere of the house dry. It is not necessary to repot every year, unless the material about the roots gets sour, which it will not do if you give good drainage and a good fibrous peat and moss for placing round the roots of the plants. Your plant is too far advanced in growth to repot this season without giving it a decided check. Pick some of the old material from about the roots, and top-dress it with a mixture of equal parts fibrous peat and sphagnum moss, taking care not to place it in too close contact with the young growths.

INULUS. *F. Furzebaker.* A careful microscopical examination of the pieces of *Inula* roots has clearly disproved the existence of the *Phyllaria* upon them. We only found *Inula*, *S. Asplenium*, and *Phyllaria* the bark, such as is generally found in diseased vegetable structures. *L. O. H.*

LAURELS. *J. E.* In all probability the leaves were covered with drops of water, which when the sun's rays poured upon them, acted as burning glasses. We never saw quite so bad a case before.

NAMES OF PLANTS. *Mrs. Leigh, Berberis Darwinii, E. & J. Perkins.* A form of *Rhododendron arboreum*, which goes by the name of *R. cammoneum*, and which is much harder than the true scarlet *R. arboreum*, and distinguished from it by the colour of the flowers and deep brown tomentum on the under-surface of the leaves. It is frequently to be found in collections, its hardness having preserved it where others have failed. *J. H. M.—R. R. Adiantum bispidulum*; 2. *Selagin pubescens* (S. Braun, Baker); 3. *Adiantum concinnum*; 4. *A. macrophyllum*; 5. *Callipteris anbigua* (Malabarica).—*Saxifraga, Haldersonii*; *Saxifraga Poultonii—K. & S. Asplenium bibratum* (L. sectum). There should be on the plant some fronds with broader less cut panicles.—*H. L. E. 1.* double flowering Peach; 2. *Spiraea alba*; *rodifolia* variety; 3. *Ribes Beatonii*; 4. *Aspidistra*; *S. angustatum* and *R. aureum*; 4. *Leontis* daisy. Never send specimens packed in cotton-wool, damp blotting-paper, or still better, damp moss, is far preferable.—*H. E. R.* Your plant is correctly named, *Praxina Goldiana*.—

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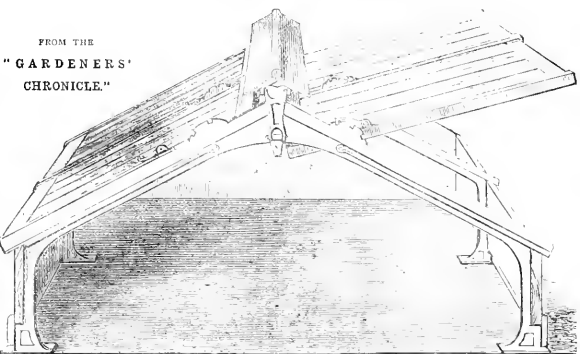
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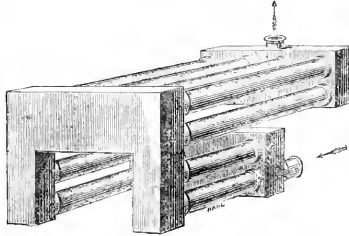
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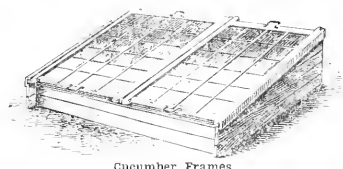
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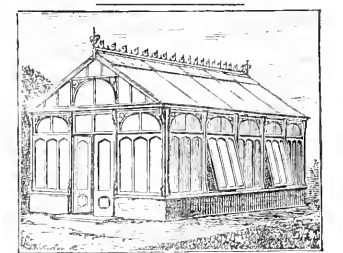


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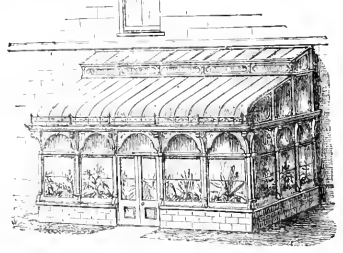


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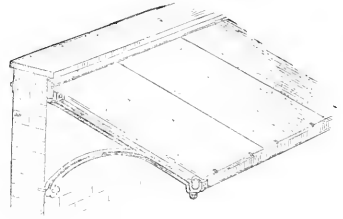
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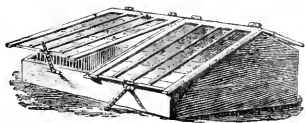


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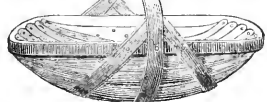
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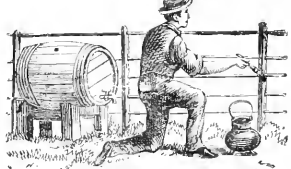
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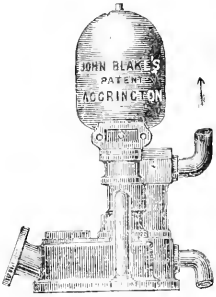
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TESTIMONIALS.

From Colonel TREMAYNE, Carlew, Ferran-a-Worthal, Cornwall, March 7, 1880. "The Self-acting Hydraulic Ram erected here about two years ago is, I am pleased to say, working most satisfactorily, sending up water at the rate of 2000 gallons per day to a height of 125 feet, and a distance of more than 2000 yards. The quantity of water is as much as you undertook to deliver."

From Major J. FINCHER TRIST, Tristford, Harberton, South Devon, September 29, 1880. "I have much pleasure in informing you that the Ram and Fire Extinguishing Apparatus, with about 2 yards of service pipe, which your men have here, give me the greatest possible satisfaction. From the first till now there has been no hitch whatever, and I do not at all anticipate that you will ever be troubled with any stoppage of the water, and I am glad to hear that you can draw off the chimney a powerful jet of water, which is brought down in a 4 inch bore pipe from the service tank, holding upwards of 20,000 gallons, at an elevation of 2.5 feet, to which your Rams force the water very much in excess of the quantity you guaranteed. I have already recommended you to others in war, and hope to continue to do so."

From the Right Hon. T. SOTHERN ESTCOURT, Estcourt Park, Gloucestershire, September 6, 1875. "You will be glad to hear, as I am to tell you, that your Self-acting Hydraulic Ram has worked exceedingly well and continuously since it was erected, more than twelve months ago. It is, in fact, perfectly successful."

(The following is a copy in the above case of 2400 feet long, with 100 feet rise) From L. HANMER, Esq., Deanwater, Wilmshole, November 20, 1873. "Dear Sir,—In answer to your enquiries respecting the Hydraulic Ram you supplied me with six months ago, I beg to state that I am more than satisfied with it. It has done its duty, sending up to the top of the house 500 gallons of water in twenty-five hours, whereas you only undertook to deliver in that time 200 gallons. I have therefore every reason to be well pleased with your work, and am especially so. I had a ram supplied me by another maker, which could not send up a single gallon of water to the height required, and a second and inferior one that no man with a fall of a feet could send up water to the distance required, namely, 120 feet. But yours is an accomplished fact, and does its work most effectually."

From JOHN ROWE BENNION, Esq., Nursted House, Petersfield, August 25, 1880. "I have much pleasure in saying that the two Hydraulic Rams you put down for me and which are supplied from a spring, now yielding in this dry season, only 3 gallons per minute are sending up an ample supply of water to my house and the home farm, discharging the supply through more than 200 feet of pipes, and to an elevation of 137 feet. Of this result, I think you have as much reason to be proud as I have to be satisfied."

From Colonel STARKIE, Lovely Hall, Blackburn, May 13, 1878. "Sir,—I have great pleasure in testifying to the good qualities possessed by the Ram you erected here last year. It has done its work well and is as perfect as the other Ram did, which was of a different construction, and supplied by a different firm. I consider that there are great difficulties to contend with here, but your practical mechanical knowledge, both as to the construction of the Ram and its situation here, overcame most of the difficulties that we had to contend against."

From W. SCARTH, Esq., Agent to His Grace the Duke of Cleveland. "The Hydraulic Ram you supplied to his Grace the Duke of Cleveland, in 1875, is a complete success. It worked for more than two years without once stopping, and throws more water than promised."

From R. SMITHURST, Esq., Ellerbeck, Chorley, January 13, 1877. "Sir,—Blake's Hydraulic Ram works as well as it did from the first. I cannot at this moment remember how many years it is since I put it up, but it must be eight or ten, and it has served my purpose admirably. It is at work almost every day, and in dry weather day and night frequently. It requires no skill to keep it right."

From G. REDMAYNE, Esq., Brathay Hall, Ambleside, January 15, 1877. "Sir,—In answer to your application respecting Blake's Hydraulic Ram, I am happy to say that so far it has been a complete success, and at a very trifling cost for repairs. It has been a great boon to me, other well-known Rams having failed, and we fell back upon Blake's as a last resource."

JOHN BLAKE, ENGINEER, ACCRINGTON, LANCASHIRE.

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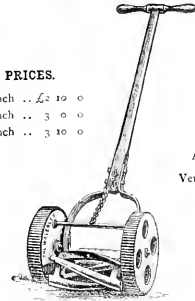
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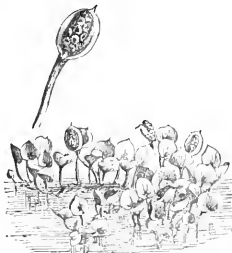
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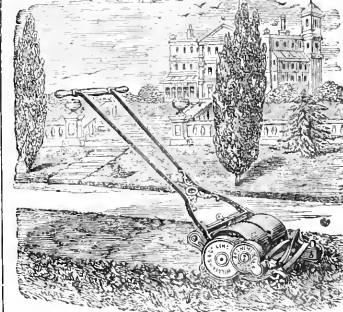
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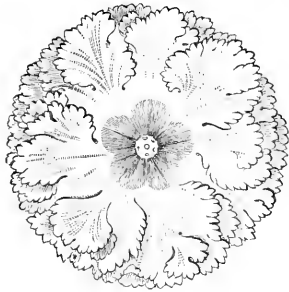
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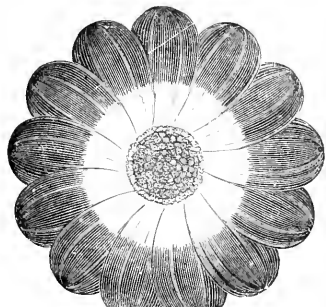
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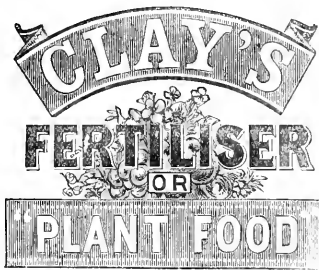
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SATURDAY, APRIL 15, 1882.

A FEAST OF PRIMROSES.

LESS than 20 miles from London, and near to the great highway to the West, lies a fine park that is bounded on its northern side by a copple, through which runs a broad green drive, and all along its length of over a mile we saw the other day a marvellous show of the British Primrose. We really fear to indicate just where this charming sight is to be found, lest those floral hawks who sweep from off the face of Nature all the flowers that come within reach should deface and despoil this tract of natural beauty. Perhaps some of the abundance of Primrose wealth seen here is due to the fact that the enclosure is a game preserve, and the stalwart keeper, robed in the customary suit of velvet, who met us with a suspicious and enquiring look, became for the nonce, not an agent of the detested Game Laws, but rather a beneficent guardian of this charming floral preserve. Here and there the Primroses ran out from margins into huge masses even of an acre in extent, preventing a perfect floral carpet, whilst here and there a stray and somewhat precocious Jubbell or a bright-coloured Ragged Robin not only gave varied hues of colour but foretold of the further beauties that are to follow.

Even here, where not a Cowslip, Oxlip, or Pteris of any kind is to be seen, there may be found some evidences of the Polyanth tendency which is so strongly manifested in cultivated Primroses. But what is of more interest is the very varied forms and outlines found in the flowers. Some—not many—but still some have flowers that are nearly round and smooth edged, and in most cases still farther they have that florist's fancy, a thrum-eye; and yet this thrum centre is no arbitrary fancy after all, for between the pin-eye and the thrum-eye there is a wide disparity—the first means coarseness and lack of finish, the other means perfection and refinement. More than that, there is a very important physiological difference which florists have hitherto too much overlooked, and which is of far greater consequence than the mere appearance. By way of contrast to the better forms are many flowers the petals of which are little better than mere floral strips, very loose and starchy, and looking very much as the British Primrose might have been in the days of the Druids. From out of some flowers the style would project an eighth of an inch, and in others it was half-way down the throat, the anthers yet lower still, so variously placed are the organs of fertility in these wild flowers.

There is, perhaps, a natural and instructive desire arising in our mind to see growing in this delightful woodland some of the rich coloured Primroses now not so very uncommon in gardens. If these were planted, and let alone, the patches of colour thrown up would indeed be varied and pleasing. But even supposing that these garden kinds would thrive under such rude culture, the crossing on to the wild pale yellows that would result would soon convert the bulk of the flowers from their

pleasing and pristine hue into dull washy reds or shades of the most inconspicuous and unpleasing kind. Probably it is far wiser to let well alone in this respect, for attempts to gardenise in Nature's haunts have seldom turned out to our satisfaction. After all, the great distinction which exists between wild and garden flowers serves perhaps more than anything else to maintain the delicious and welcome contrasts that should ever be found in cultivated and uncultivated spots. As it was close upon Eastertide, one of the great festivals of the Church, some score or more of children were busy gathering the pale Primrose flowers, putting them into neat bunches, that they might assist in the decoration of churches on Easter Day. There was enough, and to spare, for the flowers were countless, and on that head we find no cause for complaint.

If flowers at these seasons really become emblems of religious belief, stimulate gratitude and worship, there is nothing more to be said. Perhaps these Primroses, the spring Lilies of our woods, present to the minds of some more fitting offerings at religious shrines than their own hearts, because they are at least pure, and, as divine witness has been borne, are more acceptable than was Solomon in all his glory.

To pass from the bebedecked column, the goiaded roof, the rich and sparkling painted windows, the gaily dressed assemblage, and the proud swell of the organ, to the hospital where the sick and sorrowful, the poor and the needy lie racking in pain, enduring perhaps agonies indescribable, or wasting away by slow and insidious disease to inevitable death seems to be a natural psychological sequence, though scarcely a harmonious one. Seeing this wealth of flowers, and thinking of the many many hearts that but a few sweet flowers might be made to gladden, we are again rejoiced to remember that many loving, unselfish people remember the sick and the dying, and strive to bedeck their mean little chambers or cheerless looking dormitories with flowers, sweet, fresh, and beautiful. Somehow, too, there crop up recollections of the story about the cup of cold water, and we pass slowly away from our feast of Primroses, thankful in the recognition of the good that is or may be effected in the world by these humble Primroses in more than one way.

RHODODENDRONS AT KEW.

THE magnificent *R. Griffithianum* (syn. *Aucklandii*) is now in bloom in the Temperate-house, Kew. Although the flowers are not so fine as they were last year, yet every lover of the genus should visit this very beautiful and now uncommon species. In bud the florets are of coral-pink, then, gradually paling, they swell as large as hen's eggs, and finally fall open into exquisite cups of the most delicate pink, glowing white and whiter hour by hour. The style is of ordinary length and size, with a greenish stigma, but the stamens are curiously diminutive for so large a flower. This fact makes it interesting to remark that the flowers of this plant proved last year almost, if not quite barren when fertilised with its own pollen, which Mr. MANGLES found to be potent, nevertheless, on other Rhododendrons. When the species first flowered in Europe similar anomalies were remarked, and it was for a time supposed that the large-flowered variety never matured pollen at all. Here then is a species which deserves the notice of naturalists. Is it approaching a climorphic condition? Mr. MANGLES has been for two years and more experimenting with it. The Lawson Company, of Edinburgh, have already shown many very beautiful hybrids derived from it. The foliage is as grand as the flower, and the young shoots, of the richest green, are hung around with caducous crimson bracts, the brilliancy of which we leave to the *Horribians* to explain. In the same house there is also in bloom the most gigantic and beautiful hybrid *Rhododendron* we have ever seen. The truss is of enormous proportions. The plant is either a very fine specimen of *R. Broughtonii*, or a seedling of the same strain.

New Garden Plants.

LELIA LEEANA, n. hybr. (?)*

A FINE thing. At first sight I thought of *Lalia* and *Cattleya Dormaniana*; but both the short rather timid furrowed shining bulb, and the flat spreading flower colours suggested *Cattleya superba*, while the column top made me think of *Lelia pumila*. As to the perfume, which is rather powerful in *Cattleya superba*, I cannot speak about it in this novelty, the weather being very cold, and the perfume of flowers being subject to changes from time of the day, age of the flower, and individuality. My flower is rather scentless. I have no experience, however, of the two mentioned species growing together, and if any of the readers of these columns could give some evidence about this it might prove very useful. The stellate rather narrow sepals and petals are of a fine rose colour, as in a very fine *Cattleya Harrisoniana*. The lips of the purest white, the tips of the lateral laciniæ, which lie on the broad obovate middle laciniæ, are of the finest and warmest purple. There are veins of the same colour running forwards under acute angles on both sides of the middle line between the lateral laciniæ, but they do not extend far. The column has purple eais, a fine purple border to the stigmatic hollow, and a like more pallid wash at the inner base. Pollinia four, with an emarginate back, showing two bodies cohering, and the caudicula cohering on both sides. Though it is said to have lost its original beauty, after having flowered nearly three weeks, I am very satisfied with it, and think it a novelty. The *pâte de resistance*, indeed, is the lip. I feel very pleased to inscribe the plant to one of the most excellent orchidists of our era, the lucky possessor, Mr. W. Lee, Downside, Leatherhead. May this gentleman never be infected by that abominable contagious disease, the *Orchidophobia*. *H. G. Rehb. f.*

ODONTOGLOSSUM SANDBERIANUM, n. sp.

I have before me a fresh raceme, forwarded by Mr. Geo. Marriott, of Upper Edmonton, who had it from Mr. H. Gaskell, of Wootton Wood, Liverpool. I have great pleasure in seeing this fine thing, which very nearly fills the place of *Odontoglossum nevadense*. Not much is to be added to what has been stated before. The bulb is compared to that of *Odontoglossum Lindleyanum*. The lip is not quite pure white, but has a most delicate hue of lightest sulphur. There is a fine large purple-crimson mark between the callus of the lip, and there are a few small spots of this colour in front. The base of the lip consists of two short low upright lobes, and the blade is large, nearly pentaurate, acute, wavy. Sepals and petals lanceolate acuminate, light ochre, with brown marks and stripes, much as in *Odontoglossum anastratum*. Column strong, trigonous, with upright cat's-clawed wings and an abrupt prominence under the stigmatic hollow, yellowish on the top, white on the base, with some purple spots.

It is astonishing how easily some plants develop their flowers. Hence, we may expect a fine development of this species, hence I am not quite persuaded that it may not develop panicles laden with hundreds of flowers. Several of my last letters speak of the plant, and one of my correspondents says it beats *Odontoglossum nevadense*. As to this it is a matter of taste, and till now that species stands unique in the surprising heart-shaped base of its lip. *O. Sandberianum* is finely Hawthorn-scented. *H. G. Rehb. f.*

LEEA AMABILIS, Hort. Veitch.† (Fig. 77.)

The plant shown under this provisional name by Messrs. Veitch at a recent meeting of the Royal Horticultural Society promises to be one of the most beautiful of stove foliage plants. In a small state the

habit is good, and probably by suitable cultivation the compactness it now has may be retained, otherwise the natural habit of the plant would suggest that in the adult condition it may become somewhat straggling. The stems are cylindrical or sub-angular, somewhat fleshy, marked with circular cicatrices. The alternate unequally pinnate leaves are borne on long channelled leaf-stalks, from whose sides emerge at the base large leafy stipules. The pinnæ or leaflets are in two or three pairs, each leaflet shortly stalked with a minute stipel; all are more or less lanceolate, rounded at the base, acute, or even acuminate at the apex, sparsely saw-toothed at the margin, with glandular serratures. The upper surface is of a velvety texture and deep bronzy-green colour, with a rather broad central white stripe, irregularly indented at the margin. The lower surface of the leaves is of a claret-red colour, with a few thinly scattered hyaline globular glands and a central translucent green central stripe. The midrib is sharply prominent, like a knife-edge on both surfaces. The young leaves are of a bright but pale pinkish-brown colour, bent downwards, the individual pinnæ being folded in the middle (conduplicate). A figure of the plant was given in the *Journal of Horticulture* for April 6.

The *Leeas*, to which genus this plant has with great probability been referred, are shrubby or half scandent Asiatic shrubs, closely allied to Vines, but destitute of tendrils, and having pinnate foliage. There are some minor differences in the flowers and fruit to which we need not refer. The plant above referred to was collected in the journey undertaken in Borneo on behalf of Messrs. Veitch by Messrs. Burke and Curtis. It would be acceptable if these gentlemen, or one of them, would favour us with a note as to the climatal and other conditions under which the plant grows. *M. T. M.*

POLYSTICHUM ACROSTICHOIDES GRANDICEPS, n. var.

This is a very handsome variety of the well-known North American *Polystichum acrostichoides*, in which all the fronds, including the fertile ones, are multiply-branched and neatly crested at the apex, while the pinnæ are more or less distinctly dilated, or in some instances multiply parted at their apices, much in the same way as occurs in the smaller fronds of *Lastrea Filix-mas cristata*. This alteration of the normal form has, in the examples before us, in great measure obliterated the auricle which occurs at the anterior base of the pinnæ in the typical plant. The fronds reach the height of from 12 to 15 inches, or nearly that of the normal form of the species, and, like it, are of evergreen character, so that it will make a welcome addition to the hardy Ferns already in cultivation, the dimorphous nature of the fronds giving to it a distinct and well-marked character. Our knowledge of the plant is derived from specimens which have been obligingly sent to us by Messrs. W. & J. Birkenhead, of the Fern Nursery, Sale, near Manchester, who have from time to time sent us some very interesting forms both of native and exotic Ferns. We believe it was received by them amongst Ferns from North America some three years ago, and that they have been able to propagate it.

We do not find any mention of such a variety in Professor Eaton's recently completed *Ferns of North America*, a handsome, well illustrated, and valuable work on the Fern flora of that great country, so that, like most other crested varieties of Ferns, it might probably be traced to a solitary sport from the usual condition of the plant. *T. Moore.*

OCTOMERIA COCHLEARIS, *Rehb. f.* (*Supra*, 1881, p. 266.)

Ah those Orchids! Never trust them! Dr. Wallace having kindly given me a plant, it has now flowered under Herr Donat's care. Most accidentally it has not a single hair on its lip, whereas the flowers of 1880 had it covered with them! *H. G. Rehb. f.*

CATASETUM FILETUM, n. sp.†

A curious species comparable to *Catasetum cernuum*. It has rather large flowers, comparable to those of

* *Lelia Leeana*, n. hybr. (?) — *Pseudobulbo cylindrato* 2-minuticulis sulcatis monophyllis; foliis planis cuneato-oblongis, lobis usque valde concavis; floribus (sine spatula), sepalis tepalibus paulo unilatis ligulatis acutis, expansis, stellatis; labelli trilobis, lobis lateralibus semitrilobis, anterosum acutis; creta columnam rotatis et apertis sine in forma mediata obovata plana mucronulatis; columna utriusque alula accurisignate ligulata; alulae (tepala subterrata angulo subulata). *Forsk. & Groll. Leea*. — *Orchidarium collectivum intelligitibus* accerium magno cum gaudio ducta. *H. G. Rehb. f.*

† *Leea amabilis*, Hort. Veitch. — *Fruticosa glabra; foliis puberulis imparipinnatis, segmentis petiolulatis lanceolatis, basi*

rotundatis, glandulose-serratis, acuminatis, nervis, anero-ventrisibus velutius medio foveis albida lateraula tenatis, deorsum vixus glandulis parvis hyalinis conspersis, sursum medio utrinque prominente. — *Stipulis magnis foliis acutis integris petiolo longissimo superne cancellatis basi cordatis*. — *Leea*, agrost. — *Ex Borneo apterovegetant donum*. Burke et Curtis. *M. T. M.*

— *Catasetum filetum*, n. sp. — *Sepalis ligulatis acutis; tepalis oblongis acutis; labello transverso subtrilobato obtusis-angulo amplissimo in eorum obtusum rotatis, columna apice longe rostrata; basi cirata*. — *Ex Venezuela imp. ci. Linden*. *H. G. Rehb. f.*

Catasetum Naso. Sepals narrow, light reddish. They may, however, have been green before, as sometimes is the fact from withering. Petals broad, oblong acute, white. Lip a wide nearly obtuse-angled expansion descending in a blunt cone, white. Column with a very long beak and two cirrhi. This interesting species was introduced from Venezuela by Director Linden, and flowered by the Compagnie Continentale d'Horticulture, Société Anonyme, Gand. *H. G. Rehb. f.*

CATA, with double flowers of a pale rose colour. The tree is of more robust character than the preceding, with stouter branches and larger flowers, the flower-buds rounder and not so pointed as in *P. floribunda*.

P. SPECTABILIS is another variety of somewhat robust habit, with rounded flower-buds and shell-like incurved petals of a deep rose colour. This, again, is one that can hardly be too widely spread.

flowering shrubs too seldom seen. Its bushy habit, neat, small, lanceolate leaves, and profusion of small Peach-like blossoms, are very acceptable.

RHODODENDRON CHAMÆCISTUS.—Mr. Burbidge sends us from Dublin the pretty little *Rhododendron Chamæcistus* with small ovate acute shining green chilate leaves, and terminal tufts of regular lilac open bell-shaped flowers, that remind one of a *Kalmia* without its pouches to retain the stamens.



FIG. 77.—*LEEAMABILIS*: STOVE FOLIAGE PLANT. (SEE P. 492.)

FLOWERS IN SEASON.

A CORRESPONDENT sends us flowers of the lovely *PYRUS (MALUS) FLORIBUNDA*, which, if not the finest, at any rate is in the fore rank of ornamental spring flowering trees. Its long slender branches are crowned with umbels of flowers on long graceful stalks, with ovate pointed flower-buds of an intense rose colour, fading as the flowers expand. There is no reason that we know of why this most lovely tree is not more generally planted. It may be grafted, like other Apples, on the Doucin or Paradise stock.

Scarcely less beautiful is the *PYRUS MALUS BAC-*

P. MAULEI, a species we had the honour to introduce to the notice of horticulturists in June, 1874, p. 757, justifies all we said in its praise, its profusion of orange-red flowers form an agreeable variety with the old *P. japonica* and its varieties. At the time of publication it was stated by some who had not had our opportunities of judging to be a mere form of that old favourite, but we think no one seeing the two plants together would consider them as belonging to the same species now-a-days, whatever they might have done in prehistoric times.

AMYGDALUS NANA is one of those old-fashioned

ANEMONE BLANDA AND *A. APENNINA*.—Another correspondent enquires as to the distinction between these two, which indeed is not very obvious when the two are seen apart. The main difference lies in the seed-pods, that of *A. blanda* having a shorter style. Our plants both of *A. blanda* and of *apennina*, growing for years in an open border, are becoming paler in colour year by year, perhaps in afright at the slugs, which punish these little gems in a disheartening manner.

TULIPA SILVESTRIS.—Another correspondent sends us flowers of the elegant *Tulipa silvestris*, the

graceful nodding yellow flowers of which are but rarely produced, and when produced, rarely open, but their elongated oval-pointed form and clear yellow colour are very attractive. The elegance and grace of this plant form a marked contrast to the great tubular and gaily coloured of the garden Tulips, and of some of this country.



The Herbaceous Border.

...with the Emulinary, but ... bloom. It is stated to be naturalised in many places, and our correspondent speaks of it as ... abundance as to be a nuisance! The ... most flower lovers ... Probably, by ... produced to flower ... why it is ...

... very blue, is always ... need not be without ... associated with *Franula rosea*, which we find does so much better in the open border on cool stiff moist soil than in pots, forms a pair that can hardly be rivalled.

NOTES ON ANNUALS.

As this is the time of year for sowing annuals, the following notes on some ground last year may be of use as relating to some species not commonly grown. The first list were treated as half-hardy, and raised in heat about the middle or end of April, which proved to be too late for some of them. The following were good:—

- Cornus laponensis*.—Of a rich purple colour, like a small *Dahlia*; a late bloomer, and very useful for cutting.
- Emilia sagittata* = *Cacalia coccinea*.—Very bright orange-scarlet.
- Nicotiana glauca*.—Good, both as a foliage and flowering plant.
- Schizanthus luteus*.—Very pretty, but blooms late, and should be sown early.
- Tugetes pigmentifera*.—A very good strain of French Marigold; forms a brilliant edging for bedding.
- Tugetes Purpurea*.—Large single bright yellow flowers, and pretty foliage; not very free blooming in rich soil.
- Zinnia elegans*.—Brilliant yellow, and having a spreading habit, is well adapted for bedding. Lasts long in bloom.

The following were poor, and not worth growing:—

- Arabis crotocarpa*.—Coarse, and not free blooming.
- Cupressus comata*.—Very dull coloured.
- Mitella meadia*.—Flowers very small, and dull red; habit unkind and leafy.
- Pedot. Nuttallii*.—Poor and insignificant.

The following were evidently sown too late, and never bloomed:—*Martynia fragrans*; *Pharlitis Huberi*; *Seyphanthus elegans*.

Of hardy annuals which were sown where they were to grow in the borders, the following were the most satisfactory:—

- Antirrhinum album* (Yellow Sultan).—A beautiful plant, which, though very old, is not often met with in these parts; one of the best yellow flowers for cutting in show.
- Argemone grandiflora*.
- Barbarea vulgaris* (Pink Hawkweed).—Very pretty and easily grown.
- Caltha rosea purpurea*.—One of the best yellow annuals, with double pointed flowers, and good habit.
- Caltha rosea Drummondii*.—Clear yellow flowers, but not so free as the old *C. rupestris*.
- Campanula medium-plata*.—Very effective and curious.
- Campanula rotundifolia*.—Another good yellow Composite.
- Campanula rotundifolia*.—Very neat habit, and free blooming; flowers deep purple.
- Campanula rotundifolia*.—Charming plant, the orange lip as bright as a spark of fire.
- Centaurea jacea*.—Large yellow flowers, and very free. (I think this was raised in heat.)
- Phlox paniculata*.—Very neat and pretty.
- Sphacelium sphegodes*.—One of the best annual Composites.

I have mentioned the above because most of them are not very commonly grown. There are, of course, many other equally good annuals which are too well known to mention. Although I yield to none in my love of hardy perennials, yet I cannot but think the annuals are quite as pretty and interesting, and do not deserve the neglect into which they have fallen of late years.

I may add that I was very successful last year in raising perennials from seed—many of which bloomed in the same year. I wish these would be useful, I think, to all. All of O. Walker.

MERTENSIA.—The Oyster plant, *Mertensia maritima*, which owes its English name to the oyster-like taste of the leaves, is now, as far as I have been able to ascertain, an extinct plant on the Welsh coast, where it was formerly common. Miss Jekyll, of Munead, kindly gave me two plants two years ago, and it behaves in cultivation in a most exemplary manner. I planted one upon a rockery, the other in a well drained flat border, mixing sand and fine gravel with the soil, and covering the surface as far as the shoots extended with small pebbles. Both have done equally well, and ripened seed in great abundance; the seed, if left where it falls, comes up freely in the spring, but as fast as ever the shoot appears it is eaten off by slugs—the worst enemies of all the Mertensias—so that the seedlings are difficult to rear. The shoots, taken off in spring, when 2 or 3 inches long, will strike, but not readily. It is an interesting and distinct plant, and always attracts notice. *Mertensia virginica*, the Virginian Cowslip, is now in full flower, being nearly a month earlier than last year. It is imported in abundance from America, and seems to suffer nothing from its voyage, for some imported plants planted in December are now flowering well. It seems to thrive in any sheltered spot in moist rich soil. There is another imported Mertensia, called *paniculata*, which I have tried several times, but have completely failed with it. As I have never seen it doing well, I do not know what its requirements are, and should be glad of information. I have one more to mention, *M. sibirica*, easily grown, either from seed or divided plants, if the slugs can be kept from it, but they will come through soot and fine soil. In habit it resembles *M. virginica*, but is a coarser plant; the flowers are much smaller, and come out more than a month later. It is no great acquisition for ornament. C. Wolley Dod.

HEPHEROCHIRON CALIFORNICA.—The lovely little plant which bears this name is correctly figured and described in the spring catalogue of Mr. Ware, from whom I bought it in autumn. The whole plant is not 4 inches across, and it produces a long succession of flowers in abundance, borne on short stalks from the centre of the plant. In my plant they are pure white, with a black stripe up the middle of each of the six petals. The flower is something like that of *Sanguinaria canadensis*, but opens better and lasts longer, and, what is no small merit this weather, endures frost bravely, for though the flowers of *Primula rosea* and the alpine *Auricularis*, and many other plants, are quite spoilt by the severe frosts of Thursday and Friday nights, those of the *Hesperochiron* are entirely uninjured. It seems quite happy in an exposed situation on a well drained peat bed. C. Wolley Dod.

THE COMMON DOUBLE DAFFODIL.—It seems to be still a popular belief that the large double *Daffodil* of English gardens is nothing but a double form of the wild *Daffodil*, which occurs in meadows and copses in nearly every English county, and that if these single *Daffodils* are transplanted to a garden they become in a year or two common double *Daffodils*. Those who believe this should try, as I have done for many years, to make a double *Daffodil* out of a single one, and if they succeed they will have performed a difficult feat of gardening. It may be interesting to these persons to be told what is known of the history of the double *Daffodil*, which is now to be found in orchards or gardens in every corner of the kingdom. John Parkinson, an "apothecary," who lived in London, published in the year 1629 a book on gardening called *Paradiis in sole paradisiis terrestribus* (The Paradise on Earth of the Paradise which is in the Sun). With the exception of Gerard's *Herbal* this is, I believe, the oldest work on gardening in the English language. This work was published nine years after the first appearance of the common double *Daffodil*, of which he gives the following account, calling it "Pseudonarcissus Anglicus maximus"—Mr. Wilmer's great double *Daffodil*." First we have a description of the semi double and full double forms, so accurate as to leave no doubt about the identity of

the variety. Then we are told that "we had this variety first from Vincent Sion, borne in Flanders, dwelling on the Banke side, an industrious and worthy lover of faire flowers, who cherished it in his garden for many years without the hearing of any flowers until the year 1620—that having flowered with him (and hee not knowing of whom he received it, nor having ever seen the like flower before) he sheweth it to Mr. John Franqueville, of whom he supposed he had received it (for from beyond sea he never received any), who finding it to be a kinde never seen or knowne to us before caused him to respect it the more, as it is well worthy. And Mr. George Wilmer, of Stratford Bow, Esq., in his live time having likewise received it of him, (as my selfe did also) would needs appropriate it to himself if he were the first founder thereof, and call it by his owne name, Wilmer's double *Daffodil*, which since hath so continued." This *Daffodil* is still called in the Dutch catalogues Van Sion, after the name of the founder. Modern florists, especially that prince of *Daffodil* growers, Mr. Peter Barr, have tried to refer this double *Daffodil* to some existing single form. It will be observed that Parkinson calls it "*Anglicus maximus*," and says that it only differs from the double of the English wild *Daffodil* in size. Until lately it was identified with the *Pseudo-Narcissus* major, supposed to be a native of Spain. About four years ago Mr. Peter Barr obtained from Florence bulbs of a large single *Daffodil* which grows wild in the valley of the Arno there. This seems to come nearer to the single form of our common double *Daffodil* than any variety yet found. C. Wolley Dod.

NARCISSUS CERNUUS PLENUS AND N. MONTANUS.—Out of about eighty varieties of *Narcissus* which have flowered, or are flowering, in my garden this spring, the double variety of *N. cernuus* is one of the prettiest and most attractive. It is not a new plant. I saw it some years ago in a garden at Windemere as happily established in clumps, and flowering as freely, as the common double *Daffodil*. The owner gave me a few bulbs, but I am sorry to say that their increase is slow, as the *Daffodils* of this class want a warm soil. It is one of those doubles which generally assume the form in which the doubling is contained inside the tube, which remains unbroken, as in the double of the wild *Daffodil*. The only exception I have seen to this was the first flowering after transplanting, when one or two produced full double flowers; but I dare say this habit varies in different soils. Another fine variety of this class is *N. cernuus elatus*, which I bought some years ago as *cernuus Leedsii*, but which seems to have changed its name. The pure white *Narcissus montanus* may also be mentioned as one of the prettiest of the late-flowering *Daffodils*. It must be planted in light, warm, well-drained soil; for, though it is a very old variety in English gardens—older, in fact, than the common double *Daffodil*—it has never become common owing to its delicate constitution. Parkinson classes it with the *Incomparabilis* section, and tells that nothing is known of its native place, but by "the name it carries it should seeme to be bred in the mountains"—probably true, for the only place where I have ever seen it really vigorous and increasing rapidly is a garden amongst the mountains of Denbighshire. C. Wolley Dod, Edge Hall, Malpas, April 8.

NEW AUSTRALIAN ORCHIDS.

(Concluded from p. 472.)

Drahaea glyptoloma.—A slender plant, 6—9 inches high. Leaf thick, ovate cordate, about 5 lines in diameter. One-flowered. Lateral sepals and petals red-brown, about 4 lines long, recurved, linear; dorsal sepal rather longer, erect. Labellum dark red-brown, articulate at the end of the basal projection of the column, on a linear claw of about two lines. The central part of the labellum ovate convex, produced towards the end into an emarginate projection, and at the base into a glandular appendage resembling the head of the extinct *Armadio*- or *Glyptodon*. The recurved under-surface and basal part of the under-surface covered with branching hairs. Column about four lines, much curved, the wings forming two ovate auricles about the middle. Basal projections linear, about two lines. Stigma not produced into a long point (or rostellum?) as it is in *D. elastica*. Western Australia.

Thelymitra sonalis.—A slender plant, about a foot high. Leaf about 6 inches, linear, thick, rather deeply channelled. Bracts long and stems clasping. Flowers one or two. Sepals and petals ovate acute, about three lines. Petals yellow. Sepals yellow inside, dark red brown outside. Column three lines, not hooded, but produced above the anther, undulate or almost denticulate between the lateral appendages, which project horizontally forward and are broad and rugose. The wings of the column enclose it for more than half its length at its base and form a cup, with a central spur more or less developed in front of the stigma, giving the column an urn-like appearance. Anther obtuse, or slightly emarginate, protruding over the stigma, and continuing when mature to include the pollen masses. South Australia.

Thelymitra luteicolum.—A rather stout species, about 1 foot high. Leaf about 8 inches, broadly linear, deeply channelled in front, and slightly so on the sides. Bracts long, and stem clasping. Flowers three to five, bright pink. Sepals and petals ovate-acute, about 4 lines. Column about 2 lines, almost hooded, three-lobed between the lateral appendages. Lateral appendages having two lobed wings at the bases, and dense yellow cilia at the ends turned upwards. Anthers obtuse, protruding over the stigma. South Australia.

Thelymitra rubra.—A slender species, about 1 foot high. Leaf linear, half 5 inches. Bracts very narrow, stems clasping. Flowers one or two, bright red. Petals and sepals ovate-acute, about 5 lines. Column about 3 lines, produced above and behind the anther, but not hooded, slightly denticulate between the lateral appendages. Lateral appendages lanceolate, produced horizontally beyond the anther almost to a point, not ciliate, but covered on both sides densely with rugose glands. Anther obtuse, continuing to enclose the pollen masses behind the stigma, but produced over it. (This species is closely related to *T. carnea*, but the flowers are much larger and of a brighter colour. It opens constantly, is evidently not so absolutely self-fertilising, and is easily distinguished by the large and rugose lateral appendages of the column.) South Australia.

Thelymitra grandiflora.—A very robust species, from 1 foot 6 inches to 2 feet 6 inches high. Leaf lanceolate, about 9 inches long, and about to lines broad, thick, forming a closed loose sheath round the stem for 3 or 4 inches. Lower bracts sheathing in the same way far more than half their length. Flowers about thirty in a dense spike, greyish-blue. Petals and sepals oblong obtuse concave, about 8 lines. The back of the sepals much darker in colour. Column about 4 lines, hooded. The hood remarkably flat, broad, and smooth, of a leaden colour. The space between the extreme lateral appendages consisting of two large wings, deeply denticulate along the edges, and a much smaller arched central wing also denticulate. The extreme lateral appendages produced horizontally and terminating in white penicillate tufts. The wings of the column inflated and inclosing the lower part of the stigma in a cup. Anther not produced over the stigma and remaining behind it. (This is the largest and most beautiful *Thelymitra* known.) South Australia.

Thelymitra nuda.—A slender species, hardly 1 foot high. Leaf linear, about 6 inches, thick, and but slightly channelled. Flowers two or three, lilac-blue. Petals and sepals oblong lanceolate acute, about 3 lines. Column 2 lines, of a squarer form than in other species, hooded. The hood deeply and acutely emarginate, with entire edges, very dark, but covered with a hoary bloom resembling mould, which easily rubs off, leaving the dark under-colour apparent. Extreme lateral appendages produced horizontally, covered on the outside with abortive wings, and yellow cilia, smooth on the inside. Anther acute, not produced beyond the stigma and remaining behind it. (Found growing in standing water.) Western Australia.

Diuris lertii.—A slender species, from 8 inches to 1 foot 6 inches high. Leaves from 3 to 6 inches, numerous, linear, spirally twisted, enclosed at their base by a sheath. Flowers two to six, light yellow. Petals elliptical, stipitate, 7 or 8 lines, including the dark brown claw of about 2 or 3 lines. Lateral sepals about 7 or 8 lines, linear, green. Dorsal sepal almost triangular, embracing the column, about half the length of the other sepals. Labellum

three-lobed. The lateral lobes half the length of the central, falcate denticulate along the upper edges, striate with brown lines. Central lobe ovate-rhomboid, about six lines, including the linear portion between the wings, on which portion are two raised lines, perfectly smooth, as is the whole of the labellum. The rhomboidal portion is raised along the centre in a sharp ridge. Wings of the column of the same length as it, toothed. (This species is closely allied to *D. pedunculata*, but easily distinguished from it by the absence of all pubescence on the labellum, and by the spiral leaves.) Western Australia.

Prasophyllum attenuatum.—A very slender, wiry species, from 1 foot to 1 foot 6 inches high. Leaf 9 inches. Leaf-lamina 3 inches. Flowers about forty, not dense, on a spike of about 5 inches. Lateral sepals not two lines, greenish with white edges, oblong-ovulate at the ends, with blunt points. Dorsal sepal about two lines, oblong, hardly acuminate, slightly recurved. Petals not two lines, white with purple streak, oblong, blunt. Labellum about two lines, ovate-oblong, saccate at the end. Disc about two-thirds of the length of the labellum, hardly raised above it with five slight ridges towards the end. Appendages of the column falcate acuminate, unequally two-lobed. Lower lobe obtuse. Anther obtuse, shorter than the rostellum. Western Australia.

Prasophyllum plumbeiforme.—A slender species, about 1 foot to 1 foot 6 inches high. Leaf about 6 inches. Leaf-lamina hardly 2 inches. Flowers about forty in a long feathery spike. Sepals and petals oblong acuminate, about 2 lines. Lateral sepals white with green stripe. Dorsal sepal reddish edged with white. Petals white with purple stripe. Lateral sepals not united. Labellum not gibbous, oblong, tapering, slightly reflexed for about one-third of its length. Two parallel slightly raised plates on the disc. Lateral appendages of the column falcate acuminate, unequally two-lobed. Rostellum slender, longer than the appendages. Anther short, hardly acuminate. Western Australia.

Prasophyllum triangulare.—A rather robust species, 1 foot or more high, very dark coloured. Leaf about 10 inches. Leaf-lamina about 5 inches. Flowers dark red-brown, about thirty in a long spike. Lateral sepals united almost to their points, together [ovate, acuminate, glandular at the base and along the suture; dorsal sepal rather longer, about 3 lines. Petals lanceolate, shorter than the sepals. Labellum about 2 lines on a rather long claw, triangular, very slightly recurved. Edges entire, and slightly undulate, the disc forming a raised triangular plate, nearly as large as the labellum, somewhat swollen towards the points, and irregularly covered with small sessile calli. Appendages of the column broad at the base, falcate, acuminate, equal in length to the rostellum, thickened on the outer margin into three or more callosities. Anther much shorter than the rostellum, hardly acuminate. Western Australia. Robert Fitzgerald, Surveyor-General's Office, Sydney, Jan. 19.

JOTTINGS ROUND BRISTOL.

SPRINGFIELD, the seat of Francis W. Savage, Esq., in the parish of Westbury-on-Trym, can boast of a garden locally celebrated for conception of design, neatness, and a stock of choice flowers all the year round. When one hears a little on the way of the dainty stock the hot-houses contain one may be excused for a little impatience to reach the goal for which the journey was undertaken. And, as if to gratify the desire which had not been expressed, I am, after formal introduction, shown into the fernery where a goodly stock of the charming *Adiantum farleyense* is ready grown for furnishing—and such healthy fronds! How they shine under a ray of light, and seem too delicate even to touch, much less to expose them to the ordeal of what is best known as furnishing. But no difficulties are even hinted at at Springfield. There are plenty of houses and plenty of plants, and tender subjects are changed frequently, and the gardener, like a wise man, does not shed a tear because he has to cut the heads off his plants just as they are approaching full beauty. Upon the contrary, he will tell you what a grand display such and such a plant will make in a day or two when fully out, and I verily believe that by force of habit Mr. Edwards, the gardener, enjoys a glass or vase of cut flowers done up in style as much as an

exhibitor enjoys a specimen plant when he pronounces his last "There!" after several hours' training. Well, so much for habit. The Ferns, as I have said, are unique in size and finish for the purpose for which they are specially grown. *Nephrrolepis exaltata* is another favourite Fern for house-work. *Calanthes*, *Eucharis*, *Lancratium*, and such-like, are grown largely, and all sweet-scented flowers are grown in quantity. *Illicium sinensis variegatum* is grown as a stove creeper, and a charming ornament it makes. The Camellia-house is filled with established plants in flower, and contains the oldest *Maréchal Niel* Rose in the neighbourhood of Bristol. A fine display of *Pelargoniums* in flower is in an adjoining house, Guillon Mangell is highly spoken of among others, and there are also some grand specimens of *Imantophyllum* *miniatum splendens*, with numerous flower-spikes highly coloured. Many plants are also grown singly in small pots for house furnishing. A dark leaved *Begonia* named *Sambo* has a good effect in the plant stove, among choice *Crotons*, *Dracenas*, healthy *Orchids*, many of which are in flower, and a good plant of *Loya imperialis*. Forcing of fruits and flowers is conducted equally successfully in a range of low span-houses, and the vineries are showing well for Grapes in addition to being stocked with plants for supplying cut flowers. In an isolated or detached house, I observed a large stock of *Azaleas*, and rare specimens of the old favourite *Farfugium grande*. *Palms* and *Amaryllis* are well done in another structure, and indeed a system of well-matured management seems to prevail over the entire establishment. Nor are out-of-door plants or shrubs less cared for. Shrubs are conspicuous for health and arrangement; there is no such thing as a painful struggle for life among the commonest plants or the choicest specimens. Roses are neatly arranged, in good health, and legibly named, so that he who is not troubled with obliquity of vision, and is not well posted up in *Rose lore*, may read the name of every *Rose* with comfort from the walks. Here is a creeper, which is not too common covering a wall—*Aristolochia Sipho*, which succeeds well at Springfield; the flower is like Turkish tobacco-pipe, and the colour is chocolate. Through the kindness of Mr. Savage I had a peep at the show of cut flowers in the house. But first of all let me just mention the rich collection of oil paintings which adorn the walls, and the numerous other valuables from Japan and China, which are in the entrance hall and other rooms and which are elegant and costly representations of art in the respective countries from which they have been procured. The cut flowers are arranged upon a distinct and very effective principle. There is no mixing of half a dozen kinds of flowers in a glass. There is one of *Marguerites*, another of *Narciss*, a third of *Iris*, or a bunch of *Camellias*, *Pelargoniums*, or *Primulas*. *Orchids* are arranged upon the same principle, and a medium-sized glass filled with white *Arum* looked all the world over as if they had been growing there, so naturally are they arranged among their own leaves! The glasses with the different coloured flowers are then arranged so as to produce the desired harmony or contrast as the case may be, and the method though simple has the merit of showing off distinctly and in continuation the beauty of all kinds and colours of flowers.

HENLEAZE, the seat of S. Derham, Esq., lies north of Bristol, and enjoys a commanding view of the Welsh hills and many local places of note. At the entrance gate there is a remarkable specimen of the *Kilmarnock Weeping Willow*, over 20 feet high, with the branches drooping close to the stem. The spring garden is showing symptoms of active growth, and a little colour in the form of star bells, having the lines drawn with different coloured *Daisies*. Mr. Farmer, the gardener, is found busy among his Vines, pinching and training a fine old *Vine* grown upon the extension system, and which carried 210 bunches last year, and this year promises to be more fruitful than ever. The plant-stove adjoins this vinery, and the collection consists of the usual variety grown for private purposes. A second division is filled with Ferns, capital plants of free-growing kinds, such as *Lomarias*, *Blechnums*, and *Adiantums*, the latter, of course, for cutting, and the former for grouping in the house when extra decorations are required. There are two young vineries, in which the Vines are progressing rapidly, and in the second division of which the Grapes are already thinned and swelling away. The occupants of the Melon and Cucumber houses are both early and show well for good crops. A large

orchard-house is, however, the notable fruit structure of the place; it is 70 feet long, 45 feet wide, and 20 feet high or more. Vines are grown upon one side, Peaches and Nectarines upon the other, and fruit trees in pots in the centre of the house. The Vines and other fruit trees are very fine examples of cultural skill, and Roses trained up the ties supporting the house are equally if not more remarkable. The conservatory is gay with a miscellaneous stock of plants, in which good plants of *Convallaria polygonatum* figure conspicuously. Eupatoriums grown specimen fashion and a good show of bulbs are the chief features in the greenhouse. The fruit garden is noted for its collection of cordon Peas and other fruit trees, which yield a profitable supply of fruits in their different seasons, and are free from most diseases incident to hardy fruit trees. As a fruit garden there is even at this early date every prospect of abundant crops.

REDLAND LODGE is situated in the parish bearing the same name, about 2 miles from Bristol, and is owned by J. C. Wall, Esq. The mansion is approached by a beautiful Cedar avenue, and the grounds are tastefully laid out and kept in apple pie order. The garden is of average size, consisting of the usual departments, in which every branch of modern gardening is creditably represented. The hot-houses are of modern construction, and their inmates are, without exception, in first-rate condition. In the vineries good crops of Grapes are showing, and they are also very economically used for purposes of plant growing—not the common herd of bedding plants alone, but useful decorative subjects, such as bulbs (spring-flowering), Azaleas, zonal Pelargoniums, Richardias, *Primulas*, and other useful plants. Tomatos for an early supply are in an advanced state, and are of course fruited in pots. The back wall of one of the vineries is covered with *Tropaeolum Lobbianum*, which produces a never failing supply of flowers, and is struck fresh from cuttings every season. The Vine borders are covered with glass, sashes being fitted into a permanent framework, the former being movable, and when laid on having sufficient pitch to throw off rain as quickly as it falls. In the autumn about a foot in depth of dry leaves is laid on the surface of the border, then the sashes are fixed on for the winter, and the roots are as cosy as if they were in an inside border, and in a vastly more natural condition. The writer prophesied that hothed Grape-growing would die out in time—and it is so! The sub-soil in this case is unfavourable, and almost impervious to moisture. In a range of forcing-houses, Cucumbers, Strawberries and Grapes are remarkably well-grown, and in addition flowering Begonias are trained upon the walls by the paths, which has an exceedingly cheerful effect. Bouvarhas and Eucharis are quite gay with their ever attractive flowers—a whole shelf of the former is laden with plants in full flower, scarlet and white, which are in great request for cutting purposes here as elsewhere. At the end of the range a house of young Vines twelve months old is in splendid condition. In the plant-houses a miscellaneous collection of plants is well grown, and in a new range of Peach-houses the crop is a marvellous one, and climbing Roses of the Jules Margottin type are quite as well grown as the Peaches. Passing on to the more homely department, *i.e.*, the kitchen garden, the spring crops are progressing satisfactorily, and in the Mushroom-house there is such a sight of Mushrooms as would make an epicure smack his lips. Asparagus is forced by means of sanitary pipes being placed beneath the beds, trenches are taken out upon either side the beds, which are filled in with fermenting materials, the heat passing through the pipes underneath the bed. In the grounds two fine Oak trees are notable objects, and an iron screen clothed with Ivy and ornamented on the top by semicircular arches clothed with Roses and Clematis, is quite a novel feature, which strikes one at first sight. What must the effect be when the Roses and Clematis are entwined in bud and in leaf later in the year! Mr. Vallance is not an old gardener, but he is evidently old enough to cultivate plants and fruits in the first style of the day, and to keep a garden neat and orderly as well.

BERRY HOUSE stands on an elevated site, from which there is a delightful prospect, including magnificent views in the direction of the Severn and the Welsh mountains, and is the property of Mrs. Miller. The garden, with which

the writer is most interested, is of medium size, and like most gardens located not many miles from a large and thriving city, is well and orderly managed, fruit and plant growing being carried on with spirit if not enthusiasm. The conservatory so-called is rather in the shape of a curving corridor in which there is a display of spring flowers, among which *Salvia Ilicifolia*, perpetual flowering Carnations, Azaleas and *Camellias*, form the leading elements. The roof of the structure is covered with *Passiflora crerulea* and other creepers. The garden proper is enclosed by good brick walls, within which are the leading ranges of forcing and other houses. One of these consists of Cucumber, Melon, and pot Vine house, in which the crops are both early and abundant. The next range is in two divisions and in one of these an Allamanda trained upon the roof has made remarkable progress in little more than a year. Pines, Strawberries, and Orchids, are grown in these houses, the earliest variety of Strawberry here being *Brussels* of Prussia, which is fourteen days earlier than any other known variety, save and except *Black Prince*. The orchard-house is stocked with healthy fruiting Peach trees upon the walls, fruit trees in pots, and Strawberries upon shelves suspended from the roof. The plant stove is unequal span and is furnished with a marvellous supply of *Stephanotis* which covers the roof and which is flowering at every joint, and will continue to supply cut flowers for several months. The plants cultivated in pots are of the useful class, and are in beautiful order in their respective kinds. Flowering Begonias, *Franciscae*, *Centropegea Luceana*, *Euphorbia* and *Caladiums* are those that appear to have the greatest attention; health and cleanliness are, however, visible everywhere, and plants that are clean and healthy just now are sure to develop into something good before the end of the season. The Vines are in a fruitful state, and promise to bear crops as good as usual. The back walls are brightened up by planting Begonias against them, tall free growing sorts, such as *fragrans nitida* and *Fischeri*, and a variety very like the latter, but with rather more pink in it. The greenhouse is ornamented with a pretty arch of *Tropaeolum Lobbianum* which spans the path inside the door, and is one living mass of flowers drooping among a profusion of deep green leaves, which in the month of March is not to be despised. The collection in this house consists of the usual kinds generally cultivated in private gardens. Muscat Vines and the late fruiting black kinds are being brought forward quietly, and specimen Azaleas, Roses in pots, and other plants are sharing the same treatment. There is an old vinery of Hamburgs which still does good service as a late vinery—that is, late for Hamburgs. The stocks of hardy fruit obtained annually are generally equal to the demand, and upon the whole there is much pleasure and interest to be derived from a visit to this well managed garden, which is so successfully conducted by Mr. Gibson.

Apiary.

AN EARLY SWARM OF BEES.—After promising to come out for a fortnight my strongest stock of bees threw out a fine swarm on April 7 (Good Friday), and as I learn from many knowing people that one so early in the year is something remarkable, I am induced to make a note of it. It was rather annoying, too, that the insects should have elected to turn out just as we had sat down to dinner, for a comfortable meal under the circumstances was out of the question, and ere the swarm was quietly settled the edibles were about as cold as are "hot" cross buns. Probably rendered a little contrary by the prevalent east wind the queen must needs settle amidst a Peach tree on the wall, and here the swarm was as difficult to house as well could be. By dint of using dexterously the wing of a goose the queen and two-thirds of the insects were hived, and the rest found out their new home after a short time. My neighbour, who is a cool hand at his living, found his match for once, however, and having scorned a veil for his face got more than a dozen stings about the vital organs, but they seemed to affect him about as much as if his skin had been Junibo's hide. If the old proverb as to the relative values of a swarm of bees in May and of a load of hay is to be taken as authoritative, it would seem that a swarm in April is not only unusual, but almost, like the peck of March dust, should be worth a king's ransom. *A. D.*

Orchid Notes and gleanings.

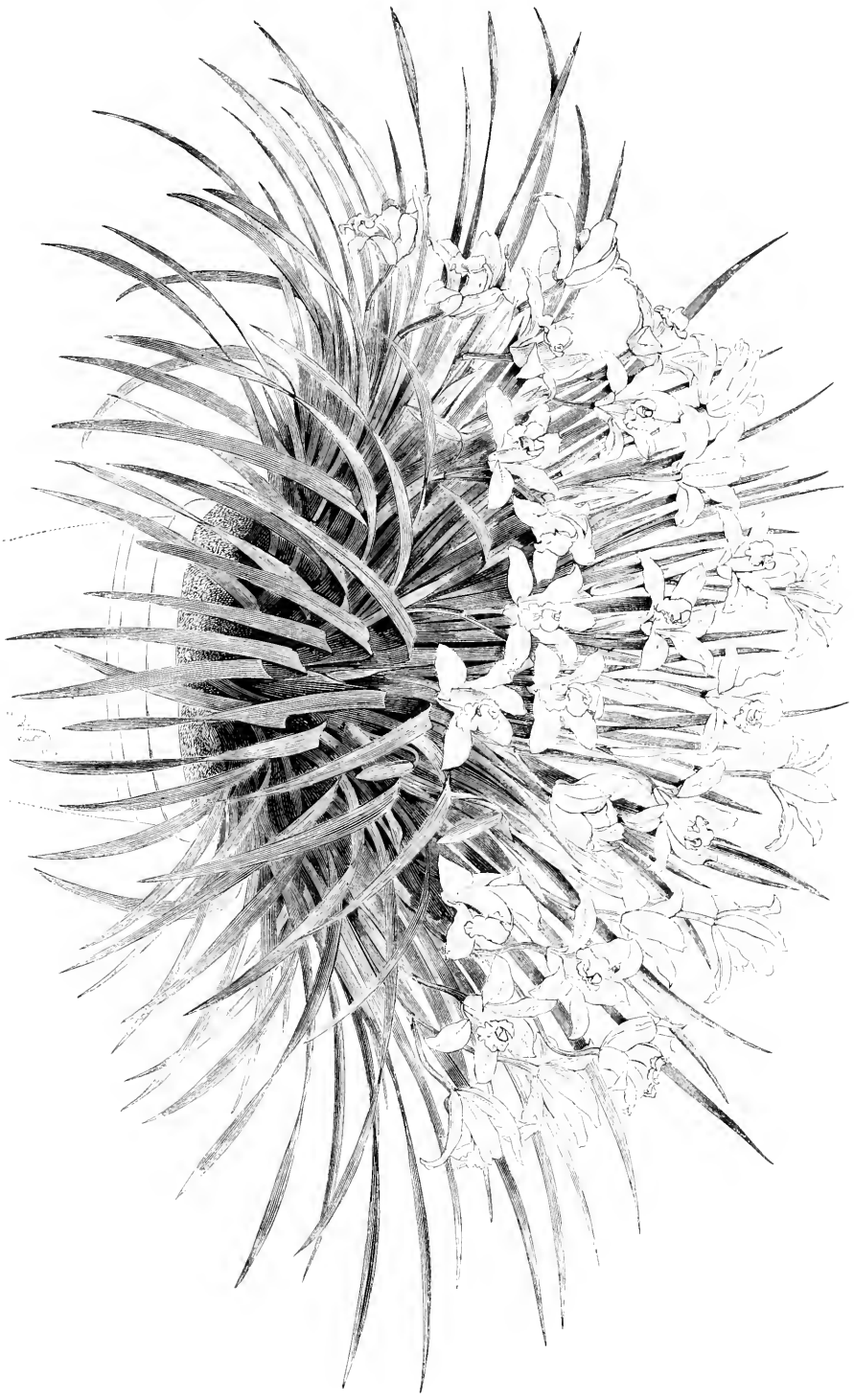
PONTHIEVA MACULATA.—An exceedingly pretty and interesting Orchid (*Ponthieva maculata*) is now in flower at Kew, I believe, for the first time in cultivation. It is interesting alike for its structure and somewhat peculiar coloration. It is a terrestrial Orchid, with distichously arranged lanceolate light green leaves, 3–6 inches long, covered on both sides with long soft hairs (most of which are minutely gland-tipped), as are also the stem, bracts, ovaries, and outside of the sepals. The flowers are about 1 inch across their greatest diameter, and are arranged in an elongating raceme; the long green ovary is not twisted, so that the labellum points upwards, the petals occupying the position usually taken by the labellum, and, indeed, might easily be mistaken for it, as that organ is exceedingly small, being scarcely more than an oblong excavated nectar cup, about one-tenth of an inch long. The lanceolate odd sepal, which is directed downwards, is light buff-brown, becoming whitish at the acuminate tip, and tinged with green on the nerves. The ovate acute lateral sepals, in which perhaps the chief charm of the flower is centred, stand erect; they are white, tinged at the base with light brownish and beautifully marked with dark green spots, from the centre of each of which arises a perfectly transparent, glossy, adpressed, clavate hair (or gland?), which can scarcely be perceived except under a lens so transparent is it. The clawed, semi-ovate petals are pendent from the apex of the column, their straight edges being applied to each other, or even overlapping; they are bright buff, with three green nerves on the basal half of each. Altogether the flowers are very odd and exceedingly pleasing. The plant is a native of Venezuela. It was exhibited at the *soirée* given by Sir John Lubbock to the members of the Linnean Society, at Burlington House, on March 28th, and a drawing of it has been prepared for the *Botanical Magazine*. *N. E. Brown.*

ORCHIDS AT THE YORK NURSERY.—Like many others of our great nurserymen the Messrs. Backhouse & Son, York, are very considerably extending their collections of Orchids. The large span-roofed house, which was partly a vinery and partly an Orchid-house, is now entirely devoted to Orchids, and it is well filled with recently imported Cattleyas, *Dendrobiums*, and others. There were at the time of my visit—the first week in April—some very fine varieties of *Cattleya Mendelii* in flower. The plants had made very stout well-ripened bulbs, and they were much more exposed to the sun than I had previously seen Cattleyas. The leaves felt quite warm to the hand when the sun was shining on them. The large plants of *Cattleya Skinneri* from the Burton Constable collection, previously alluded to in the *Gardener's Chronicle*, had made very strong sheaths, and were bursting into flower. *Lelia flava*, introduced to this country forty years ago, but seldom seen in flower, had a fine truss of its golden-yellow flowers. It is a very distinct species, allied to *L. cinabarina*, the pseudobulbs being stouter and shorter. *Mamillaria Harrisonii* in flower is a beautiful Orchid, the sepals and petals creamy-white, labellum hairy, purplish-brown, marked with dark brown lines.

DENDROBIUM DENSIFLORUM.—In the gardens at Warnham Court, Horsham, the residence of C. J. Lucas, Esq. (gr. Mr. J. Duncan), there is a specimen of *Dendrobium densiflorum* with sixty fine spikes, most of them having three dozen flowers on a spike. I have seen many, but none with so many spikes as the above. *A. O.*

CYMBIDIUM EUBURNEUM.—On the opposite page we give an illustration of the remarkably fine specimen of *Cymbidium eburneum* exhibited by Mr. Mill, gr. to Lord Rendlesham, at the meeting of the Floral Committee held on March 14. It was a model of high cultivation, being in perfect health, and bearing twenty-nine of its beautiful ivory-white flowers, which, standing well up amid the bold recurved foliage, gave it a most distinct and noble appearance. We should be glad to know from Mr. Mill the mode of cultivation which produced so good a result.

Fig. 78.—*CYNODON ERUENENSIS*: FLOWERS PINK-YELLOW; LEAVES REDDISH. (SEE P. 496.)



Florists' Flowers.

DOUBLE AURICULAS.—It will no doubt be generally admitted that the single Auriculas are preferable to the double kinds on account of the possession of a more simple and better defined beauty, while the efforts the florist has put forth, and is still putting forth, to improve the Auricula are all in the direction of improving the single forms. The Continental florists, appearing to care but little for our fine forms of the show Auricula, have been slowly but surely selecting and improving double forms, though these are by no means numerous. For some time past we have been familiar with the double yellow and the double dark Auriculas, and it would be interesting to know how these originated, or from whence they were derived. The double yellow appears to be the oldest and most generally grown of the two; the double dark is scarcely so robust, and not so common. The double white, that used to be grown in Scotland and elsewhere to some extent, is now but little known, and consequently very scarce. The dark form are the most double; the yellow and white types are but semi-double forms, yet very interesting to many. The Continental florists appear to have been successful in raising some very full and fine double varieties, of which *Purpurea*, which was Cerebited by the Royal Horticultural Society last year, is the best known representative. It would appear that the Continental florists have proceeded along much the same lines with their double Auriculas as our English florists have with their double forms of *Primula sinensis*; they took care of any alpine Auriculas showing a tendency to produce superfluous petals from the centre of the flowers, and, seeding from these, gradually evolved the double form from them. It required much careful selection to get the fine types that are occasionally met with, but they are worthy of the time and trouble expended over the work. They grow less vigorously, and increase much less rapidly, than do the single varieties, and those who possess them have to wait patiently for accumulations of stock. They make charming subjects for pot culture, but to have fine flowers must not be over-potted. Fortunately there are so many lovers of flowers with different tastes that what one condemns as unsightly another may regard as specially attractive; and Nature, out of its great resources, provides for all, through the agency of the worker—man.

THE GLADIOLUS.—It is now quite time that the very latest bulbs should be planted. We have frequently planted them after the middle of April, and as late as the first day in May, but when they are planted so late as that they do not succeed so well as those planted earlier, and it cannot be supposed that the bulbs will ripen well. The ground has been in very good condition this year, and there cannot be any excuse on the score of unfavourable weather. I have always found them do best when the ground has been well worked during the winter, turning it over frequently in fine weather. We also reserve some fine maiden loam to put over the bulbs when they are placed in the drills, a little fine sand being scattered over them in the first place. The earliest planted bulbs will now be pushing through the ground; should there be any prospect of frost it is a safe plan to invert a pot over those that are through the ground, taking it off in the morning. We also sow our Gladiolus seeds the second week in April. A hot-bed is prepared for them about ten days previous to the time of sowing, as it takes about that time for the violent heat to subside. About 6 inches of Cocoa-nut fibre must be put over the manure in which the pots containing the seeds are to be plunged. Pots 6 and 7 inches in diameter are the best; each pot will contain about fifty plants. Those who grow very large quantities of seedlings are obliged to sow the seeds in the open border. If no hotbed was available it would be necessary to sow them on a warm border, but when the means are at command the methods I have described are the best, as the small bulbs produced during the ensuing summer and autumn will produce good spikes next year. *J. Douglas.*

THE DAHLIA.—The exhibition of Dahlias to be held at the Crystal Palace, Sydenham, in September

next, will no doubt give an impetus to the culture of this showy autumn flower such as it has not received for very many years. When Dahlia shows have been held in or near London in recent years they have not been well supported, nor could any reasonable person expect that they would be, as the prizes usually offered have been totally inadequate to the importance of the flower, and could not repay the exhibitors for the expense they are obliged to incur. On this occasion a few ardent cultivators have taken the matter in hand; they have either collected or subscribed sufficient funds, and with the aid of the Crystal Palace Company they have prepared a very liberal schedule, which will soon be issued; and the committee feel confident that a grand display of Dahlias will be forthcoming.

Such an exhibition as was wont to be held at the Crystal Palace when it was first opened, and those of us who can remember the exhibition held just a quarter of a century ago—when Mr. Charles Turner, of Slough, gained the 1st prize for fifty distinct Dahlias, Mr. John Keynes, his great rival, being 2d—will look forward with great delight to this exhibition. We are not likely to have such a display of Hollyhocks as was made on that occasion by Messrs. A. Paul & Sons, of Cheshunt, and Mr. Chater, of Salford Walden, but we shall have a greater variety in the Dahlia, and besides the variety there will be a great improvement in the form of the flowers, especially in what is termed the fancy section. Besides the show and fancy Dahlias, which will form the principal feature of the exhibition, the single varieties will be provided for in the schedule. These and the small-flowered or pompon section will be exhibited in bunches. The leading Dahlias, too, will be there; and as a bedding Dahlia is of no use unless it is dwarf and free-flowering, these will be exhibited in pots, to show the habit and the effect of the plants as they will appear in the garden. Dahlia growers are now preparing their plants; by this time they should be rooted, and ready for potting into 5-inch pots; and as soon as the state of the weather admits of it, they should be put out into cold frames. In that position they form fine healthy short-jointed plants, as the lights can be removed whenever the weather is favourable, and they can be placed over the plants if there is danger of frost; and as a further precaution mats may be thrown over the glass. The experienced grower needs not to be told to prepare his ground—that would be done in October—by trenching it deeply, working in plenty of manure at the same time. The soil should also be lightly forked over at intervals up to the time of planting. No amount of attention in the summer can make up for neglect in preparing the ground during the winter. *J. Douglas, Lovford.*

DOUBLE CINERARIAS.—The fine varieties which have been shown of late by Mr. R. H. Vertegans of Birmingham, and others, and particularly by Messrs. H. Cannell & Sons, at the meeting of the Royal Horticultural Society on Tuesday last, now show so much actual gain in the matters of size, fullness and colour, that one is inclined to exclaim, "Hold! enough!" The imminent danger appears to be of increasing the size of the blooms beyond a certain point when they must, we fear, become little better than monstrosities. The larger the size the less of floral beauty and a relative symmetry will invite attention. The varieties from Mr. Cannell appeared nearly perfect, and to improve them in size will seem something like spoiling them. The sorts were Phoebe, heavily edged with bright pale magenta on a white ground; Kate, with a narrow edging of pale pinkish magenta; Sophia, rich deep bright magenta, very fine and showy; Mary, rose-purple; Mr. T. Lloyd, bright bluish-purple, large and full; and Ada, deep indigo-blue. The variety named Sophia appeared to be a model double Cineraria. It is quite large enough for all purposes, and the flowers are as full as they can well be. We do not want double Cinerarias as large as Pyrebrams, and in regard to the single varieties, also, it is difficult to obtain a largely increased size without loss of form, symmetry, and beauty.

FLOWER POTS.—During the month of March 245,580 pots of all sizes, ranging from $\frac{1}{2}$ inch to 30 inches in diameter, were sent out from the Royal Factory, Weston-super-Mare, this being the largest number turned out in one month since Mr. John Matthews has had the works, now over eleven years.



The Kitchen Garden.

SEED SOWING, &c.—This will be a good time to sow the main crop of Broccoli and Kales, which should be sown in beds 4 feet wide, with an alley a foot wide between each bed. The ground should be trodden over and raked before the beds are marked out; these should be made square with the wall or walk, the seed should be covered with a quarter of an inch of soil from the alleys, which should then be raked, and the surface of the beds patted with the back of the spade so as to compress the soil and seed, and the alleys neatly cut off. After this the attacks of chafinches and sparrows must be guarded against, as recommended in our last Calendar. The following sterling varieties may be depended upon, and I will divide them into four classes; and in the order in which the respective kinds come into use, viz.:—Autumn varieties: Veitch's Self-Protecting, Grange's Early White Cape, and Early Purple Cape. Early winter varieties: Snow's Winter White, Backhouse's Winter White, and Early Penzance White. Early spring kinds: Brimstone, Chappell's Cream, and Frogmore Protecting. Late spring varieties: Cooling's Matchless, Carter's Champion, Cartlett's Eclipse, and Richmond Late White.

Advantage must now be taken of genial showers to plant out good breadths of Cauliflower, Cabbage, and Lettuce plants, also Brussels Sprouts, which should be planted in rows not less than 3 feet apart, and the same distance from plant to plant in the rows. Another sowing of Turnips and Lettuce should now be made, also a sowing of Salsify and Scorzonera (where used) should be made in drills an inch or so deep and a foot apart. Where Caroons are in request the seed should be sown at once in a box or pan and placed in a frame, and as soon as the seedlings have come through the soil they should be gradually hardened off and subsequently planted in trenches 1 foot deep and 16 inches wide and 4 feet from centre to centre, and about 16 inches from plant to plant in the row. The trenches are prepared similarly to those for Celery.

SCARLET RUNNER BEANS.—As our mode of growing these is somewhat different from that generally practised, and the results are thoroughly satisfactory, I will briefly state it. We grow two rows, each about 60 yards long and 8 feet asunder, which run east and west. We plant our first on or about April 24, in drills about 3 inches deep, and the second row about two months later, and in front (south) of the first row. And instead of using sticks 8 or 9 feet long as supports for the vines we use Ash poles as long as we can get them without being too thick and heavy—say from 20 to 30 feet long—which are stuck firmly in the ground, 1 foot apart, on either side the row of runners, and braced together by a series of bean-sticks fastened longitudinally on either side the upright sticks at 6 or 7 feet from the ground by means of a series of cross-ties made of tarred string, by which means the rows of sticks are made secure against the effects of rough winds. Instead of stopping the runners, as is usually done, we allow them to grow uninterrupted, and so cover their allotted space, thereby prolonging considerably the supply of runners. We frequently gather, by the aid of a long pair of steps, from the row sown the end of June, which is protected by the shelter afforded by the first row from the effects of cutting winds and autumn frosts, good supplies of runners to the middle and end of November.

GARDEN WORK.—This will consist in the earthing-up of Cauliflowers, Cabbage plants, and rows of Peas, and Broad Beans, together with the sticking of the former and the stopping of the haulms of those now coming into flower, which, owing to the temporary check which the plants thus receive, cause them to pod quicker than they would do under ordinary treatment. All Peas and Beans which have been staked and earthed-up, should now have a good mulching of well-rotted dung put on either side the rows which will not only conserve the moisture at the roots, but maintain the latter in a more equable condition. This done, it will be advisable, in light soils, to give both

Peas and Beans a good watering at the roots. Prick out in nursery-beds young plants of Cauliflower, Cabbage, Brussels Sprouts, Savoys, Leeks, and Lettuce, resulting from the first sowing out-of-doors, in a warm border, the Lettuce 3 inches apart every way, and the other sorts 6 inches; and water them through a rose if the condition of the weather render its application necessary. Thin out successional sowings of Turnips and spring-sown Spinach to a few inches from plant to plant in the rows, and subsequently thin them out to 9 inches. Vigorous use must now be made of the Dutch hoe, not only with a view to stimulating growth in the rising crops, but the cutting down of weeds wherever they appear—an operation for which the beautiful weather which we have been having has been highly favourable. Potatoes just pushing through the soil should have a little of the latter drawn up to them, and a slight protection afforded them when there is likely to be frost. Failing a reader, though not a more efficient means of protection, a flower-pot may be put over each haulm (where the plantings are not large) at night, and removed in the morning.

MUSHROOMS.—Beds made and spawned in January and February, providing that the spawn was good, and had been inserted under the surface of the beds when the heat had declined to 75° or 70°, and that they were subsequently eased over with finely-sifted adhesive loam beaten firmly together with the spade, will now be yielding good supplies of Mushrooms. These beds, from the time of moulding them—the soil being damp at the time—have not required any after-attention in the way of watering, inasmuch as the temperature of the house ranged from 50° to 60° without the aid of fire-heat, a circumstance which rendered the application of water in any way unnecessary. It will be advisable in modern air-tight-built houses to leave the roof-ventilator a little open in order to prevent a stagnant atmosphere, which would be neither congenial nor beneficial to the production of Mushrooms. The next bed, or series of beds, should be made out-of-doors under a north wall, and for which purpose collect horse-droppings and spread them in thin layers in a dry shed, after which, when the necessary quantity has been collected and turned over a few times, form into beds, spawn, and ease over with soil in the ordinary way, and then cover with loam litter from the stable-yard: these beds will yield supplies of Mushrooms in July and August. *H. W. Ward, Longford Castle, Wills.*

NOTES ON VEGETABLES.

A SEEDLING RHUBARB.—I send for your inspection a sample of a seedling Rhubarb of mine; it is remarkably early (we have been pulling for weeks in the open ground), very prolific, never produces a seed crown, and is of a beautiful colour. *Charles Kersting, Stead Syke Nurseries, Brighthelm.* [The stalks averaged 15 inches in length and 3½ inches in diameter, beautifully coloured, as our correspondent states, and of a pleasant mild flavour when cooked. Ed.]

Peaches and Nectarines.

WE are having a good spell of splendid weather for forcing, and very little fire-heat has been required in Peach-houses during the daytime; in fact it is better turned off altogether when the temperature rises to 65° on warm, bright sunny days, to prevent the temperature getting too high, which in very light houses it is apt to do if much artificial heat is used. The chief work in early and second houses will be tying-in the young shoots, which keep as straight as possible; stopping close any shoots at the base of which there are fruit, pinching out laterals and the points of any gross shoots. This treatment applies to old-established trees. Where the trees are young and it is desirable to get the wall or trellis covered as quickly as possible the side laterals may be laid-in, and if well ripened they will produce a good quantity of strong healthy bloom for fruiting next season. Examine borders, and if at all approaching dryness, give a thorough soaking of tepid weak manure-water. Keep a steady night temperature of 65°, allowing it to fall to 60° by morning.

Succession-houses will require "final" disbudding, thinning fruit, and heeling down. Attend well to directions already given as regards syringing trees, damping and watering borders, &c.

Trees in late houses will have set their fruit by this time, and may have a gentle syringing with tepid water twice daily, but it should be done very early in the afternoon to allow them to get thoroughly dry before night. Ventilators must also be closed on cold, frosty nights; but, unless we have more frost than we have had for the past fortnight, no fire-heat need be used. Disbudding will require daily attention. We have only a few trees here on the outside walls, and they are blooming tolerably well. *J. Wallis, Keele Gardens, April 11.*

Plants and their Culture.

STOVES.—The inmates of these houses will now, where under good cultivation, be making a vigorous growth, favoured to a great extent by the congenial weather for many weeks past. The night temperature may range now at about 70°, when the fires are banked up for the night. If found at 65° in the morning do not excite the fires to a great extent when there are indications of a bright sunny day, but rather keep them somewhat steady. Great watchfulness in this respect is necessitated, although it is a point that is often overlooked or ignored as not being worth close attention. Hot pipes and bright sunshine mean an extra and excessive amount of air, thereby causing too rapid evaporation. This is very detrimental to many tropical plants that delight in a moist atmosphere; it also gives encouragement to red-spider and thrips, and is the forerunner of many other evils. If perchance there should be a break of bright sunshine after a cold or windy and perhaps cloudy morning we find it a good plan to run down the blinds if the pipes are hotter than is desirable. This will counteract a too rapid rise of the thermometer, and obviate the giving an undue amount of air. With the increased temperatures now attained a more liberal use of the syringe will be necessary. We shall now make it a practice to use this indispensable article before leaving off time, as well as mornings and at closing in the afternoon. This will more especially apply to such plants as Crotoms, some of the Palms, and any other plants where red-spider is likely to gain a temporary standing. The evaporating troughs must now be kept filled, in which a little guano-water may also be occasionally poured with advantage. Any plants of *Eucharis amazonica* that have given a good supply of flower during the winter should be induced to make a free growth, another good return may then be expected in the summer. Pot any that are become root-bound before the plant shows signs of exhaustion. Give them a good lasting soil of a sound fibrous nature, in the which they can receive abundance of water without danger of becoming sodden. Gesneras should now be shaken out of the old soil and started into fresh growth, such as those that belong to the tuberous-rooted section. Cuttings may be easily struck of *G. Donckelaarii*, and will be found useful in the autumn. Some cuttings should also be struck of *Euphorbia jacquiniiflora*. Plants of *Poinsettia* that are wanted of extra size and vigour may also be sent to and started into fresh growth. An early batch of these plants will be valuable to succeed the *Chrysanthemums* in the autumn. Endeavour to keep the stock of *Thysanacanthus rutifolius* in good health; old plants of this showy subject well repay the extra trouble bestowed on them. These remarks also apply to *Centropogon Lucyanus*, cuttings of which will also make excellent flowering stuff another winter if got in without delay.

WARM GREENHOUSE.—Keep the stock of *Fuchsias* in active growth, potting those on into larger pots that it is desired to increase in size more rapidly. Pinch the young shoots after having made two pairs of leaves, leaving the leader only, if pyramids are required; cease stopping about six weeks before they are wanted in flower, and then feed liberally with manure water. Solanums that have made good growth since they were cut back may be gradually hardened off into a cold pit or frame, where they will be less liable to insects. Coleus of the fancy kinds struck from cuttings this spring should have liberal treatment; they will, however, make more robust and sturdy growth, if not grown in too much heat. If intended later on for the conservatory, see that the pots are well filled with roots previously, in order the better to withstand rough treatment. Some plants of

Plumbago capensis grown on now will be useful for the same purpose. Plants of *Spiranthes* that have ceased flowering may be spurred back if becoming too encroaching in size. These plants are best as standards in my opinion. Indian *Azaleas* that have flowered and which are starting into fresh growth should be potted, if this operation is necessary; a good long season will then be before them in the which to lay hold on the new soil, which should consist of the best of peat only, if durable plants are desired. *Camellias* also will now be making their season's growth, this will be greatly aided by a moist atmosphere. Potting of these had better be deferred till the young shoots are somewhat hardened, but should be seen to before the buds are set. *Abutilon Sellowianum marmoratum* should have attention paid it, being a most useful decorative plant. The next season's stock of *Bouvardias* and tree *Carnations* must be seen to; do not let any remain too long in their cutting pots. A late batch of pot roses placed in a genial atmosphere will come in serviceable before those from outside are to be had in any quantity. *James Hudson, Gumerbury House, April 11.*

SALVIA GESNERIFLORA IN SMALL POTS.—Plants of this *Salvia*, with from six to eight flower-spikes growing in a 48-sized pot, make very pretty ornaments for a sitting-room during the spring months. A number of plants of many varieties of *Salvia* are so common that well-grown small plants are seldom seen, if indeed many people attempt to grow them. That, however, they can be grown into handsome objects there can be no doubt. A gardener in a leading establishment in Devonshire grows a whole batch of them for furnishing purposes, and the dwarfness of the plants, and their healthy foliage, as well as the freedom with which their flowers are produced, should at least attract the attention of cultivators who require quantities of easily-grown plants for various decorative purposes. The point in their cultivation that must be especially attended to is to nourish the plants well, so as to retain abundant foliage, as under a restricted system of cultivation, flowers are freely produced. *H. H.*

Notices of Books.

Our Homes, and how to Make them Healthy.

Messrs. Cassell & Co. are publishing in monthly parts what promises to be a very useful treatise on the construction and arrangement of dwelling-houses in all their details. Some knowledge of the requirements of a house as regards health and comfort is obviously desirable for every one who has to live in one; but unfortunately, in most cases, the home-dweller is almost entirely at the mercy of the builder, to whom smallest of outlay—we will not call it economy—is the guiding consideration. Most people cannot build their own houses, and on the principle of subdivision of labour it is better they should have this to those whose special business it is to build. Unfortunately, however, the builder requires to be overlooked, and one of the most urgent demands of the day in and near our towns is some system of independent inspection, whereby proposing tenants and indwellers might be reasonably assured that the essentials of health and comfort were duly complied with by the builder. No dwelling-house should be allowed to be occupied previous to the inspection and certificate of an independent and competent surveyor. In the meantime publications like this of Messrs. Cassell may do much good.

A Practical Treatise on Tree Culture in South Australia. By J. E. Brown, F.L.S.

This is a useful little book, pointing out the desirability of planting trees in South Australia, with a view of improving the climate, of increasing the quantity and quality of her agricultural products, and of promoting prosperity in every department of her industries. Sound practical directions are given as to the preparation of the soil, the number of trees to be planted per acre, and their distances apart, the special measures to be adopted in particular situations—such as the sea-coast, parks, and streets; the best forms of tree-grains, the most appropriate methods of pruning and thinning, the formation of hedges, and the like matters, applicable in any country. Besides this, the cultivation of *Wattles* (*Acacias*) is advocated for the sake of their bark used for tanning, and an explanation given of the method of treating of plants in Bamboo tubes or joints of *Arno do* donax plunged in the ground, and in which the seeds are sown. After a year or two the seed beds are removed, leaving the roots of the young plants at liberty. A descriptive list of trees suitable for planting in South Australia is given, and, at the end, a monthly calendar of operations. The book is eminently practical, and much of it is applicable anywhere.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY	April 17	Sale of Imported Orchids, at Stevens' Rooms.
		Sale of Established Orchids, &c., at the Mary, by Protheroe & Morris.
TUESDAY	April 18	Sale of specimens, Plants, of the Koppell Park Nursery, Norwood Road, by Protheroe & Morris.
		Flower Show in Town Hall, Birmingham (two days).
WEDNESDAY	April 19	Sale of Established Orchids, at Stevens' Rooms (two days).
		Royal Horticultural Society of Ireland's Spring Show.
THURSDAY	April 20	Linnæan Society meets at 8 P.M.
FRIDAY	April 21	Sale of <i>Lilium auratum</i> Bulbs, at Stevens' Rooms.

IT is quite evident that we have not yet got to the bottom of the question, TO PRUNE OR NOT TO PRUNE? There is a great deal to be said upon both sides, and when that is so each case must be judged upon its own individual merits, and no attempt made to draw a hard and fast line. What will suit in one locality or under one set of conditions will not do so in another. What is appropriate treatment for one variety is not so for another. Hence the great value of basing our experience on extended experiment, and not on observation merely. We have been led to make these rather trite remarks from having lately witnessed an interesting experiment now in progress at Gunnersbury under the care of Mr. HUDSON. Mr. HUDSON had reason to be dissatisfied with the unproductiveness of some standard Pears of Josephine de Malines and of Williams' Bon Chrétien. These had been pruned and cut back in the usual manner, but their yield was not in proportion, indeed they were almost barren.

Thinking that this recurrent though partial removal of lungs and kitchen—for that is what it amounts to—might afford a reason for this unproductiveness, the experiment has been made, as has indeed often been done before, and is all but universal in market gardens, of letting them alone, for a time at least. A tree of Josephine de Malines, previously nearly sterile, was suffered to grow at its own sweet will for the last two years, and is now full of bloom—the flowers produced, not on thick scabby fruit-spurs, but on the ends and along the sides of long slender whip-like shoots as flexile as withies, characteristic of this variety. The Bon Chrétien is in like case, but its habit, as our fruit-growing readers well know, is different. Another tree of Josephine de Malines close by, which has only been left alone for one year, has scarcely a bloom upon it. Whether it will clothe itself with a livery of white next season depends on the season, and remains, of course, to be seen, but the experience of its fellow gives good ground for expectation that it will do so if the conditions are otherwise favourable. Again, it by no means follows because in a certain variety known to produce its flowers in a certain way the let-alone policy succeeds for a time that it is best for all other varieties, or even for that particular variety, for a continuance. It would be so, no doubt, if we wanted timber; but we do not ask for timber from a fruit tree. It must not, however, be overlooked, that in the artificial cultivation of fruit, as we understand the term, in gardens, the conditions of growth must be to a large extent, and up to a certain period, the same as those regulating the growth of leaves and wood. The fruit of the Grape, of the Apple, of the Pear, or what not, in its natural state is a very different affair from what our ancestors and ourselves have made it. It follows that the conditions, such as gradual arrest to growth, by heat, by drought, or in what manner so ever produced, which are more or less essential to the production of fruits and seeds in the natural state, are not necessarily the same, at any rate in degree, as those which are concerned in the production of garden fruits.

The fruit of the Pear and of the Apple is the core; the fleshy covering to the core which

we call fruit is not really so. Hence it will readily be understood that the direction and amount of growth required to produce a thick fleshy flower-stalk with its savory principles stored up in it may be very different from those demanded by the relatively small wild fruit and from those required for the most perfect elaboration of the true fruit and seed. We do not as a general rule grow Cucumbers or Grapes or Pines for their seeds. The most perfect cultivation of either of these would be—*is*, that which ensures the continuous and rapid growth and development of the pulpy investment of the seed, which is a different matter altogether from the development of the best seed. Quick, continuous growth, high feeding proportionate to digestive powers, fresh air and plenty of it, if at the right temperature, these are among the things to be aimed at, varying, of course, according to circumstances. But when fruit has to be "set," and when the ripening process begins, and especially when seed has to be ripened—when within its tissues food has to be stored up for the young plant within—when colour, flavour, aroma have to be got into the fruit, or what we call fruit—then our treatment at once becomes different. We cut off supplies to some extent, we raise the temperature, we turn all attention to the consolidation and maturation of what we have got rather than to the obtaining of more. Even light, if we consider it as apart from temperature, is now not so essential as it was.

Modern science, though it has vastly increased our knowledge of detail and greatly extended our resources, has not been able to lay down for us, nor is she likely to do so, any better guiding principles than our forefathers had of altering our tactics according as it is growth or maturation we are trying to promote. Our modern improvements, our cucumber growing by express, our rapid Pine culture, show that we know better how to apply the principles of action than our forefathers did, and assuredly we have better means of doing so, but the principles themselves remain and will remain. It is by their study and by their careful adaptation to particular cases and varying conditions that we shall solve the problem of how and when to prune, the allusion to which has suggested these remarks. But assuredly there will be no royal road in the future whatever advance we make. Circumstances and conditions will always vary to the end of time, and our knowledge and our power to use it will be as severely tested in the future, whatever progress we make, as in the past. This hopeful progress in these matters is the great joy and encouragement of the cultivator amid his many discouragements. "The scientific gardening of the future may," as was well said recently in our columns by an excellent gardener and an eminent physiologist, "be a long time coming; but come it will; and each of us can hasten its advent by careful observation, intelligent trials, and conscientious reflection."

— MENTHON AND ITS GARDENS. — The visit of our QUEEN to this terrestrial paradise would have been very incomplete had it not included repeated visits to the gardens of our excellent friends and renowned gardeners Dr. BENNET and Mr. HANBURY. At various times it has been our privilege to inspect these gardens, and to chronicle our impressions of their contents, and the skill, patience, and knowledge which have got together such collections in such lovely spots. We have also on several occasions been enabled to lay before our readers illustrations of gardening on the Riviera. Only recently we gave a double page illustration showing what has been done at Monte Carlo, and now we are enabled to give, in addition to our previous woodcuts, another of Mr. HANBURY's garden, just across the Italian frontier (p. 501), taken from the opposite point of view from that before given (1874, vol. ii., p. 35).

We need now add no more to what we then said, than cite what Canon HALE says in his recently published pleasant work, *Nice and Her Neighbours*, wherein he tells us he saw, "Mr. HANBURY's famous gardens, and therein the grandest Agaves which we saw in France [Italy]—*picta*, with leaves 7 feet in length; *applanata*, *striata*, and other varieties, one of which had borne 1000 flowers! With these were countless specimens of trees and plants, rare and beautiful, ornamental, useful, and grotesque; the *Casuarina quadrivalvis*, with leaves like the feathers of its namesake, the Cassowary (1), *Pereskia subulata*, a Cactus with woody branches, *Raphiolepis salicifolia*, *Euphorbia abyssinica*, 15 feet in height; giant *Ferulas* in bloom, and *Opuntias* in fruit; and of flowers, the fragrant *Stauntonia latifolia* (introduced by Sir GEORGE STAUNTON, from China), the *Echium fruticosum*, with great blue spikes like a Delphinium; exquisite specimens of the single Banksian Rose, &c. We saw, but needed not to taste, the *Catha edulis*, which the Arabs used before the introduction of Coffee as a cure for drowsiness, and, as they said, for low spirits also; for we were enlivened both by *caffé* and cheerful converse in Mr. HANBURY's charming home, by that kindly welcome which all true lovers of a garden know so well how to give and to enjoy."

— TELEOPA SPECIOSISSIMA. — Mr. GREEN is to be congratulated on flowering this very noble Protead, the Waratah of New South Wales. It has long been in cultivation, but has flowered only at long intervals. Those who on Tuesday last saw the glorious spike from Pendell Court will long to try their hands also. Mr. GREEN grows it in a cool stove, gives it abundance of water when making its growth, and secures as perfect a rest and consolidation for it in winter as possible by keeping it very dry. It is lamentable to think of the glorious Banksias and plants of like affinity that our forefathers used to grow, but which we so seldom see now. Their old hot and dry stoves suited these plants better than the moister atmosphere which we with our better glazing and constant damping down secure. We hope shortly to give an illustration of Mr. GREEN's specimen, hner than any figured hitherto, and finer, as we learn from those who have seen it native in the vicinity of Sydney, than under natural conditions. Gardeners do not like to give room—indeed, cannot do so—to things of this character that take up much room and are shy bloomers; but the latter tendency is one the gardener should take pride in correcting. It is noteworthy that two such glorious plants as the Teleopa and the Doryanthes should have bloomed simultaneously, and been shown at two successive meetings of the Royal Horticultural Society.

— LINNÆAN SOCIETY MEETING. — The following papers are to be read on Thursday, April 20, at 8 P.M.:—1. "Male Pterisporian Organs Ancillary to Generation in Butterflies;" by P. H. Gosse. 2. "Himalayan Alge;" by Professor DICKIE. 3. "New Varieties of Sugar-cane by Planting in Apposition;" by Baron DE VILLA FRANCA and Dr. GLASS.

— EARLY-FLOWERING SPIRÆAS. — One of the prettiest and most desirable of these handsome ornamental shrubs is the pretty little Japanese *S. Thunbergii*, with its clusters of starry white blossoms. It makes an excellent plant for growing in pots for window or cool conservatory decoration, and bears slight forcing well. According to STEB. and ZUCC., *Flora Japonica*, it grows in such abundance on the mountain slopes and high valleys in Japan as to clothe whole sites with a snowy mantle; this has earned it the Japanese name of "Snow Willow." *S. prunifolia* is another desirable Japanese species which has been known in gardens for some time; its pretty double white blossoms are borne in clusters along the slender twigs, and open before the leaves are fully developed. The single form is unknown in cultivation, in spite of the fact that the name *S. prunifolia* flore simplex appears in some Continental catalogues. *S. confusa*, a native of Southern Russia, produces freely, in company with the two previously-named species, corymbs of rather large white blossoms. It is one of the most desirable of hardy early spring-flowering shrubs.

— MUSHROOMS. — A curious matter has lately been brought before us which, perhaps, would scarcely be worth notice if it did not give occasion to

say a word about a circumstance lately noticed in the *Gardeners' Chronicle*. A well known person writes that some twenty-five years ago, when there was an extraordinary growth of Mushrooms, he feasted on them at all meals, and was in the habit of picking them up as he walked in the country and eating them raw. WILDENOW long since proved that this may be done for some weeks with perfect impunity, if they are eaten with the coarse bread of the country, which ensures a proper mastication. It does not

though there is high probability that such may be the case. BREFFELD has shown that not only spores of Coprini may germinate and produce perfect plants in the laboratory, but that fragments of the stem and pileus may produce secondary pilei. There is, however, no instance of anything of this kind taking place within the human frame. In the medical jurisdiction case at Bury St. Edmunds it was proved, in a case of supposed poisoning, that what were supposed to be germinating fungi were in reality nothing more

severe winters, prior to which they produced heavy crops annually. They are planted in a sheltered situation, having a range of offices upon one side and a brick wall upon the other. To a stranger not knowing the climate the sight of such a row of Fig trees in fruit in the open air creates a feeling of surprise, but in South Devon a heavy crop is looked for as a matter of course. It is worthy of remark that the Black Ischia is far more prolific at Powderham than the Brunswick, which is everybody's favourite

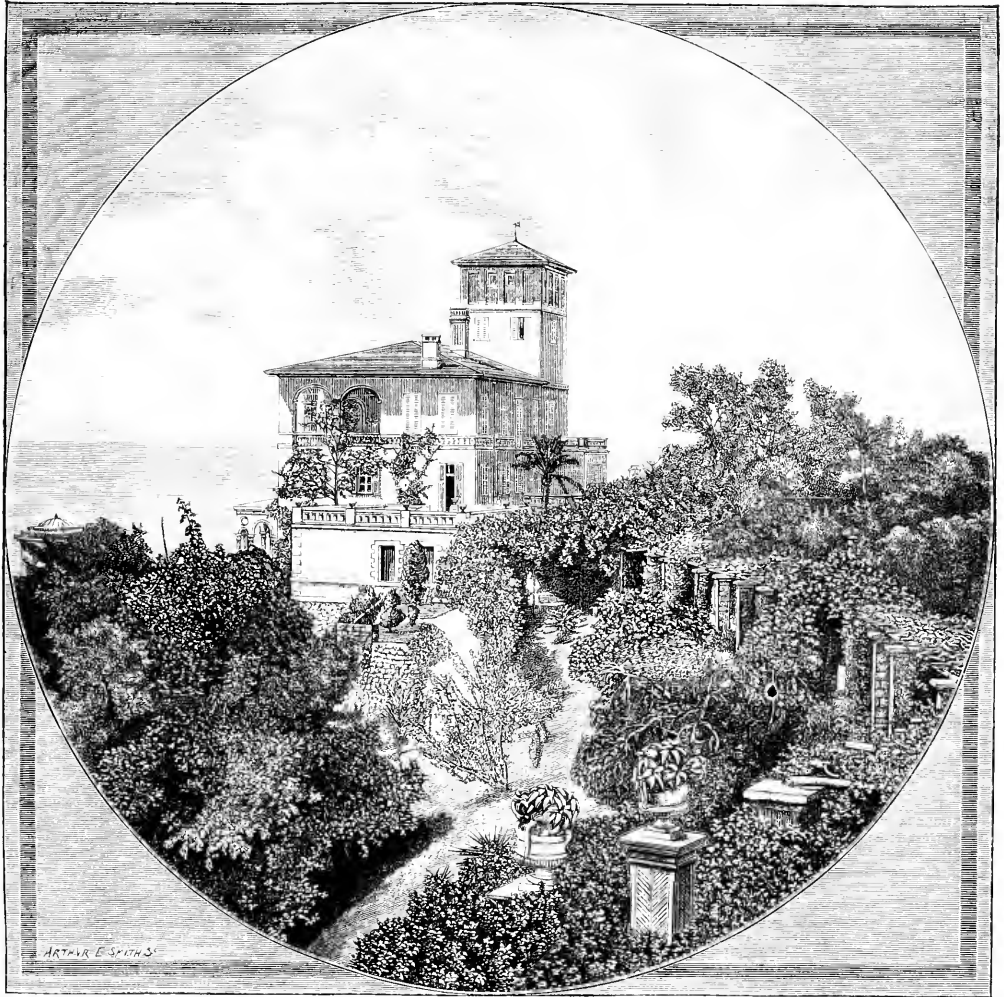


FIG. 79.—MR. HANBURY'S GARDEN AT LA MORTOLA, MENTONE. (SEE P. 500.)

appear that any such precaution was taken, and therefore we are not surprised that our authority was one day seized with violent pain, accompanied by all sorts of miseries, which it is not necessary to give in detail. But eventually a tough fibrous substance, 5 inches in length, was passed, which was believed to have arisen from germinating spores [or more probably exfoliation from the lining membrane of the bowel? ED.] It is doubtful whether even the spores of the common Mushroom can pass through the intestines in a condition to germinate,

than little lumps of chalk derived from chalk mixture. In the case of those flies which live largely on spores of fungi or pollen grains, what are found externally almost intact are quite void of protoplasm or endochrome, all having passed away in the process of digestion. *M. 7. D.*

— STANDARD FIG TREES.—The standard Fig trees at Powderham Castle, the seat of the Earl of DEVON, are remarkably fruitful this season, and are fast recovering from the injury sustained in the late

farther north. The wood is much smaller, and at a rough calculation it is not much wider of the mark to say that the ratio in which the two varieties yield fruit would be as three of the former is to one of the latter.

— TROPÆOLUM TRICOLORUM GRANDIFLORUM.—A plant in the cultivation of which Mr. AYSON, of Oxtou Hall, Devonshire, has achieved remarkable success this season, is that above mentioned. The conservatory at Oxtou contains many specimens of them trained in many ways, but all of them in perfect

health, and a living mass of their bell-shaped flowers droops gracefully below the foliage. To repeat that they are more than ordinarily well cultivated is not saying a word too much in their praise, and the care bestowed upon the training of them seems quite equal to the pains taken in their cultivation. But after all, a plant or two trailing in a natural way over one or two branches, and relegated to an obscure position in a vinery, took the writer's eye, who, while not despising a trained specimen, gives preference to Nature's method of training creeping plants.

— THE OOO AGAIN.—The average percentage of seed that may be expected to germinate, or rather the percentage that constitutes "first-class growth," received a somewhat wide interpretation the other day in Edinburgh, according to a report in the *North British Agriculturist*. "First-class" growth seems to imply, in the opinion of some dealers, a growth from 60 to 70 per cent. Others fix 52 to 92 per cent., while, in 1880, the best class of Turnip seed supplied by growers ranged from 90 to 96 per cent. It is clear that, quite apart from the intentional admixture of dead seed for the purposes of equalising the percentage growth of one year with that of another, some allowance ought to be made for imperfectly ripened seed which might be included in a sample without any intention to deceive or regulate samples.

— "PLANTER AND FARMER."—A monthly journal under this title has just been started at Brisbane, Queensland, devoted to the interests of tropical and semi-tropical agriculture. Matter or "copy" is evidently not wanting to the new venture, as the opening sentences of the first paragraph convey an impression that an article on the milk trade has been "held over." Wood engravers are few in the colonies, we are told, in Brisbane there is not one—a hint to somebody. It is serious to read of the spread of the *Phylloxera* in the Geelong district of Victoria.

— LEAFY-FLOWERED PRIMROSES.—A not unfrequent malformation in Primroses of various kinds is the presence of a leafy calyx. It occurs now and then in the common Primrose, frequently in the Chinese Primrose, rarely in the Cyclamen. Now we have before us a plate in the last number of the *Botanical Magazine* of an *Androsace* in a similar condition. The plant is *A. rotundifolia* var. *macrocalyx*. The tuft of leaves at the base of the umbel and the leafy calyx beguiling the rose-coloured flower is very pretty and effective, though not to the taste of the specialist we fear.

— RHODODENDRON BAREBATH.—In the garden of JOHN STEWART, Esq., Secretary of the Royal Caledonian Horticultural Society, at Glensack, Musselburgh, there is a fine plant of this species now in bloom with seventy-three trusses of flowers on it.

— MAGNOLIA GRANDIFLORA.—A Pontypool correspondent informs us that he cut a fully expanded bloom of *Magnolia grandiflora* on the 10th inst.

— RHODORA CANADENSIS.—The umbel-like clusters of showy rose-purple blossoms clothing the leafless bushes of this handsome shrub during early spring render it a desirable occupant of the shrubbery border. The species requires for its successful management a damp peat border. In GRAY'S *Manual* a white-flowered form is mentioned. Is this in cultivation in this country? The purple-flowered type was introduced from Newfoundland by Sir JOSEPH BANKS in 1767.

— RIBES SPECIOSUM.—A very pretty wall plant is this Ribes, chaste in appearance, and of compact habit. It makes a striking object where it succeeds well, as it does at Powderham Castle in a north-east aspect facing the sea. The plant is trained against the wall of the Castle. It has leaves like the Gooseberry, and yields numbers of miniature scarlet flowers, not unlike some of the old type of Fuchsias, but smaller. In a more sheltered situation and better aspect it would no doubt make a beautiful and interesting plant for covering low walls.

— THE COLOUR OF FLOWERS AND LIGHT.—The specimen of Hyacinth shown to the Scientific Committee by Mr. SMEE on Tuesday last is noteworthy as illustrating a point in the physiology of plants. A Hyacinth had been accidentally placed in

complete obscurity, with the result that the leaves were blanched, but the flowers preserved their deep blue colour. Light is essential to the formation of leaf-green (chlorophyll), but not of the colours of flowers. It should, however, be remembered that the bulb contained within itself a store of food available for the production of colour, and this food could not have been stored up except for previous exposure to light.

— THE BANK HOLIDAY.—Kew Gardens were visited on Monday by 56,600 persons; and the Royal Horticultural Society's Garden at South Kensington by 8000, the latter showing a falling off of 4000 as compared with last year.

— THE COLLECTIONS OF HARDY AND EXOTIC FERNS in the York Nurseries of Messrs. BACKHOUSE are very select and extensive—some of the New Holland Ferns, especially Dicksonias, being very remarkable. *D. chrysotricha* is very distinct and well adapted for large conservatories. The fronds are very broad, the midrib being thickly studded with yellowish hairs. *D. fibrosa* is also a desirable species. *Gleichenias* are very well grown. *G. Mendelii* being one of the best. *G. polyodioides* is a new species, and very distinct. The fronds are of a lively green colour, slightly glaucous; the plant succeeds better on blocks than grown in pots in the usual way. Amongst hardy Ferns *Adiantum Capillus-veneris cornutiense* is a very elegant form, of free growth. It may almost be described as a greenhouse variety of *Adiantum farleyense*, as the fronds so very much resemble those of that fine Fern, the pinnae not being quite so broad or so fragile.

— ANTHURIUM ANDREANUM is grown well in the York Nurseries. The plants are rather more freely exposed to the sun than is usual, and besides this they are planted so that the plant may attach itself to an old tree Fern stump, which it speedily does, the roots running up to the top of the stump and down the other side.

— MR. KING, late gardener to GEORGE SIMPSON, Esq., Wray Park, Reigate, has, we hear, taken a place at Rowham, near Aylesbury, with the intention of establishing himself there as a grower of choice seeds—a line of business in which such an enthusiastic and successful hybridist should surely meet with success.

— MENZIESIA EMPETRIFORMIS.—The genus *Menziesia* was named by Sir J. SMITH in compliment to ARCHIBALD MENZIES, the companion of Captain VANCOUVER in his voyage round the world—"one of the most excellent of men and the most liberal of botanists." According to the *Botanical Magazine*, tab. 3176, this plant was first raised in Britain in the Botanic Garden at Edinburgh from seeds collected by DRUMMOND on the Rocky Mountains more than fifty years ago. It first flowered in this country in 1831. This handsome little Heathwort is now blooming finely at Kew, and as a rock plant or as a member of the peat border there are few more desirable things. It does not, however, appear to differ from our own native species, the extremely rare *Menziesia coerulesca*—now quoted in British Floras under the name of *Phyllodoce coerulesca*—which, although found in Scandinavia, mountains of Western France, Pyrenees, and from Siberia to Kamtschatka, is confined in Britain to the Sow of Athol, in Perthshire, at an elevation of 2700 feet above sea-level. The nodding urn-shaped purplish corollas are produced in clusters at the tips of the short branches.

— VINCA VARIEGATA AS A BORDER PLANT.—No more useful or striking plant can be desired at this season than the subject of this notice, which, when grown in a clear open situation, is beautifully variegated and produces a profusion of azure-blue flowers, which contrast agreeably with the silvery markings of the leaves. "One of the best things out to cut from in winter," said a gardener the other day who occupies an important position, and who grows flowers extensively for cutting every day in the year. Its bright silvery shoots go well with green of any kind, and you can cut and come again, for plants grow so rapidly almost anywhere that you may cut as much and as often as you please. Continuing the conversation, the same cultivator remarked,—"I obtained a plant or two of it out of a cottage garden a few years

ago and now would not be without it." You can compare it with any other plant in the border, and judge fairly as to general merit and usefulness it will hold its own with any of them. When it is grown stubby, every shoot being rigid and self-supporting, and clothed with flowers in the manner referred to, it makes indeed a pretty border plant. A bed or mass of it would look even better, and owners of small gardens should not ignore it, because it is not difficult to grow and only costs a trifle to purchase it.

— NIPHON CAUCASICUM.—This species, which is a native of the Caucasus and Northern Persia, was figured long ago in SWEET'S *Flower Garden*. It was then spoken of as being very rare, and in a short time afterwards it seems to have disappeared from cultivation. A few years ago it was reintroduced, and in the Iris collection at Kew it is now in flower. It is a pretty plant, about a foot in height, with glaucous green leaves and yellow flowers.

— EUPHORBIA PALUSTRIS.—As a border plant or as a subject for the wild garden this handsome perennial Spurgewort may be trusted to take care of itself. It is, moreover, an early flowering species, and its large soft yellow-green bracts and leaves make a fine show when set off with a background of dark green. It was cultivated by old GERARD nearly three centuries ago.

— DEUTZIA CRENATA FL.-FL.—This charming hardy shrub, which grows to an immense size near the seacoast in Devonshire, is one of the best of plants for indoor decorative purposes during the months of March and April. It requires little more than the shelter of a glasshouse to bring it into flower early in the present month, indeed the plant dislikes to be hurried too quickly into flower, but brought forward quietly and arranged in conjunction with scarlet *Azaleas* the effect is delightful. Perhaps spring flowers, after all, are the most effective of all, for purity and distinctness of colour rivet attention when a mere glare only catches the eye for a moment. A tall plant or two of this *Deutzia* worked in as a background one never tires looking at if its associates are rightly selected. The flowers are as delicate in appearance as they are graceful in habit, and if the plant is tilted at the back just a little an improvement upon Nature is thereby effected.

— HARDY PLANTS AT CHISWICK.—Mr. BARON is evidently determined that the Chiswick Gardens shall never be without matters of interest, let the season be what it may; and lovers of hardy flowers are sure to be interested at this period of the year. *Puschkinia scilloides* is a very pretty dwarf Scilla-like plant, bearing racemes of flowers eight or ten on a stem, the blossoms something like those of an Allium. It has done well in the open border on the north side of the large vinery, where huge clumps of the spring Snowflake are flowering grandly. These clumps have established themselves, and are now blooming with great freedom. Clumps of *Narcissus odoratus rugulosus*, known in the trade as the *Campernelle Jonquil*, are also flowering nicely, some of the stems carrying only one, others two and three flowers of a very pleasing golden hue. It also makes a good pot subject. On the rockwork and also in beds the charming little *Erica mediterranea alba* is quite an alluring subject. Mr. ANTHONY WATERER once described this as the best of all the spring-bedding plants, and he was not wide of the truth. What delicious little tufts it makes! *E. herbacea*, with its rose-coloured flowers, is a little earlier, and is very pretty also. *E. mediterranea* appears to be a little later in flowering than the white variety. *Saxifraga retusa*, with its rosy-pink flowers, is also very attractive on the rockwork, and has a compact growth; it is also a charming subject for pot culture. *Anemone apennina* is flowering freely on the rockwork; the blossoms have a shade of mauve peculiarly their own. The pretty little *Narcissus rupicola*, from the Escorial, has very pretty yellow flowers, and is quite a precious floral gem. *Chionodoxa Lucilliae* on the open rockwork has spikes of from seven to ten flowers, and when the plants become thoroughly established even larger spikes may be forthcoming. The *Epimediums*, and especially the yellow-flowered varieties, are getting very attractive; and on the summits of the rockwork the double Periwinkle is blooming freely. *Androsace carnea* in pots is very pretty, its pale pink flowers are freely borne on minute tufts of plants. *Iberis saxatilis*, from the mountains above

Greece, with its dwarf growth and trusses of small white flowers, is in marked contrast to the giant-like *I. gibraltarica* by its side, that is now fast expanding its large fleshy pink blossoms. *Myosotis dissitiflora* splendens, from Kew, is well named, the flowers being very large and of a rich pale blue. *Aubrieta violacea* is very good, giving quite a lively violet tint among these useful rock plants. *Anemone ranunculoides* may be best described as a charming yellow form of *A. nemorosa*, the colour good, and it should be associated with *A. nemorosa* in semi-wild places. In the open border the golden-leaved variety of *Valeriana Phu* has taken on a charming colour, and it promises to become a very useful hardy spring-leaving plant. Very soon there will be quite a display of the leading new varieties of *Primula Sieboldii*, that have been introduced of late, and these will afford a good opportunity for comparison and selection. *Primula rosea* is in good form, the colours of some of the flowers quite deep, and nearly approaching red shades. It is a very pretty pot subject, coming into flower with *P. purpurea*, *P. intermedia*, *P. marginata*, and others. *P. cashmeriana* is a little disappointing, as it certainly falls below the improved varieties of *P. denticulata* in point of effectiveness, but its mealed foliage and flowerstalks give it a distinctive appearance. The cold frames are replete with interesting subjects, and every day something worthy of attention attracts the eye. The general condition and health of the plants in all departments is worthy of high commendation, the only regret is that so many commonplace plants are of necessity grown to furnish the conservatory at Kensington or for distribution. Under happier circumstances the aim should be to grow what cannot be seen elsewhere, and to test the value of little known or new plants.

— THE HORTICULTURE OF BOSTON.—Colonel WILDER sends us an essay on the rise and progress of horticulture in and near the famous Massachusetts city. As a bit of history—a record of progress—it is very interesting and very satisfactory, while as a literary production it is marked by all the enthusiasm and grace of style which characterise the writings of the venerable horticulturist. Incidentally we are told that the States now number nearly 2000 societies all actively engaged in promoting the cultivation of the soil, and in the enrichment of its products. "Fifty years ago," says the writer, "the products of our soil were scarcely thought worthy of a place in the statistics of our country. Now our exports of these amount to nearly 600,000,000 dollars annually, and our Western granaries are treasure-houses upon which the world may draw to supply deficiencies elsewhere. Then the supply of fruits in our market, excepting Apples, was limited to a few varieties, and to a few weeks of use. Now our markets abound with fruits for all seasons of the year. Then almost the only Strawberry in our market was the wild Strawberry of the field, and that limited to a short season. Now we have in variety these delicious fruits, by the facilities of transportation, for two or three months, receiving from the South in a single day 5000 bushels, and from the single city of Norfolk, in Virginia, 16,000 bushels, and from our own town of Dighton 10,000 bushels in a year. . . . Then the cultivation of the Pear was limited to a few varieties, since which the gardens of MANNING, HOVEY, the writer, and others have embraced more than 800 varieties of this noble fruit. Then no exports of fruit of any note had been made. Now Boston alone has shipped over 600,000 barrels of Apples in a year, and the export of fruit from this country has amounted to nearly 3,000,000 of dollars in a year." In his review of this wonderful progress the author has enumerated various causes that have led to it, but he has forgotten to say that one of the most potent among them has been the example, the energy and genial influence of MARSHALL P. WILDER.

— OUTLINES OF THE COMPARATIVE MORPHOLOGY OF ORCHIDS.—Prof. FITZGER asks us to say that the object of his work, recently reviewed in our columns, was not "How to distinguish Orchids out of flower." As we are responsible for the use of this latter heading, as well as for the insertion of a woodcut which does not bear the interpretation we put upon it, we willingly recognise the Professor's objection, at the same time the interest which our readers would feel in the subject would almost wholly centre in the practical use they could make of it.

Questions of comparative morphology are hardly suitable for discussion in these columns, unless they have a practical bearing. At the same time we must express our regret that there should be a tendency among German botanists to divorce morphology from systematic classification. We should rather say that, from a scientific point of view, each is comparatively useless without the other.

— BONGARDIA RAUWOLFII.—About half a dozen years ago, when this singular little herbaceous barberry was figured in the *Botanical Magazine*, it was stated in the letterpress accompanying tab. 6244 that the species has on several occasions been introduced into cultivation in England, but never kept long. The plant from which the figure quoted was made is now in fine flower at Kew, and does not show any signs of falling away; indeed it is finer and stronger now than it was when it first flowered. It grows in the open border, and is sheltered from excessive rain and moisture by a handlight, under which it flourishes. The cold of winter does not seem to affect the small Potato-like tubers. The pretty foliage is all radical, glaucous green, with the exception of a portion of the pinnules nearest the rachis, which is reddish-purple. The large drooping flowers, with notched golden-yellow petals, are freely borne in branched panicles. *B. Rauwolfii* was described by RAUWOLF in 1573 as the true *Chrysozomum* of DIOSCORIDES, in a chapter of his travels devoted to "A short and plain narration of plants which I gathered during my stay at Halepo, in and around about it, not without great trouble and danger, which I glued upon paper very carefully" (RAY).

— TESTIMONIAL TO MR. CRUMP, LATE OF BLENHHEIM.—To express their esteem for and their regret at his leaving, the workmen employed in the above gardens have presented Mr. CRUMP with a silver-plated tea-service, accompanied with their best wishes for his success in the market garden business he has entered on at Leamington.

— THE LATE MR. FRANCIS.—To one to whom the newspaper press of this country is under the deepest obligations for the strenuous and successful efforts he made to free it from vexatious and costly restrictions which hampered the diffusion of knowledge, we desire to add our tribute of respect. Mr. FRANCIS had been for so long a period publisher of the leading literary journal, the *Athenaeum*, that we believe he could boast of having been connected with the press longer than any other contemporary, and so connected as to have ensured the respect of all with whom he came in contact.

— RHODODENDRONS AS CONSERVATORY PLANTS.—The excellent group of these in pots staged by MESSRS. H. LANE & SON, of Beikhamstead, in the conservatory at the Royal Horticultural Gardens on Tuesday last, illustrated in a remarkable degree the great decorative value of Rhododendrons for spacious conservatories. Plants of fair size—certainly not too large for the purpose—were seen laden with enormous trusses of really splendid flowers. The selection of varieties, confined to some thirty or so plants, was an excellent representative one. The greatest brilliancy of colour found in the Rhododendron was illustrated in Michael Waterer, John Waterer, Nelson, bright magenta-rose, very fine; James Bateman, very fine and showy; Admiration, Marchioness of Downshire, Crown Prince, and Baroness Rothschild, edged with vivid rose, very fine—these may all be grouped under the head of scarlet and crimson shades. Sir Joseph Whitworth is probably the darkest Rhododendron we have; it is almost black, and forms an excellent contrast to the brighter coloured sorts. Sir Isaac Newton, pale purple; and Sir Thomas Sebright, dark purple, are very attractive because of decided tones of colour. Into the magenta and rose coloured group come some extremely pleasing varieties, such as Aganennon, delicate lilac-rose, very fine; Concessum, warm pale pinkish-rose, very fine; Kate Waterer, very bright rosy-magenta, fine form; and strikingly bold truss; James Mason, edged with rich magenta-rose, very fine; Roseum pictum, in the way of James Mason, but paler on the edge, very fine; Auguste Van Geert, deep purplish-magenta flowers of fine form and splendid truss; and Mrs. Mendel, very free and fine. Fastuosum fl.-pl. is of a distinct lilac shade, and has large and showy semi-double flowers; Vauban, pale rosy-

lilac, very distinct; Everestianum is of a pale peach hue, very pretty indeed. Of the white varieties there are The Queen, Mrs. J. Clutton, and Purity, the last-named the nearest approach to a white, but lacking the fine form of the two former. It was a group to be proud of, and the plants attracted the admiring attention to which they are so justly entitled.

— HYBRID RHODODENDRONS.—Messrs. VEITCH'S fine collection of seedlings of the javanicum section is specially worth visiting just now. Almost every day some new seedling opens its flowers, showing great variations in colour and substance of flower. The inferior ones are discarded, the better ones grown on, and it may be rehybridised, so that we may look for larger flowers and even brighter colours. If allowed to grow on continuously without a check in a temperature of about 60°-65° they will flower repeatedly, but if growth is suffered to be arrested they will bloom only once in the season.

— PUBLICATIONS RECEIVED.—*The Rose*. By H. B. ELLWANGER, Mount Hope Nurseries, Rochester, N.Y. (DODD, MEAD & CO., New York).—*A Manual of Indian Timbers*. By J. S. GAMBLE, M.A., F.L.S., Officiating Conservator of Forests, Bengal. (Calcutta: Government Printing Office).—*The Kufiberry and Strawberry*. By D. T. FISH. (*The Bazaar* office).

— OBTAINING PLANTS BY FRAUD.—On Thursday, the 6th inst., at the Quarter Sessions held at Maidstone, HENRY PIDGEN, alias SAMUEL BEND, was sentenced to six calendar months' hard labour for having obtained from Messrs. J. LAING & CO., nurserymen, Forest Hill, on November last, shrubs, Rose trees, and bulbs, by falsely representing that he was employed as gardener to one of their customers. The prisoner was arrested on March 4, at Chelmsford Gaol, at the expiration of two months' imprisonment, to which he had been sentenced for having defrauded Mr. FRASER, nurseryman, of Lea Bridge, in a similar manner.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending April 10, issued by the Meteorological Office, London:—The weather has been dry and very fine and bright in all parts of the kingdom. Lightning was observed at some south-eastern stations on the 5th. The temperature has been a little below the mean in the north-eastern parts of the country, and about equal to the average, or slightly above it, elsewhere. The thermometer was highest either on the 6th or 8th, when it rose to 65° at Lauderdale (Loch Sunart), 64° at Southampton and Stratfield-Turgiss, 63° at Barrow-in-Furness, Collyumpton, and in London, and to between 55° and 62° elsewhere. The minima were generally registered towards the end of the period, and were rather low, ranging from 26° in "Scotland, E.," to 31° in "England, E.," "England, S.W.," and "Ireland, S." Rainfall has been much less than the mean in all districts. Bright sunshine shows a very decided increase, the percentages ranging from 39 in "Scotland, E." to as much as 66 in "England, S.W.," and 69 in "England, E." Depressions observed:—During the whole of this period a large area of high pressure has existed over Scandinavia and on the northern coasts, while the barometer has been lowest over France. The only depression observed travelled in an easterly direction across France on the 4th and 5th. The wind has consequently been easterly over England and Ireland, and easterly to south-easterly in Scotland. In force it was generally moderate to fresh, but at the close of the period it was exceedingly light, and in many places calm.

— GARDENING APPOINTMENTS.—Mr. G. MAYNARD, for the last six years Plant Foreman to Mr. BESLEY at The Denbies, Dorking, has been engaged to succeed Mr. HENDERSON as Gardener to Sir G. BEAUMONT, at Cole-Orton Hall, Leicestershire.—Mr. WILLIAM UTTERSON, late Gardener to JOHN FURVES, Esq., of Kinaldy, St. Andrews, has been engaged (through MESSRS. DOWNIE & LAIRD, Edinburgh), as Gardener to Mrs. HUGH NIVEN, of Dalnottar, Old Kilpatrick, by Glasgow.—Mr. JOHN CLARK, late Gardener to Sir G. A. C. EAST, Bart., Half Place, Maidenhead, has succeeded Mr. E. CRUMP as Gardener to H. HARRIS, Esq., Stevenston Manor, Micheldever, Hants.

ALPINE PLANTS.

DAPHNE.—The genus *Daphne* comprises a certain number of species which constitute one of the finest ornaments of our gardens. Almost all possess a delicious perfume and an attractive flower. They are sometimes thought to be difficult to cultivate, and especially difficult to propagate, on which account I hope I may be doing service by giving the results of my experience.

Daphne alpina, L., is met with here and there in the Alps, but never in very large quantities. It is a shrub attaining the height of 25–35 centimetres (about a foot) producing from April to June a succession of small greenish-white flowers. It requires a rocky, light, and dry soil. It is generally found growing in the fissures of the rocks, and its roots extend to such a depth that it is often necessary to dislodge the rock itself to obtain the plant. Nevertheless, if it is to be transported to the plains it is necessary, as far as possible, to dig up the whole of the root, and not to select old specimens, but to take those which are small and young. It is generally supposed that *D. alpina* may be cultivated like *D. Mezereum*, by reason of the similarity of their habits, but this is not the case, for while the *Mezereum* requires a moist soil, rich in humus and succeeds well in moist localities, *D. alpina* prefers the dry rock. When I receive plants of *D. alpina* from the mountains I always grow them in pots for a year before placing them out on the rockwork. *D. alpina* succeeds well from seed, and may also be grafted on the *Mezereum* and on *D. laureola*.

D. altaica, Pail., has much resemblance to the preceding species, but its flowers are larger, whiter, and more beautiful. It is an Asiatic species, but succeeds well in our climate and does well on the rockwork. *D. altaica* is of shrubby habit, attaining a height of from 35–60 centimetres (1–2 feet). It flowers in June, and may be cultivated in peat earth mixed with a little vegetable mould, multiplied by seed or by grafting on *Mezereum*.

D. Blagayana, Frey.—This plant, the most beautiful and interesting of our *Daphnes*, was discovered in Carniola in 1837. It is still rare in cultivation. The plant in question is rather difficult to cultivate until its habits are well understood. *D. Blagayana* grows in the clefts of the rocks in dry spots exposed to the southern sun. To cultivate it successfully, therefore, it must be grown at the top of the rockwork in a warm aspect and in a light soil. If it has to be grown in a damp, marshy locality, it must be grown on a slope, as is done in the case of *Saxifraga longifolia* and *Ranunculus pyrenicus*. A peculiarity of this *Daphne* is, that although its stems like an exposure to the full sun, its roots must be kept cool and moist, but not wet. This is the case with many plants which thrust their roots deeply into the clefts of the rocks. Professor Plantamour, of Geneva, had a plant of this species which did not flower, and seemed likely to die. He therefore covered the stock of the plant with moss overlaid with stones, so that the sun no longer scorched the uppermost roots, which in this species have always a tendency to appear above-ground. After this the *Daphne* flowered abundantly every year. The plant is of scrambling habit, but forms little bushes of 25–30 centimetres in height (about a foot). These bushes are covered in April and May with yellowish-white flowers, which have a delicious perfume. It may be grafted on *D. Mezereum* or *D. laureola*, or may be multiplied by layering the numerous branches which trail on the soil. The plant is rarely raised from seed. For soil I advise a mixture of loam, heath-mould, and peat (see fig. 80, p. 505).

D. Cneorum, L., is remarkable for the beauty of its flower and its delicious fragrance. It is scarcely an alpine plant properly speaking, and its cultivation is different from that of true alpine plants, since it is a plant of Southern mountains. Its habit is dwarf, its stems are slender, trailing over the soil and covering the rocks and stones amid which it grows. The stems are completely covered with flowers in May and June, forming large tufts of the finest rose, shaded with a deeper tint of the same colour. The bud is deep rose colour, but the expanded flower is paler. In our rockworks it produces a fine effect, but it may also be grown as edgings, or in clumps, or in the place of turf. The flowers last for about two months. It is difficult to transplant, owing to its large, deeply-penetrating roots. The young plants should be chosen with a large ball of earth. Propagation by

cuttings, but especially grafting on the *Mezereum*, are the best means of multiplying this species. There are two varieties in gardens, one with variegated leaves, and the other with large flowers.

D. Verolii, or *D. Cneorum* *Verolii*, is distinguished from the species by the bark of the old wood, which becomes of a deep brown colour, by its longer leaves, by the colour of the flower (bright rose on both surfaces), and by flowering a fortnight later. This variety is met with in the South of France. The cultivation of it is the same as that of *D. Cneorum*.

D. collina, a native of the Italian mountains, has a shrubby habit, with fine shining evergreen leaves. Its flowers are produced in spring, and are of a deep lilac colour, exhaling a delicious odour. It may be considered as one of the most desirable of rock plants. It requires heath-mould mixed with loam and humus. It may be grafted on *D. laureola*, or propagated by cuttings, like *Cneorum*. There are two varieties—one variety, minor, very pretty and free-flowering; the other with variegated leaves, not often met with in gardens.

D. Ghidoui, L., called in French *garou*, grows wild on the dry rocks of the South of Europe, and forms rounded bushes covered with very closely packed small leaves. The flowers are produced in June in great abundance, and are small, white or reddish. It requires the same cultivation as *D. Cneorum*.

D. laureola, L., is indigenous throughout great part of Europe. I can only express my regret to see it so neglected as a decorative plant, and treated only as a stock for grafting upon. Our forefathers understood its decorative value better than we do, for we find it in most of our old parks, where it was formerly much cultivated.

D. Mezereum, L., is the most widely cultivated species. Its habit of flowering in early spring, before the leaves expand, renders it very desirable. It prefers a soil rich in humus, and succeeds well when highly manured. There are three varieties of it, one with white flowers, the other with variegated leaves, and a third which flowers in autumn. Multiplication by seed is very easy. The seeds should be sown in pots in the shade immediately they are ripe.

D. Masali, a native of Japan, is a plant I do not know, but which is said to be very hardy, and suitable for growing on rockworks and forming edgings. It is very free-flowering and sweet-scented, and is propagated by cuttings or grafts.

D. obovata, L., a native of the Caucasus, has evergreen leaves like those of the Olive, with beautiful white fragrant flowers. It requires a sheltered position in Switzerland, but is, I presume, hardy in England.

D. pantonii, L., is also an Asiatic, and very hardy species (which thrives in London gardens). Its shining foliage is evergreen and very attractive. It bears greenish-yellow sweet-scented flowers in February and March. The two latter species are grown like *D. collina*.

D. salifolia, Lam., is a pretty little shrub with a profusion of white flowers which are produced in April and May. It requires a moist soil, rich in leaf-mould, with which peat soil should be mixed. It may be grown from seeds, or may be grafted, but I have never seen it propagated by cuttings.

D. striata, a Tyrolean species, is one of the prettiest ornaments of the rock garden. It may be cultivated like *D. Cneorum*, to which it has some resemblance, but is more elegant.

The *Daphnes* in general require a rich, light soil, neither too dry nor too moist. If grown in pots they must be grown in a shady and rather dry place. They like a drainage of calcareous pebbles or small pieces of coke, which may be used in the open air as well as in pots. *Henry Corroon, Inspector, Botanic Garden, Geneva.*

BEGONIA LUCIDA.—One of the prettiest groups of plants that can possibly be imagined we saw lately managed with a row of this lovely *Begonia* in the garden of E. F. Studl, Esq., Oxton Hall, Devonshire. The plants are grown for special decorative purposes in small pots, and the usual brightness of the leaf which characterises this variety is, in the case of the plants referred to, intensified, so much so that one would be inclined to suppose that the leaves had been oiled over. But upon closer inspection it is seen that the intense brightness is due only to liberal cultivation. Such stubby little plants, with leaves covering the rim of the pot and bearing several trusses of flowers each, are objects which may be used with good effect alike in the sitting-room, show-house, or conservatory, or, as in the present case, for bordering groups of plants, for which they are eminently adapted.



HOME CORRESPONDENCE.

The Double Crimson Primrose.—This fine old plant can never become a common border flower, as there are two requisites to its cultivation which cannot be attained in the open border. It requires a situation where it can "never see the sun, or feel the frost," as one of the most successful cultivators in Ireland once told me. It is perhaps as well managed in the nurseries of James Dickson & Sons, of Chester, as in any place in England. I saw the other day a very fine lot of strong healthy plants, as well as the old purple (which I think is worse to keep than the crimson), the rose or pink, and the yellow. I was informed that the plants were not so strong this spring as usual, but from what I saw there was nothing to complain of, as single crowns of last year were making three and four crowns each. The best situation is a cold frame with a north aspect, shaded by a wall or hedge; good yellow loam and leaf-mould, three parts of the first to one of the latter, and no manure of any description. Once or twice a year it is advisable to give a top-dressing of the same soil, pressing it firmly round the collar of the plant. They should never be allowed to become dry, and a daily syringing morning and evening in dry, hot weather prevents red-spots, and cures those feelings of very prone. Among more recent additions to this family *P. platyptala* is a great acquisition; it is much harder than the older double forms, more floriferous, and succeeds well either in the open border or on rockwork; in fact, it should be in every collection. *Alpha.*

Tulipa sylvestris.—Possibly some of your readers who take an interest in wild flowers will be glad to learn that this very rare British Tulip is still to be found growing wild in some parts of England. Not far from where I am now writing there is a fine patch of it, a few square yards in fact, and containing probably a thousand bulbs. "Ah, I wish I was there with my trowel," says the commercial botanist and plant exterminator. "Yes, no doubt you do; but there is not the remotest chance for you to commit your depredations, and it will pay you better to stay at home," is the rejoinder. Its bright yellow flowers nodding and glistering in the sun are such to cause a thrill of joy to run through the frame of the enthusiast, and to excite those feelings of very desirable pleasure which one experiences on finding something concerning which his only previous acquaintance has been derived from books, or from statements and descriptions volunteered to him by friends and eye-witnesses. Out of this large number of bulbs there are only three now in flower; this is doubtless owing to their growing so thickly together, forming as they do, in conjunction with weeds and other things, one complete entangled mass of vegetation. *Species* of rare British plants, do any of your readers happen to be in a position to state positively if *Saxifraga repens* (syn. *Linnaea borealis*) is still to be found growing wild or naturalised in any part of Great Britain? *J. Horsfield, The Gardens, Heytebury, Wilt.*

Dielstra or Dicentra?—It is to be hoped that the *Dielstra* will be allowed to retain that generally known name, *Διέστρα* is as good a word as *Saxifraga*, and quite as suitable. *Philomet.* [Botanical names are regulated by botanical priority without reference to classical usage or even propriety. *Dicentra* being the oldest, and the adopted botanical name, should be generally used; but if our correspondent prefer to use *Dielstra*, he will be readily understood, and will not suffer anathema. Ed.]

New Potatoes.—On looking over "A. D.'s" list of above, p. 400, March 25, I find that the following at least were sent out in 1881, namely, *Inglishen*, *Fluke*, *Cromwell*, *Queen of the Valley*, and *Adirondack*, having myself taken them from leading Potato lists in 1881, and had a supply; these varieties, therefore, cannot rightly be said to be "offered in commerce for the first time this season." Potato growers should therefore note this. *W. K.*

The Potato.—Recently, in looking over a history of Shropshire, written apparently in one of the early years of the last century, I met with the following description of the cultivation of the Potato in that county—it may interest some of your readers:—"The soil of this county is found to be excellent for Potatoes, a restorative Delicacy, not much inferior to Artichokes, and propagated with little or no pains in tillage. A few acres of them (so apt are they to increase) will go far in furnishing a city with food, and the country round. They are sold at Bristol market at 4s. per bushel. Children of poor people

will eat them raw, instead of bread or other food, without any detriment to them; but others dress them various ways, as boiling, roasting them in the embers, cutting them in small pieces, and baking them with fat meat in pies; some strengthens their beer with them. They are all these ways strong and wholesome nourishment, and are therefore the more to be cultivated, because they may supply the want of corn in times of famine, as they did for two years together in Ireland, when their corn failed." *Philomelos*.

Rhododendron Nutalli.—In your No. 431 this most beautiful plant is again accused of being a shy flowerer. Since I flowered it for the first time in April, 1858, it continued to flower every year with me until it perished by an accident fifteen years later. The last time it flowered with forty-two trusses. It stood in a rocky corner of a winter garden, and so glorious and truly grand was the sight that I have seen ladies quite overcome when coming upon it unexpectedly. It is, indeed, a pity that this king of the Rhododendrons is so rarely seen in good condition. In the article mentioned it is said that the secret of blooming the plant is to keep it pot-bound. I have done quite the contrary. I had it planted in the best peat mixed with Oak mould, sand, and a little good loam; later on it was planted out in my winter garden and kept rather moist and warm in spring. I possess now four medium-sized plants of this species. Two of them will soon open their flower-buds. That

latum, II. auriculatum, II. scabrum, II. pulcherrimum, II. crispatum, II. polyanthos, Trichomanes Luscitanianum, T. exsectum, T. reniforme, T. venosum, and T. Petersii, many of them from 1 foot to 18 inches across, and grand masses of most of the forms of T. radicans. All are in the most perfect condition, and are a sight worth seeing. They are carefully shaded from the sun, and of course kept moist at all times. I am sure many who are puzzled to get anything to grow in shady window cases could soon form a permanent and beautiful arrangement with these lovely filmy Ferns. Mr. Foster agrees with me that these things are never safe in heat. *James O'Brien*.

Hyacinths and Tulips.—At Cintra Lodge, Whitley, Reading, the residence of Martin Hope Sutton, Esq., there is at the present time as fine an example of bulb gardening as any one could wish to see. The fine weather of the present season has, of course, assisted largely the perfect development of the flowers—and they are really perfect—the Hyacinths particularly so, all kinds being quite as fine as those grown for exhibition purposes. For the most part they are planted in separate colours in large masses—small circular beds containing about a hundred bulbs—larger circular beds being also planted in masses, the bed being divided into three equal parts—black form—red, white, and blue being the three colours used in those filled with Hyacinths. Single kinds only are used, and the best are *Mimosa*, dark purplish-

of labour. Thus much as to the open-air department of this at all times beautiful and well-kept garden, and at the present time especially so; but it is only right to add that the houses, equally with the outside, testify to Mr. Sutton's love of his garden, and to the skill and energy of his gardener. *H.*

Bulbs in Spain.—I know of few things more surprising than the extraordinary abundance of bulbous plants in the meadows in some parts of Spain. I shall never forget a large sort of meadow or common just outside of the city of Leon, in which Mr. Maw and I took a walk one evening after dinner. It was covered with countless thousands of *Colchicum*, *Muscari*, *Bellevalia*, *Narcissus*, &c. There were almost as many leaves of various bulbous plants as blades of grass. When that meadow is in full bloom it must be a glorious sight. The meadows in another direction outside the walls of the same city were profusely enamelled with a small golden-yellow *Corbularia*, which I should call *C. bulbocodium* minor. Near the city of Oviedo the large and lovely *Corbularia citrina* thickly studs the grass. Between the Escorial and the station of Naval Peral, the line runs through carpets of the beautiful little *Corbularia Graellsii*. In the vicinity of Naval Peral and Naval Grande, the wet mountain meadows are clothed with gold by the blooms of the tiny little *Corbularia nivalis*. I think, however, the sight which astonished me most was a small damp meadow just outside the seaport town of Gijon, in the province of the Asturias. It was literally choked with a *Colchicum*, several species of *Narcissus*, *Scilla umbellata*, *Serapias lingua*, and various species of *Orchis*. The farmer, apparently in despair of getting a crop of grass, had dug up the bulbs wholesale where they were thickest, and they laid strewn about the meadow. I collected a number of them. Two species were then in bloom, *Colchicum bulbocodium* (the typical species), and *Narcissus biflorus*. I have since my return bloomed two other species, e.g., *Narcissus chrysanthus* and *Corbularia citrina*. *H. Harper-Creech, Drayton-Beauchamp Rectory, April 5.*

Proliferous Pines, &c.—In a recent number of the *Gardeners' Chronicle* there is an excellent figure of a prolific Pine-apple. Permit me to mention a fact which occurred in the Pine-pits of M. Vallerand, of Bougival. All the Pine-apples there cultivated, of whatever variety, became prolific; the suckers of the year, the young plants of two years old, and the fruiting plants, all without exception fruited, it will be readily believed to the despair of the gardener. Not a single plant escaped this phenomenon. The Pine-pits contained plants bearing fruit of different sizes but all presenting at the same time this curious anomaly. Another thing inexplicable to me is the simultaneous appearance of the same anomalous form, sport, in different individual plants of the same species, and which are not placed under the same conditions. We grow here at Argenteuil two varieties of Figs very different in general appearance and habit, the violet Fig and the white Fig; an intermediate variety, with a red skin and white flesh, was produced two years ago on a plant with violet fruit, and the same thing happened in another garden also. The branches of these layered have produced plants which will, I hope, preserve this character. We have reason to hope that this may be so since one of my neighbours possesses a Fig nearly a hundred years old presenting this character, and which is the result of a like anomaly. These Figs have been called after the names of the cultivators in whose gardens they made their appearance—Joret, Defresne, Cottard, &c. I avail myself of the opportunity to inform you that the seeds of the Soudan Vine, originally introduced by the late Lecart, and of which I have received a fresh importation, have come up well. The seeds which I received from Soudan six weeks ago have germinated well, and will afford us an opportunity of testing the assertions made by Lecart as to the probable value of these plants in European vineyards. *Godfrey, Argenteuil, France.*

Camellias.—For general decorative purposes few plants are more valuable than Camellias, as they are not only exceedingly showy, but they come in at a time when flowers are scarce. The season when they are the most prized and pay best to grow is during midwinter, and to have them then many attempt to force the plants by subjecting them to heat just before, which is a great mistake, as any extension of heat caused by artificial warmth causes a shedding of the buds, and if by chance any should remain on, the blooms from them are sure to be small and poor, and the petals flimsy and thin. If Camellias are to flower early the forcing must be done now, as by getting plants to make their growth betimes they bloom naturally about six or seven months after without further help. Although of a cool damp atmosphere later on, and later in the year, Camellias delight in heat now, and will stand and enjoy almost a stove temperature, which, if accompanied with plenty of moisture, helps them on

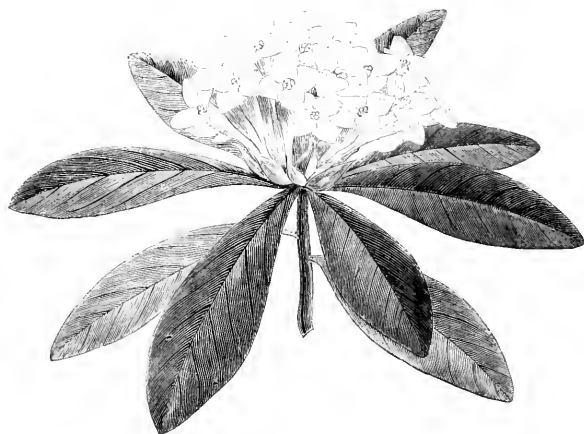


FIG. 50.—DAPHNE BLAYAYANA. (SEE P. 504.)

a species attaining a size like Nutalli will not flower in an adult state is comprehensible, but I am quite sure that under the treatment mentioned above better results will be obtained than by starving the flowers. *O. F. Lehnhof, Lower Austria.*

Clandestina rectiflora, Lam. (*Lathraea clandestina, L.*).—This has been very well grown for a long time in the Berlin Botanic Garden, where I saw a large mass of it. My representation in *Keichenbach's Icones*, xx., tab. 16, is taken from fresh specimens, kindly sent from that place by the late Alexander Braun. *H. G. Rehb, f.* [The specimens from Biarritz had much longer corollas than those figured by our correspondent. *Ed.*]

Filmy Ferns without Heat.—The most direct proof as to the perfection to which these plants can be brought without artificial heat exists at the residence of Mr. Cooper Foster, 29, Upper Grosvenor Street. That gentleman has succeeded in growing a splendid collection of them in a small unheated structure built at the back of his house. The specimens (which are planted out) are marvels of beauty, and comprise most of those generally supposed to require a high temperature as well as the hardier kinds. I am sure that many will be glad to profit by the experience which Mr. Foster's experiments have secured, and to try their *Trichomanes*, *Todeas*, and *Hymenophyllums* (which are in many cases languishing in warm houses), in cold shady places where they may thrive without much trouble being taken with them. Among the collection are fine specimens of *Hymenophyllum caudicu-*

blue, extra fine; *Coronone de Celle*, light blue, immense bells; *Amy*, very bright red; *alta superbissima*, snow-white, and very large; and *Gigantea*, bluish-white. Tulips are planted in exactly the same way as are the Hyacinths, and as regards gaiety far overtop the Hyacinths. The following are all superb varieties, many beds being filled with them, and as there is not a blank spot in the lot the effect is dazzling in the extreme:—*Belle Alliance*, brilliant scarlet; *Keizer Kroon*, scarlet and yellow; *Vesuvius*, very large flower, bright crimson; *Proserpine*, rose colour, extra fine; *Chrysolora*, bright yellow; *Pottebakker*, bright yellow; *Joost van Vondel*, rose and white, very good; *Vermilion Brilliant*, a fine bright purple; and *Maxima*, scarlet edged with yellow. All the blocks of colour and the smaller beds, consisting of one colour only, are newly imported bulbs, but there are several other extremely effective beds that are planted in mixture with the old bulbs of last and previous years, and all who have the good fortune to see these beautiful beds will for certain, in future, preserve their old bulbs, as they are but a shade smaller, either in size of flower or spike than the new importations. In answer to my inquiry as to how he managed to ripen the bulbs and yet get the summer display that there always is at Cintra Lodge, Mr. Cook (Mr. Sutton's gardener) said that as soon as he wishes to prepare the beds for the summer bedding, if the bulbs are not sufficiently ripened, he heels them in in the kitchen garden till the tops die off, the bulbs are then lifted, dried, and stored away in a cool place, and truly the results obtained will warrant so small an expenditure

wonderfully, and will often bring sickly specimens round. Before placing any in heat they should be overhauled to see if they require pruning or re-potting, and in the case of any that are unhealthy it will be necessary to considerably reduce the ball and give them fresh soil. The reduction of the ball is best effected by picking it away from among the roots by the aid of a sharp-pointed stick or piece of iron, and it may be desirable to wash out some of the earth, and after this is done each plant should be stood by for a few hours to drain, when they will be ready for potting. Camellias grow freely in either peat or loam, or a mixture of the two in about equal parts, which is preferred by many cultivators; but where good fresh yellow fibry loam can be obtained nothing answers better, as they root freely in it, and make stout, short-jointed, good flowering wood. If loam is used it should be chopped up somewhat roughly, have a little soot sprinkled over it, and then be turned over to mix. As Camellias require liberal supplies of water during certain seasons it is a very important matter to see that the pots be well drained, and as the plants stand a long time in them it is advisable to use a mixture of broken bones, corks, and charcoal for drainage, among which the roots find their way and extract the food which the bones and charcoal absorb from what passes through the soil. The drainage effected by such a thing in a pot is to work the fresh loam into the cavities of the ball, that they may all be filled firmly, and the whole made solid again, otherwise, when water is given, it will find its way through without soaking the soil. Not only is the present a good time for overhauling and seeing to old unhealthy plants, but it is the best season for repotting young ones, as they bear the disturbance now better than they do later on, after the buds are formed, when any check or interference with the roots is apt to cause them droop, and give a larger shift will, for a time, require careful watering, and especially any that are shaken out, or have the ball much reduced; and to encourage these to form fresh feeders, it will be necessary to syringe freely overhead both morning and evening, which, with shade, and a good brick heat engendered by shutting up early, will soon start them into strong and active growth. With a suitable house, not over light, Camellias do best kept under glass during the summer, but where conditions are such that they have a good exposure to sufficient shade, and moisture afforded, they should be stood out under the north side of a wall or building, or where they can have the shelter and protection of tall trees or shrubs. Of the two positions I like the last-named the best, as there they enjoy more atmospheric moisture than they do near walls, which absorb it and so rob the plants. When these are placed out, it is very important that they be stood on slates or tiles to prevent the injury of worms, for should these enter the pots they get natural shade in such a manner that water when given finds a too quick passage through, and does not soak the whole of the soil. Where convenience exists for planting Camellias out, that is by far the most preferable way of growing them, as with their root-run unrestricted they make great progress and flower with wonderful freedom. In vinerias and other houses there are often bare back walls that cannot be utilised for anything else, which is just the place for Camellias, these being far from the glass they get natural shade and flourish accordingly. By planting the different varieties, a very long succession of bloom may be obtained, as the plants make their growth in rotation, and if the first vines are forced so as to have ripe grapes in June, plenty of Camellias may be cut at or before Christmas, and the plants are ready to start on again with the vines. Ours have made their young wood already, and we always have an abundant supply of flowers from October onwards, without robbing the plants in the pots. The only insects we find that interfere with them are scale, which soon disappear after a syringing with a solution of nicotine soap or paraffin and water in the proportions usually applied—a mode of cleaning them which saves much time and labour, and is far better than sponging by hand. Camellias are so hardy, that they will live and grow out almost anywhere, and do really well in sheltered favoured spots such as snug corners under walls, where if planted out in suitable soil, such as fresh cut loam, they thrive amazingly, and soon become objects of great beauty. *J. Sheppard.*

Nicotiana affinis.—Seeing a note in your last impression respecting the above plant, I wish to state that I have tried several plans to keep the flowers expanded when cut. By cutting them at night, and placing them in water at once, they will keep fully expanded night and day. I have some now cut ten days, and they are apparently almost as fresh as when first cut. *H. Marshall, Bournemouth.*

Lonicera sempervirens.—This is undoubtedly one of the best greenhouse or conservatory climbers in cultivation. There is now a plant in the cold house at the Newton Nursery, Chester, worth going some

distance to see. It has been in flower since Christmas, and has at this time forty-five fully expanded clusters of flowers, and many more to come. In fact, it is seldom out of flower. One great recommendation is that it is a very clean plant, having few or no insect pests. In some few places it succeeds in the open air, but never so well as under glass. It also makes a good pot plant; but requires some little time to get the main stem strong enough to support the plant without stakes. *Lonicera sempervirens flava* and *Brownii* are very good companion plants to the above. *S.*

Valerian Phu-aura.—This hardy golden leaved plant is a great acquisition, and most valuable for spring gardening. In the gardens at Hanfield Grove, near Uxbridge, the seat of George Webster, Esq., I recently noticed some plants of this Golden Valerian, and Mr. Gough, the head gardener here, thinks very highly of it. It is certainly a very telling plant in a spring flower garden or for general decoration. *D.* [The plant has been cultivated for years in botanic gardens: it is strange that its merits should only now be recognised. Ed.]



Reports of Societies.

Royal Horticultural.—April 11.—James MacLay, Esq., in the chair. The Rev. G. Henslow described the *Rhododendrons* and other plants shown at the meeting of the Scientific Committee, and which are fully alluded to below. As was to be expected, coming so close upon the great popular holiday, the show in the conservatory was not so extensive as the last, but nevertheless included some special features of interest. Messrs. Barr & Sugden received a Silver Banksian Medal for an extensive display of Narcissi, consisting of cut blooms of about 160 species and varieties; and Messrs. H. Lane & Son received two awards of a like value in groups of half specimen pot Roses and forced *Rhododendrons*, which are alluded to elsewhere. Mr. B. S. Williams again contributed a fine of Ananrills, Orchids and other flowering and fine-foliaged plants and also received a Silver Banksian Medal. So too did Capt. Patton, Alpha House, Regent's Park, for a collection of cut Tulips and Narcissi. From the Cranston Nursery and Seed Company, Hereford, came five boxes of superb cut blooms of Tea Roses, which gained a Bronze Banksian Medal. The Marchal Niels and Safranros were much admired, but not more so than a white, pink tinted flower named Nina, a most lovely bloom in the bud, and Red Safrano, a coppery-red coloured form of its namesake. The same firm had also some cut blooms of their *Hoya globulosa*.

SCIENTIFIC COMMITTEE.—Dr. Maxwell T. Masters, F.R.S., in the chair. The subjects brought before the meeting on this occasion were relatively few, but their paucity was compensated for by the noble specimen of the Waratah sent from Sir George MacLay's garden, and the brilliant *Rhododendrons* from Mr. Mangles and Mr. Bosceawen.

Rhododendrons.—Mr. Mangles brought specimens of various *Rhododendrons*, as follows—

R. niveum.—A species so named from the colour of its flowers, the substance of which in the young state is snowy-white, but which assumes a brownish tint; subsequently the flowers are arranged in very compact trusses, and are of medium size, nearly regular, tubular, pale lilac, with spots at the base of the corolla, as in *R. arboreum*. The stamens and style are of about equal length, and are not deflexed. Mr. Mangles finds it difficult to cross. The species is somewhat tender, though Mr. Bosceawen sent trusses of it from Lamorna, Cornwall, where on the day before it was despatched a frost of 8° was experienced.

R. arboreum.—Specimens of the true form with very deep somewhat dull red flowers were shown, the leaves being silvery on the under-surface.

R. Thomsoni, with flowers of a deep blood-red colour, each protruding from an unusually deep cup-like pinkish calyx. The leaves of this species are relatively small, obtuse, and glaucous on the under-surface. With this was shown a hybrid between *R. Thomsoni* and *R. Fortunei*; the truss bears a larger number of flowers than exist in either parent; the colour of the leaf is not so glaucous as in *R. Thomsoni*, and the flowers are of a pale rose.

R. Otto Forsteri.—A magnificent hybrid, raised between *R. Edgeworthii* as the pollen parent, and *R. Veitchianum*, a Moulmein species, as the seed-parent. The leaves of this are lanceolate, glabrous, with short, shaggy petioles; the flowers 5 inches

across, pure white, with a pale yellow base internally, broadly bell-shaped, with oblong somewhat wavy segments; altogether a grand variety.

Another hybrid shown was one raised between the pollen of *R. campylocarpum*, a yellow-flowered species, and the ovules of a crimson-flowered hybrid variety. The result was a form with a loose truss of relatively small bell-shaped flowers almost pure white.

R. virgatum.—A dwarf species with small ovate-anceolate leaves, and small bell-shaped lilac flowers proceeding not from the axil of a scale, but of a true leaf.

R. atalavense ×.—A truss of the original rose-coloured variety, originally obtained at High Clero from the union of *R. arboreum* with a hybrid (obtained from catawbiense and ponticum), and the parent of most of the hardy hybrid rose-coloured *Rhododendrons*.

Various other hybrids were shown, as between *R. argenteum*, male, and *R. ponticum*, female, in which the ponticum character prevailed, and in which the anthers were sterile; between *R. ciliatum* and *R. glaucum*, in which the flowers were of pale rose-lilac hue. *Azalea linearifolia*, a curious Japanese species, in which not only are the leaves linear, but the pinkish corolla lobes are linear also, and free nearly to the base.

A variety sent from Mr. Bosceawen, called Lady Mary Bosceawen, had pale rose or bluish flowers of much beauty, but which had been hurt by frost, and the variety, it was considered, was surpassed by other newer productions.

Fanunculus Helderichii.—Mr. G. F. Wilson showed under this name flowers of this distinct looking *Buttercup* with the habit of our *R. acris*, but with silky pubescence and large bright shining ananry-yellow flowers and reflexed calyx. It does not agree with the character of *R. Helderichii* as given in Boissier's *Flora Orientalis*.

Double Lafagera.—Dr. Masters reported on a double flower of this plant referred to him for report at the last meeting. It did not differ materially from other double flowers of the same species, the outer segments were more or less leafy, the two anther-lobes of several of the stamens were replaced by flat petal-like expansions, so arranged as to resemble a sheet of note-paper folded in the middle.

Novel Flowers.—Specimens of flower dried in alcohol to preserve their colour and affixed to glass and other objects.

Telipsea speciosissima.—Mr. Green, gr. to Sir Geo. MacLay, Tendral Court, Bletchingly, brought a magnificent spike of this noble Protead, the Waratah of New South Wales. The plant was first flowered in 1808, according to the *Botanical Magazine* and other publications of that date, and again in 1838, when it was figured in Paxton's *Magazine of Botany*. Judging from the figures, the specimen sent by Mr. Green is much finer. It is borne on a shrub now about 5 feet in height. The head of clear coral-red flowers is some 4 inches across, and suggests in its general form a *Chrysanthemum* of the incurved section, surrounded by coloured bracts, but of course the resemblance is merely superficial, as the structure is widely different, and the flowers are surrounded at the base by numerous lanceolate concave upturned bracts, with a colour somewhat like that of a *Poinsettia*. A Botanical Certificate was awarded.

Hyacinth Crown in the Dark.—From Mr. A. Smee, Warrington, came a *Hyacinth* which had accidentally grown beneath a stone in complete obscurity. The leaves were blanched, but the absence of light had by no means affected the brilliant deep blue of the flowers.

FLORAL COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. At this meeting Mr. B. S. Williams exhibited a group of new plants which included *Crinum Makoyanum*, a handsome caulescent species with a tall scape having seven large pale rose flowers; *Ronbergia Morreniana*, a Bromeliad with glaucous leaf-stalks and oblong lanceolate green leaves, thick and irregularly spotted with dark green; *Kentia costata*, a Palm with smooth stem and arching oblong pinnate leaves with numerous narrow lanceolate segments; *Dieffenbachia majestica*, a form with long-stalked lanceolate leaves, acuminate velvety green with pale yellow blotches; *Aloesia Putzei*, with stalked hastate leaves, bronzy green on the upper surface, vinous red beneath, with prominent and rather distant venation; *Masdevallia Boddartii*, closely resembling *M. Veitchiana*, but with flowers perhaps larger and paler in colour; and *Aralia Regine*, with palmate leaves divided into five long very narrow shortly stalked segments of a deep blackish-green colour. Mr. James, Castle Nursery, Lower Norwood, had a very highly coloured variety of *Cattleya Mendelii*, a flower of great beauty, which is to bear his name. Messrs. James Veitch & Sons had a remarkably fine white *Rhododendron* named *Forsterianum*, and which is described above. Mr. Woodbridge, Sion House Gardens, staged a fine well grown plant of his variety of *Anthurium Scherzerianum*, with bold vigorous foliage and rich sealing-wax coloured

spaths of the same shape as in Ward's variety, and averaging in size $5\frac{1}{2}$ by $3\frac{1}{2}$ inches in width. Mr. Green brought up from Pendell Court a flower of the rare Waratah, alluded to above, and *Orchis tephrosantha*, a terrestrial Orchid, with the sepals and petals creamy-white sprinkled with purplish dots, the lip divided into narrow segments resembling the limbs and tail of a monkey, but of a deep violet colour; the head of the monkey being represented by the anthers under the cow formed by the sepals. A perpetual flowering Carnation, named Alice Duffield, white flaked with rose, came from Mr. Duffield, gr. to H. K. Mayer, Esq., Winchmore Hill; and Mr. Lyon, gr. to Sir E. H. Scott, Sandridge Court, again sent a sample of the Hybrid Spine Magnolia, showing remarkably good cultivation. From Swanley the Messrs. Cannell brought cut blooms of some fine double-flowered Cinerarias (see p. 495) and Verbena Stars and Stripes, with pipes measuring an inch in diameter, white ground striped with rose, very distinct and very effective. Mr. R. Dean, Ealing, sent some very pretty Primroses named Polyanthuses, and a pretty Primula, named latifolia, an evergreen species, with the habit of an Auricula, but with a triple foliage, and pale magenta flowers with a yellow eye. Mr. Fagg, gr. to Lieut.-Col. Deane, Englefield Green, showed a pure white flowered form of *Dendrobium macrophyllum*, a very fine variety, which is to bear the name of Dearei. From Mr. R. Parker, Tooting, came masses of those two fine *Megasas*, *cordifolia purpurea* and *M. crassifolia media*; and Mr. Chapman, gr. to R. S. Holford, Esq., Westobbit, exhibited cut blooms of a very pretty Tea Rose, strongly resembling Goubault, but which was stated to be a sport from Marie Van Houette.

The awards made were:—

First-class Certificates.

- To Messrs. Veitch & Sons, for Rhododendron Forsteriantha.
- To Mr. James, for Cattleya Mendib Janesianum.
- To Mr. Woodbridge, for Anthurium Scherzerianum, Woodbridge's.
- To Messrs. Cannell & Sons, for Verbena Stars and Stripes.
- To Mr. B. S. Williams, for *Crinum Makoyanum*.
- To Mr. Fagg, for *Dendrobium macrophyllum* Dearei.
- To Mr. R. Dean, for Primula latifolia.

Second-class Certificates.

- To Mr. Green, for *Tropica speciosissima*.
- To Mr. Lyon, for Miles' Spiral Magnolia.

Cultural Commendations.

- To Mr. Green, for *Tropica speciosissima*.
- To Mr. Lyon, for Miles' Spiral Magnolia.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Good examples of the new Pear, Director Alphon, grown in an orchard-house, were shown at this meeting by Mr. Douglas, gr. to F. Whitbourn, Esq.; and from Chuswick came well kept fruits of fine varieties of Apples—Lane's Prince Albert, Norfolk Bearer, and Norfolk Coleman, evidently the same, and resembling, though distinct from, Norfolk Beauty; and the Essex Apple, also like the former, medium sized and well coloured. Mr. Kershaw, Stead Syke Nurseries, Brighouse, sent examples of a very good seedling Rhabarb, which the committee seemed to think well of.

Royal Botanical and Horticultural Society of Manchester: April 4.—The second show of the series for the current season was held in the Town Hall, and, like its predecessor, under exceedingly favourable conditions of weather. The principal amateur exhibitors were Mr. G. B. Blair, of Whalley Range, and Mr. Oscar Schneider, of Fallowfield. Mr. Blair's plants consisted chiefly of Cinerarias—very capital, also, like the former, medium sized and well coloured. Mr. Kershaw, Stead Syke Nurseries, Brighouse, sent examples of a very good seedling Rhabarb, which the committee seemed to think well of.

very handsome O. Halli led the way, with new assurance of the immense value in England of the "cultivation of the genus of Orchids. Next to it in order of merit came O. Stimpfiana, a splendid species, worthy of its name, the flowers as large as those of O. Halli, but yellow, blotched with bright cinnamon, the lip cordate and pure white, except that the centre is yellow and the apex light rose; O. gloriosum, deliciously fragrant, the flowers yellow, dappled all over with crimson; O. ciriosum, yellow, O. Phalænopsis, O. Alexandrea, O. ciriosum, yellow, all of which genus, with some *Cypripedes* and *Mastodias*, made up as bright a set as the heart could desire. From Mr. Schneider there came also *Sarracenas* in full bloom. Mr. R. F. Ainsworth showed a very remarkable *Oncidium*, from Mr. J. Mason, Warrington, one of the finest of the innumerable fine sports of the Alexandra Odontogloss, that one called *Andersonianum*. The remaining amateur exhibits comprised a grand white Rhododendron, the immense flowers crisp at the edge, called Vetchingham, from Mr. J. Mason, Warrington; and a number of trusses of cut bloom of Rhodod. of *dron javanicum*, coppery-orange, from Mrs. Tootal, of Waste, to which Lady the show was likewise indebted for one of its chief botanical curiosities—a promising species of *Epiglossa*, which the imposing leafage as regards the contingent was consisted in the display of Rhododendrons by Messrs. Fisher, Son & Sibary, of Handsworth, Sheffield. A specimen of one of these Rhododendrons, a deep rich crimson, called Duchess of Connaught, was exhibited in London, and the great credit is shown to it. It has been blooming, more or less, ever since, and it is at this moment, in full bloom again! The variety, nearly as dark, called Duchess of Edinburgh, is almost as full. Another very charming one, Taylori, is pink, as well as bluish; while Princess Royal is purple. In respect of novelty next came the exhibit of Lily of the Valley, made by Mr. T. Jarrook, of the Lily Nursery, Dersingham, Norfolk. In addition to potsful of the usual character, there were great cones, most ingeniously built up, masses of green leaves, and the little white pearls, such as for centre pipes, upon which the variety would rival the most elaborate of epergues. Very few plants would allow of being dealt with in this manner, most kinds losing rather than gaining by this particular mode of treatment, but clearly, in the case before us, the exhibition was not only a success, but a triumph. One of Liverpool, showed an excellent variety of greenhouse miscellanea, Azaleas predominating, also that admirable white-flowered evergreen, sweet-scented, and almost hardy, the *Choisya ternata*; a new hybrid Maidenhair, called Victoria, a charming assortment of *Dalrympis*, many Orchids, and, surpassing all the rest of the lot, the one we have yet seen of the new Anthurium Andraeanum. Messrs. H. Cannell & Sons, Swanley, Kent, were well to the fore with cut Cinerarias, double Cinerarias also, quite a novelty; cut *Pelargoniums*, *Polyanthuses*, *Auriculas*, and other hardy herbaceous plants. Messrs. Cranston, of Hereford, showed cut Roses and the new *Hoya globulosa*. Mr. George, of Putney Heath, London, contributed a trayful of very pretty varieties of Abutilon, flowers deserving well favour. Messrs. Dickson & Co. returned and the pleasant to see, their *Lycopodium* have always given, and came again, with a large quantity. Mr. Thomas Walkden, of Sale, showed *Pansies*, astonishing for the time of year, as well as good intrinsically. Messrs. J. Berry & Sons, of Moss Side, brought new Azaleas, adapted for home use; and, lastly, and not least, a large quantity of the new *Choisy*, at Old Trafford. (Continued from the "Manchester Guardian.")

Royal Caledonian Horticultural: April 5.—The annual spring show of this Society was held in the Waverley Market, Edinburgh, and was in every way a great success. The horticultural exhibition cannot be found in the United Kingdom, and as a general international show is to be held in this hall in September next, it may interest many to know that this spacious building covers 2 acres, is well lighted, and protected from any inclemency of weather that may arise, is easy of access, and very convenient, as the vans containing the plants can be drawn right inside the hall, up to the very places where the various exhibits are to be arranged; it is also situated in the principal thoroughfare, Princes Street, and adjoins the Waverley railway station. The exhibits were not up to the mark, neither were the other bulls. The 1st prize for eighteen in the nurserymen's class was easily secured by Messrs. Downie & Laird. The Azaleas were very good, clean, fresh, and well flowered. The 1st prize for four was just won by Messrs. Downie & Laird. The 1st prize for six was won by Messrs. Paul, Esq., Gilmore Place. The former cut some of the finest good specimens of *Ivyana*, *Model*, *Criterion*, and *Nella*. For six stove and greenhouse plants the same competitors were placed equal 1st, but in the opinion of many Mr. Paul should have had 1st honours. His *Hyacinths* were not up to the mark, neither were the Anthurium Scherzerianum, *Cologyne cristata*, all well flowered; Erica Cavendishiana, a grand piece, and two Azaleas; in the other collection were Anthurium Scherzerianum, not so good; Rhododendron Princess Alice, *Hyacinths*, six to a truss, Erica, and Azaleas. Fine-foilage plants and Ferns were but poorly represented, but table plants were shown well.

Orchids were well shown. The 1st prize for four was awarded to—Macdonald, Esq., Perth (gr. Mr. Dow), who showed four specimens of *Sphegodes*, with nearly forty spikes (a beautiful plant); D. nobilis Odontoglosson crispum, and Phalænopsis Schilleriana; ad. A. Paul, Esq., with *Cypripedium villosum*, *Oncidium serratum*, *Calanthe veitchii*, and *Dendrobium densiflorum*. 1st prize for two orchids: J. Syme, Esq., gr. Mr. Patterson; ad. Mr. Priest, gr. Mr. Martineau. Odontoglosson, One single Orchid: 1st was awarded to Mr. McIntyre,

The Glen, Inverleith, for a small plant of *Odontoglossum Pescatorei*, a small spike of a decent variety, whereby Mr. Paul, who showed *Dendrobium thyrsiflorum* with seven good spikes, was placed 2d.

A table of plants, to the first prize, H. Paul, Esq., whose table contained a choice collection of stove and greenhouse flowering and foliage plants and some good Orchids, some two to three dozen varieties; 2d, J. Buchanan, Esq. (gr. R. Grossart), who showed well, but it lacked the quality of Mr. Paul's.

Deutzias, *Mignolite*, and *Dalrympis* were well done, several good specimens being staged.

Roses, both in pots and as cut flowers, were fairly represented; some beautiful cut blooms of *Niphetos* were exhibited by Mr. Wilson, nurseryman, Kendal. Lily of the Valley and *Strawberry* were well shown, both in numbers and quality. *Cyclamens* were good; the 1st prize was won by Mr. Gordon. The Gardens, Nidrie, for some fine well-grown plants. *Auriculas* and *Polyanthuses* were shown in numbers, the quality being excellent. Alpine plants and flowering shrubs are shown remarkably well. Several various collections contained many novelties of sterling merit. The 1st prize in the nurserymen's class was easily obtained by Mr. Munroe, Jack's Lodge; and that in the amateurs by Mr. Begg, Maiden Lodge, both collections being very meritorious. Bonquets were better done than of former years, the 1st prize was awarded to Messrs. Todd & Co., Maitland Street, the nurserymen's class; ad. Mr. Wilson, Kendal. Dr. Patterson, of the Bridge of Allan, showed a splendid basket of Orchids, similar to that lately presented by him to the public, and contained over thirty dozen species and varieties, and was very much admired.

Fruit was good for the time of year. Good Grapes and Strawberries, likewise Apples and Pears, and a fine Pine came from Mr. Johnston, gr. to the Earl of Strathmore, Glamis, which was 1st. Vegetables were well shown in their respective classes, the 1st prize, for a collection of eight sorts, was worthily awarded to Mr. Gordon, The Gardens, Nidrie.

The various nurserymen contributed largely to the exhibition. The centre of attraction was a fine collection of hardy Rhododendrons, exhibited by Messrs. Downie & Laird; some of these were 12 feet high and 6 inches through, were wonderfully well flowered, and made a magnificent display. The various bright colours mixed well with Azaleas, Palms, &c., and formed a very attractive collection. They also showed their new greenhouse Rhododendron Duchess of Edinburgh, a fine double-flowered white, sweet-scented variety in the way of *Sesteriana*, and the beautiful new Rhododendron (hybrid) Duchess of Connaught, bright intense carmine. The same firm also staged a nice table of Azalea indica and Lily of the Valley. The 1st prize for six or six gr. Rhododendrons were awarded to this firm, also for six greenhouse Rhododendrons; they also took 1st for four Palms, 1st for twelve *Cyclamens*, and 1st for alpine *Auriculas*.

Messrs. Ireland & Thompson showed a very fine collection of miscellaneous stove and greenhouse flowering and fine-foilage plants. This table was beautifully arranged, and was one of the principal features of the show; it contained well-flowered Azaleas, Ericas, Cyclamens, Amaranths, Deutzias, Azalea mollis, Ericas, &c., and some new Orchids, which were well shown, and formed a grand display. The same firm also showed their new greenhouse Rhododendron Thompsoni (Name in open to objection, as there is a wild species called K. Thompson, *Erica*, a pure white free-flowering variety of good habit, strong colour, and well pointed, and a fine-shaped flower. This has been awarded a 1st-class Certificate. They also showed cut trusses of flowers of a new Abutilon, called Waverley, the finest yellow I have seen, said to be of good habit and very free-flowering. Messrs. Downie & Laird showed a collection of Azalea mollis, some of the finest specimens of *Hyacinths*, *Pelargoniums*, Palms, and some good tree Ferns, for which they obtained 1st prize, and many other plants of sterling merit. Messrs. Gordon & Son had a nice table of Lily of the Valley, Fairy Roses, forced *Pelargoniums*, and a quantity of the lovely Primula nivalls. Mr. Taylor, of Leith, exhibited a similar table to that shown by him in Glasgow last week. Messrs. Dickson & Co., Waterloo Place, showed a large table of Cinerarias. The Lawson Seed and Nursery Company showed a fine collection of Palms, *Sprengia*, &c., and some nicely arranged *Ericas* and *Feracae*. Messrs. Dickson & Sons exhibited a table of miscellaneous stove and greenhouse plants. Mr. Palmer, gr. to J. Addie, Esq., Gildingstone, showed a grand display of *Amaranthus*, called Miss Addie, fine shape and substance, intense scarlet colour. A 1st-class Certificate was awarded to this.

It is pleasing to be able to record that this show was in every way a grand success, was well patronised, and the arrangements were excellent, reflecting great credit on the various officers in charge. (From a Correspondent.)

Newcastle-on-Tyne Botanical and Horticultural: April 5 and 6.—The annual spring show of this Society was held as usual in the Corn Exchange and Town Hall on the above dates, and was a decided success in the quality of the various productions displayed, although in some departments it was not peculiar—the competitors were not so numerous as at the spring gathering last year. In the class for stove and greenhouse plants there was a close competition, the productions of the different exhibitors being highly meritorious, and so evenly balanced as to be difficult to choose between them. For four Messrs. Thompson & Son, nurserymen, Newcastle, took 1st, their group consisting of *Imantophyllum miniatum* in good condition, *Erica Victoria* over a feet through, *Dendrobium nobilis* 31 feet and well flowered, with a grandly-grown

specimen of *Cynobulum* (dormant); Mr. J. Brown, gr. to Mrs. E. Joyce, was 2d, having in an excellent collection the yellow-flowered *Erica affinis* and the yellow and brown (orange) sphaerulata, in condition such as it is seldom seen, bearing twenty spikes from 4 to 5 feet long. Four *Azaleas*: These were well shown, Messrs. Thompson taking the lead with large well-flowered examples, amongst which were *Duc de Nassau*, a dense mass of post-ornamental colour, 4 feet across; a Miltonia, still larger; Mr. Methven, gr. to T. Lange, Esq., was 2d, showing smaller but nicely bloomed plants. Two *Azaleas*: 1st, Mr. Methven, medium-sized specimens, well bloomed; Mr. Noble a close 2d. *Hedera japonica* were in such numbers as to form quite a bank, and among all one of the leading. With six, Mr. J. Storie, gr. to T. Hodgkin, Esq., was 1st; and Mr. Noble, gr. to T. Fry, Esq., M.P., was 2d. *Deutzias* were present in quantity and remarkably well done, being large and full of flower. For six, Mr. W. K. Armstrong was well to the fore, having plants alike good in flower and foliage; Mr. Methven 2d. Three *Deutzias*: 1st, Mr. Methven; 2d, Mr. Noble.

Genistas were well bloomed, and, being mostly represented by large examples, were very effective, as also were *Acanths*, of which the old *A. armata* was the best. This category, care-managed and treated, was profusely flowered, and the bloom backed up with an abundance of healthy foliage, is still one of the most telling of spring-blooming subjects. *Dielstras*, *Cinerarias*, and *Ivy* of the Valley, were nicely shown, and present in sufficient numbers to be a core of the exhibition. The numerous classes for cut flowers in the shape of ornamental stands, bouquets, and button-hole flowers, filled a table in the centre of the hall, and collectively were a bright display. Prizes were also offered for boxes of *Camellias* in twos, for *Rhododendrons*, and *Azaleas* in bunches, and for *Roses*, which were all nicely shown.

Florist varieties were well represented, all the most popular varieties being exhibited in good condition. There was a spirited competition in the nurserymen's class for *Hyacinths*. Mr. W. J. Watson, The Hall Nurseries, Fenham, gained the 1st prize in the class for twenty-four spikes, with an even lot of well grown plants; it comprised *General Havelock*, *King of the Blues*, *La Grandesse*, *Kohi-Noor*, *Blondin*, *L'Or d'Australie*, *Von Schiller*, and other good sorts. Messrs. Dewar & Co., and Messrs. Thompson & Son, also exhibited, but the foliage was rather drawn, which told against them, and the arrangement of colour was not so good as that of Mr. Watson's. Messrs. Nairn & Son, Newcastle, were 3d. Messrs. Thompson & Son, Pilgrim Street, also exhibited, they had *Pearl*, a very fine double variety, and *White Pearl*, very distinct. Mr. W. J. Watson, Messrs. Dewar & Co., and Messrs. Nairn & Son, were awarded the prizes in the order of their names for twelve *Hyacinths*.

In the gardeners' class for *Hyacinths* Mr. J. Woods, gr. to H. Middleton, Esq., Fenham Hall, gained the 1st prize on twelve spikes; they were really well grown and in good condition. Mr. Brown, gr. to T. Barnes, Esq., Whitburn, was 2d. The 1st prize for six was awarded to Mr. W. L. Thompson, gr. to Capt. Bell, Wolsington. Messrs. J. Thompson & Sons, Mr. W. J. Watson, and Messrs. Nairn & Son, were the principal trade exhibitors of Tulips, all of them being well grown and in good condition—*White Joost Van Vondel*, *Vermilion Brillant*, *Kaiser Kroon*, *Yellow Pottdecker*, and the white variety of it being the best. Mr. J. Woods had the best Tulips in the gardeners' class. *Polyanthus Narcissus* were shown in capital condition in large pots. Mr. W. J. Watson and Messrs. Thompson had the best.

Arculicas were not so good as might have been expected considering the open weather we have had. Mr. T. Hay, of Hillingworth Colliery, was 1st for twelve distinct good varieties; he had *Frank* (*Simonet*), *Glory* (*Taylor*), *Beauty* (*Trull*), *Lancashire Hero* (*Lancashire*), *Charles J. Perry* (*Turner*), *Complete* (*Sykes*), *Lovely Ann* (*Oliver*), &c. Mr. W. J. Watson was 1st for six, with *Richard Headley* (*Lightbody*), *Smiling Beauty* (*Heap*), and a plant of *C. Lightbody* (*Headley*), which was also awarded a premium, were the best. Mr. Adams of Smallwell, Mr. John Tarnet, of Stocksfield, Mr. E. Oliver, Forest Lodge, Benton, and Mr. W. Sanderson, of Whalton, were also competitors. The single plants in classes were not exceptionally fine, ordinary samples such as *Smallwell*, *Smiling Beauty*, &c.

There were two good collections of twelve alpine *Arculicas* exhibited; the best was from Mr. Hay, who had good plants of *Florence* (*Douglas*), *Prince* (*Douglas*), *Mrs. Dodwell* (*Turner*), *Mrs. Meiklejohn* (*Meiklejohn*), *George Lightbody* (*Turner*), *Daedon* (*Gorton*), *Beatrice* (*Turner*), *Dolly Varden* (*Turner*), and others. Mr. Adams was 2d, and in his collection was a very fine *Queen Victoria* (*Turner*). Mr. Adams was also 1st in the class for singles with a fine *Daedon*. Mr. W. Henderson, *Blaydon Barn*, had the best *Polyanthuses*—*Queen IV.*, *White*, *Formosa*, *President*, and *Queen of Tyne* being the varieties. Mr. W. Sanderson and Mr. R. Jevens, Winton, were also competitors.

THE METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst., at 7 P.M., the following papers will be read:—"Barometrical Gradients—Wind Velocity and Direction at the Kew Observatory," by G. M. Whipple, B.Sc., F.M.S., and T. W. Baker, F.M.S.; "On Difference of Temperature with Elevation," by George Dines, F.M.S.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, APRIL 12, 1882.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.		Hygrometrical Deductions from Glaisher's Tables of Edith.	WIND.	RAINFALL.
	Mean during Day.	Minimum during Night.	Range.	Mean for Day.			
April 6.	30.07	29.33	0.74	50.2	42.8	79	N. E. 0.00
7	30.13	29.30	0.83	51.4	42.8	77	N. E. 0.00
8	30.16	29.42	0.74	52.8	48.7	70	N. E. 0.00
9	30.14	29.61	0.53	54.6	46.3	80	N. E. 0.00
10	29.99	29.65	0.34	57.4	44.0	79	N. E. 0.00
11	29.71	29.05	0.66	57.5	40.5	75	N. E. 0.00
12	29.60	29.14	0.46	58.1	41.7	72	S. S.W. 0.00
Mean	29.95	29.21	0.74	56.2	41.7	75	N. E. 0.00

April 6.—A fine morning, overcast. A very bright day and

- 7.—A very fine bright day. Fine night.
- 8.—Fine bright day. Fine clear night.
- 9.—Fine clear day, blue sky. Fine cold night.
- 10.—Fine day and night.
- 11.—A very fine bright day, sun shining brightly. Fine night.
- 12.—A fine morning; sun shining at times; generally overcast. Fine night; very slight rain falling.

LONDON: Atmospheric Pressure.—During the week ending April 8, the reading of the barometer at the level of the sea decreased from 29.86 inches at the beginning of the week to 29.83 inches by 9 A.M. on the 2d, increased to 29.95 inches by 9 A.M. on the 3d, decreased to 29.94 inches by 3 P.M. on the same day, increased to 30.12 inches by 9 A.M. on the 5th, decreased to 30.07 inches by 3 P.M. on the same day, increased to 30.37 inches by 9 A.M. on the 8th, and was 30.32 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.14 inches, being 0.29 inch higher than last week, and 0.22 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 64°, on the 6th. On the 5th the highest temperature was 52°. The mean of the seven high day temperatures was 58° 2'.

The lowest temperature in the shade in the week was 38° 2, on the 7th; on the 3d the lowest temperature was 45° 5'. The mean of the seven lowest temperatures was 41° 2'.

The greatest range of temperature in one day was 24°, on the 6th; the smallest was 8°, on the 3d. The mean of the seven daily ranges was 17°.

The mean temperatures were, on the 2d, 49° 6', on the 3d, 47° 9'; on the 4th, 47° 3'; on the 5th, 45° 4'; on the 6th, 49° 2'; on the 7th, 45° 4'; and on the 8th, 48° 7', and these were all above their averages by 5° 2', 3° 3', 2° 5', 0° 5', 4° 2', 3° 2', and 3° 3' respectively.

The mean temperature of the air for the week was 48° 1, being 1° 9 higher than last week, and 3° 2 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun, was 136° 8, on the 8th; the highest on the 5th was 95°. The mean of the seven readings was 119°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky, was 34°, on the 5th; the mean of the seven readings was 36° 3.

Rain.—No rain during the week.

ENGLAND: Temperature.—During the week ending April 8 the highest temperature was 64° 2 at Cambridge, 64° at Blackheath, and 63° at Truro. The highest temperature at Hull was 53°, at Sheffield 57°, and at Wolverhampton 57° 9. The general mean was 59° 9.

The lowest temperatures in the week were 30° at Hull, 30° 3 at Cambridge, and 34° at Truro. The lowest temperature at Brighton was 38° 5, at Blackheath 38° 2, and at Plymouth was 37° 6. The general mean was 34° 1.

The greatest ranges of temperature in the week were 33° 9 at Cambridge, 29° at Truro, and 27° at Sunderland. The least ranges were 21° 4 at Bradford, 21° 9 at Plymouth, and 22° at Sheffield. The general mean was 25° 1.

The mean of the seven high day temperatures was highest at Cambridge, 60° 7, at Truro 50° 3, and at Blackheath 58° 2; and was lowest at Hull 48° 9,

at Bradford 50° 8, and at Bolton 52° 6. The general mean was 54° 9.

The mean of the seven lowest night temperatures was highest at Plymouth, 42° 7, at Brighton 42° 3, and at Blackheath 42° 2; and was lowest at Cambridge, 36° 6, at Hull 36° 7, and at Wolverhampton 37° 1. The general mean was 39° 3.

The mean daily range was greatest at Truro, 18° 6, at Bristol 17° 3, and at Blackheath and Sunderland 17°; and was least at Bradford, 11° 2, at Plymouth 11° 5, and at Hull 12° 2. The general mean was 15° 6.

The mean temperature for the week was highest at Truro, 48° 7, at Blackheath 48° 1, and at Brighton 47° 9; and was lowest at Hull, 41° 5, at Wolverhampton 43° 6, and at Bolton and Bradford 43° 9. The general mean was 45° 8.

Rain.—The largest falls were 1.15 inch at Plymouth, 0.77 inch at Truro, and 0.39 inch at Sheffield. The smallest falls were 0.02 inch at Cambridge, 0.04 inch at Brighton, and 0.05 inch at Bolton. No rain fell at Blackheath.

SCOTLAND: Temperature.—During the week ending April 8 the highest temperature was 50° 5, at Paisley; at Aberdeen the highest temperature was 52° 6. The general mean was 55° 8.

The lowest temperature in the week was 27° 1, at Aberdeen; at Leith the lowest temperature was 37°. The general mean was 32°.

The mean temperature for the week was highest at Glasgow 44° 2, and lowest at Greenock, 43° 7. The general mean was 43° 1.

Rain.—The largest fall was 0.04 inch, at Edinburgh and Aberdeen. No rain fell at Glasgow, Dundee, or Paisley, and only 0.01 inch at Greenock.

JAMES GLAISHER, F.R.S.

Enquiries.

HE THAT QUESTIONETH MUCH SHALL LEARN MUCH.—BACON.
FUCHSIA SILENDENS.—Can any of your correspondents inform me if the above plant ever opens its flowers? I have tried it in every situation and soil, but cannot get an expanded flower, the buds all dropping.

Answers to Correspondents.

ANGRETTUM ELLISII: S. A large woodcut of this, from a plant in Mr. Day's collection, was given at p. 277, February 27, 1875.

ANTHRUM ANDRAGAE: A. B. R. We have not seen such an occurrence. If the stripe is well defined the plant will prove a great acquisition.—T. T. Pot it in rough peat and sphagnum moss, and while making its growth give it plenty of water at the roots, and a hot moist atmosphere.

ASTRAGALUS: G. M. *Astragalus* forms a very large genus of papilionaceous herbs, of which three are native to this country—*A. glycyphyllos*, a scrambling herb with pinnate leaves, pea-shaped creamy-white flowers, and large pods; *A. hypoglottis*, a dwarf plant with hairy leaves and close heads of purplish flowers; and *A. alpinus*, a similar species, but very rare. The old Greek plant of this name is not known for certain. It probably applied to a plant with jointed pinnate leaves like the vertebrae of the backbone.

ARCTICULA SOCIETY: C. & R. For the Northern Section, the Rev. F. D. Horner, Kirkby Malzeard, Ripon; for the Southern Section, Mr. James Douglas, Loxford Hall, Hford, Essex.

EMIGRATION: G. W. *Worm*. We must decline to undertake the serious responsibility of advising you where to emigrate, or know nothing of your circumstances or capabilities. You should take a moderate view of what you are fit for, and what you are probably able to endure in the way of hardship and climate.

FRUIT TREES: T. W. S., Liverpool. We cannot discover to what you allude. Kindly give the correct reference.

HESLOEK: W. R., Larkhill. The seeds germinate with great freedom in the open air. You could probably get a patch of the seeds from one of the botanic gardens; we do not know any seedsmen who keep it.

MUSAS: An Old Subscriber. *Musa Cavendishi* was, and we believe is still, cultivated at St. John House, Brentford, but we know nothing of the other two sorts you mention.

NAMES OF PLANTS: A. B. *Clinthus puniceus*.—C. B. 1, *Adiantum concinnum*—a large form; probably *A. concinnum* litum; 2, *Asplenium Adiantum*—*Adiantum acuminatum*, apparently, but a poor sample to judge by; 3, *Pteris hastata*; 4, *Cheilanthes fragrans*; 5, no fructification—perhaps *Davallia canariensis*; 6, *Adiantum concinnum*—normal form; 7, *Gymnogramma tartarea*; 8, *Selaginella cuspidata*. Why do correspondents send me such tickets so carelessly, and thus give so much trouble to get at the numbers attached to the specimens? And oh! why will they pack in cotton wool? The reference number should be evident at a glance. T. Moore.—*M. Morton*. *Ceanothus azureus*.—C. W. *Lychis dioica*.—W. Curry. The Norway Maple (*Acer platanoides*).—R. W.

Braid. Amaryllis vittata, we believe.—H. M. Holth-

FELAROGONIUM SEEDLING: Kiddey-pore. No advance

PERIODIC PHENOMENA: T. J. E. We do not see our

SEEDS FOR ADELAIDE: A. Suberhor. Fourpence for

TOWN GARDEN: H. H. One of the little manuals

* Correspondents are specially requested to address,

Letters relating to ADVERTISEMENTS, or to the supply

FOREIGN SUBSCRIBERS sending Post-Office Orders

COMMUNICATIONS RECEIVED.—J. T. B.—D. F. Slesia—J. L.

Markets.

COVENT GARDEN, April 12.

Market dull, with good supplies of indoor fruits and

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Fruit name and price. Includes Apples, Gooseberries, Grapes, Kent Cobs, Lemons, Pines, Pears, Strawberries.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with 2 columns: Vegetable name and price. Includes Artichokes, Asparagus, Beans, Carrots, Cauliflowers, Celery, Cucumbers, Kent Regents, Lettuce, Onions, Parsley, Peas, Potatoes, Radishes, Rhubarb, Spinach, Tomatoes.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Flower name and price. Includes Anemone, Aralia, Azalea, Begonia, Carnations, Cyclamen, Daffodils, Delphiniums, Gladioli, Hyacinths, Lilacs, Lilies, Pinks, Ranunculus, Tulips, Violets.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Plant name and price. Includes Aralia Sieboldii, Arborvitz, Begonia, Cyclamen, Daphne, Erica, Ficus, Geranium, Impatiens, Myrtle, Pelargonium, Poinsettia, Primula, Symplocos, Yucca.

SEEDS.

LONDON: April 12.—The seed market to-day was

CORN.

Monday being a Bank Holiday there was no business

CATTLE.

At the Metropolitan Market on Monday the best

HAY.

Tuesday's Whitechapel Market report states with

POTATOES.

From the Borough and Spitalfields Markets reports

COALS.

The following are the prices current at market during

Government Stock.—Consols closed on Tuesday

SEE THE NEW AMERICAN LAWN MOWER, THE "PRESIDENT,"



Awarded Twenty-four First, Gold, Silver and Bronze Medals at Exhibitions in America and Europe.

THOMAS M'KENZIE & SONS (Limited), 16, Holborn Viaduct, London, E. C.

Seed Potatoes.—Early Rose, Lapstone, Magnum Bonum, Pride of America, Salmon Kidney, Trophy, Wonderfull, President, Fraser's Favorite, Climax, Early Ohio, Grandin, Improved Peach Blow, Mammoth Peat, Manhattan, Rector of Woodstock, Red Emperor, Ruby.

ASPARAGUS, 1-yr., 2-yr., and 3-yr., fine stuff. Jerusalem and Globe ARTICHOKE, RHUBARB, Ruby, Johnson's St. Martin's, Luncheon. Plain GREEN SEED. Ashted Potatoes.

FOR SALE, about 500 GREEN HOLLIES, 12 inches to 2 feet, lush and well rooted. Apply to W. HANDSCOURT, Nurseryman, Aspley Gue, Wulmton, Beds.

GARDEN REQUISITES. COCOA-NUT FIBRE REFUSE.

3d. per bushel; 100 for 25; 1 truck (loose, about 2 tons), 100 for 25; 1 truck (loose, about 2 tons), 100 for 25. LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each. BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each. COARSE SILVER SAND, 1s. 6d. per bushel; 15s. per half ton, 20s. per 2 bushel bags, 4d. each. YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel. SPHAGNUM MOSS, 8s. 6d. per sack. Manures, Garden Sticks, Virginia, Tobacco Cloth, Russia Mats, &c. Write for FREE PRICE LIST.

H. G. SMYTH, 17A, Coal Yard, Drury Lane (late of St. E. St., Long Acre), W. C.

COCOA-NUT FIBRE REFUSE, best and pure only. 4 bushel bag, 1s. 12 bags, 20s.; 30 bags, 18s.; 100 to all parts, 10s. 4 bushels, all 4d. each. A. FULON, 39, St. Mary Axe, London, E. C.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful all seasons. Invaluable for Fitting, Plunging, Fencing, Ferneries, Straw-benches, Licking-out Plants, &c. Destroy all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s. 15 Sacks, 20s. (all Sacks included): Truck-load, free on rail, 25s. Limited quantities only. Special Quotations for grand hotels, in sacks only, 4s. 6d. each (2 prize medals), valuable for putting and use in conservatory. Terms cash in advance.—To obtain the genuine article, buy from the Manufacturers, CHUBB, BROADWAY AND CO., Fibre Works, West Ferry Road, Millwall, London.

COCOA-NUT FIBRE REFUSE, the best that is made, as supplied to the Royal Horticultural Society and principal Nurserymen in England. In 4-bushel bags, 15 bags, 12s.; 30 bags, 14s. (bags included); truckload of about 250 bushels, 21s. cash; all free on rail. J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S. W.

LOAM, splendid Yellow Fibrous, 15s. 6d. per ton. Good useful brown PEAT, 22s. 6d. per ton, free to Bricklayers Arms, S. E. R. Truckloads only, of 3 tons of each in one truck.—A. FULON, 39, St. Mary Axe, E. C.

PEAT SOIL.—Black Peat, for Rhododendrons and other trees. Truck 60 tons, 40s. 40s. 40s. Brown Fibrous Peat, for Orchids, Ferns, Stone Plants, &c. 26 per sack, 4 tons, on rail, Cambridge, L. & S. W. R., or Black-ett, S. E. R. Sample bags on rail at Reading Station, 5s. per bag. Cash with order.—JAS. HOLDER AND SON, Crown Nurseries, Reading.

12-oz. Sample Packets, free by post, 12 stamps. FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stone Plants, &c., 4s. 6d. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per truck. Sample bag, 5s.; 5 bags, 22s. 6d.; 10 bags, 42s. Bags included. Fresh SPHAGNUM, 10s. 6d. per truck.

SILVER SAND, Coarse or Fine, 52s. per truck of 4 tons. Best Sandstone BLOCKWORK, 7s. per truck of 4 tons. GRAVEL, good colour, 25s. per truck of 6 tons. WALKER AND CO., Farmborough Station, Hants.

How to Destroy Weeds, Moss, &c., on Gravel Walks.—W. SMITH'S celebrated WEED KILLER, the most successful thing of the day. It is a liquid preparation, which when mixed with water and applied with an ordinary watering-can, proves thoroughly destructive to all vegetable growth. For particulars and a List of first-class Testimonials, address—W. SMITH, Chemist, Louth, Lincolnshire.

MARK SMITH, Chemist, Louth, Lincolnshire. THE WEED KILLER is sent carriage paid to any Station in England or Scotland.

Thomson's Vine and Plant Manure.
Manufactured and Sold by
THE LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED.

This is the Manure used to produce the splendid Grapes grown at the Tweed Vineyard, Clovenfords.

Full particulars on application. The Trade supplied.

All Letters to be addressed to THE MANAGER, The Vineyard and Nursery, Garston, near Liverpool.

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To the NURSERY and SEED TRADE, AMATEURS, and GARDENERS,
"THE ELECTRIC"
PLANT MANURE,
(BASKERVILLE'S).
The finest Stimulant for all Plants.

Circulars of Advantages, Analysis, and Testimonials, post-free.

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And of the MANUFACTURER,
FRANCIS BASKERVILLE,
16, QUEEN'S ROAD, BRISTOL.

(REGISTERED)
Hydro-Carbon Oils as Insecticides and Washes for Plants and Animals.

SOLUBLE
FIR TREE OIL INSECTICIDE.

Bottle, 12. 6d., 21. 6d., 42. 6d., and 72. 6d.; Gallons, 12s. 6d.; Casks, 12s. per gallon.
It destroys all insect pests on plants and fruit trees, whether at the roots or on the foliage. It destroys all parasites and fungous which infect animals and human beings.
It is free from poison, very clean and pleasant in the using. It is the cheapest insecticide ever produced.

Testimonial.
Whitney Gardens, February 15, 1882.
Mr. HUGHES.—Sir,—Please send me at once a gallon Fir Tree Oil. I have again tried the above, and believe it to be what has been said of it. My previous disappointment with it was on account of its not being stored sufficiently.—Yours, &c.,
JAS. TISSINGTON.

ROLL TOBACCO PAPER,
CLOTH, and FIBRE for Fumigating.

The best and strongest it is possible to obtain. 6 lb. 4s. 6d.; 25 lb., 20s. Good Strong Tobacco Paper or Cloth, 6 lb. 2s. 6d.; 25 lb., 15s. Garbage paid to London, or any Railway station in Kent.

All our articles contain the pure Essence of Tobacco only. Used in Royal Nurseries, the Gardens of the Nobility, and by leading Men of the Profession, &c.

MANUFACTURERS,
DARLINGTON BROS., Frederick Street, Chatham.
Post-office Orders and Cheques, Darlington Bros., Chatham.
Old Tobacco Rope, VERY STRONG, for Fumigating, &c., 56 lb., 12s. 6d.; 1 cwt., 22s.

HENRY GODFREY, NURSERYMAN,
Stonbridge, informs Horticulturists in general he can supply **KIBBLED CHARCOAL** in two sizes, which is so highly recommended for Potting purposes. See *Gardeners' Chronicle* of April 1, 1882. In 3 Bushel Bags 9s., free on Rail.

DENY'S Unrivaled ROLL PAPER and CLOTH, as supplied to over 3000 Nurseries, 4 lb., 9s.; 25 lb., 18s.; cwt., 70s.—J. DENY, MANAGER, 73, Kenilsham Road, Clapton, London, E.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Insects, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 12s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE saves feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

Wholesale by **PRICE'S PATENT CANDLE COMPANY (Limited)**. Retail by Seedsmen and Oilmen.

ARCHANGEL and ST. PETERSBURG MATS, RAFFIA, SEED BAGS and SACKS, NETTING and SHADING, &c. Prices on application.

MARQUEES and TENTS, SECOND-HAND GOVERNMENT TENTS, 45 feet round, complete, 35s., suitable for the Garden, Cricket Clubs, &c.
W. PETERS, 44, Tenor Street South, Goodman's Fields, E.



WHITE ELEPHANT POTATO.

THE MOST WONDERFUL CROPPING POTATO IN THE WORLD.

For this splendid Cooking variety we received Certificate of Merit from the Royal Horticultural Society, November 3, 1881.

The True Stock 6d. per pound; 7 lb., 3s.; 14 lb., 5s.; 56 lb. 18s.; 112 lb., 34s.

TESTIMONIALS:

From Mr. E. CLARK, *King's Langley, Herts., October 20, 1881.*
"From the one pound of WHITE ELEPHANT POTATO I have lifted 206 lb. weight."

From Mr. KERRY, *Hallen Hologate, Spibby, October 27, 1881.*
"The one pound of WHITE ELEPHANT has turned out very fine. I have lifted 226 lb. from it."

DANIELS BROS.,
ROYAL NORFOLK SEED ESTABLISHMENT,
NORWICH.

NATIVE GUANO,

SUITABLE FOR ALL CROPS.
Price, £3 10s. per Ton, in Bags, at Aylesbury.

A single 1 cwt. Sample Bag sent, Carriage Paid, to any Railway Station upon receipt of Post-office Order for 5s.

This valuable Manure, prepared from Sewage by the "A B C" process, has been extensively used, for several years, by Farmers, Gardeners, and others, whose reports testify to its fertilising properties.

EXTRACTS FROM LAST SEASON'S REPORTS:—

WILLIAM CRISP, *Gr. to Duke of Marlborough, Bloisheim Palace Gardens, December 12, 1881.*
"Used for Vines, Peach trees, and other fruit trees, also Potatoes, Carrots, Parsnips, Onions, &c. Results: satisfactory. Fruit trees assumed rich dark green foliage, increased vigour, while the fruit swelled up to a very fine size. Potatoes came out in splendid condition; other roots too were benefited by its application. No other manure used with Native Guano. Undoubtedly a valuable fertilising agent, and I shall lose no opportunity of recommending it to gardeners and others."

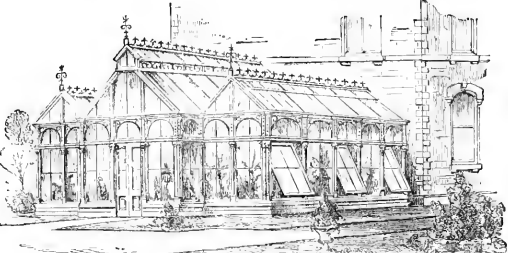
A. BLAKE, *Hood Gr. to H. Casmore, Esq., The Lilies, Woodon, February 2, 1882.*
"Used for Peas, Potatoes, Onions, Cabbage, Cauliflowers, Celery, Vines, Cucumbers, &c.; Chrysanthemums, Primulas, Geraniums, Fuchsias, &c. Results: Onions, Cabbage, Cauliflowers, and Peas good; Cucumbers, first-rate; Potatoes, a good crop, and I consider it a good manure for pot plants. I think the Native Guano only requires to be more known to the public to be largely used."

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ENGINEERING WORKS, LOUGHBOROUGH.



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MESSENGER AND CO., from their long experience, and having large Works exclusively devoted to the Construction and Heating of Horticultural Buildings, are in a position to execute with despatch, in the best manner, the Orders with which they are entrusted. Only thoroughly well seasoned timber used.

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SENT CARRIAGE PAID.
MONTH'S TRIAL ALLOWED.
NO CHARGE FOR PACKING.

THE BEST GENERAL PURPOSE MACHINE.

The "AUTOMATON" Lawn Mowers are thoroughly strong, well-made, and durable machines, and the best suited for general work and *Gardeners'* use. They cut the grass perfectly, leave no ribs, but produce a smooth velvety surface on the Lawn, and are light in draught.

The "AUTOMATONS" have front rollers for general work, and *scare rollers* for cutting long grass, or when it is unnecessary to roll the grass in front of the cutters. They have the best machine made gearing, the best self-sharpening knives of steel and iron rolled together, and automatic silent drivers.

R. H. & J. also manufacture "REVERSIBLE" Lawn Mowers for Small Gardens and Borders, and "HORSE-POWER" Lawn Mowers for Large Lawns, &c.

MELBOURNE EXHIBITION, 1881, THE HIGHEST AWARD.

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THE "WORLD" (date "GLOBE") Lawn Mowers are intended for cutting long grass; and, whilst similar to the Lawn Mowers imported from America, have the special advantages of the more accurate fitting and general durability of English manufacture and perfect adjustment.

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Protect your Glass from Frost and Cold Winds, by using Strong Wall-paper called FRIGI DOMO, which can be obtained from all Nurserymen and Florists, or from BENJAMIN EDINGTON, 2, Duke Street, London Bridge, S.E. Frigi Domo is a registered article, with all Trade Marks and rights.

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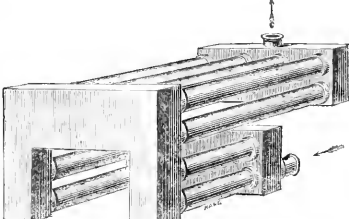

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THIS Machine constantly employed will pay itself in two days. Has it the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and he further adds, "the use of it will, we have no doubt, become general." Price 30s. PALL MALL LAWN EDGER CO., 15, Pall Mall, London, W.

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Hot-water & Hot-air APPARATUS erected complete, or the Materials supplied.

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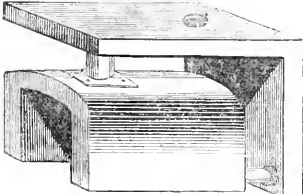
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High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	30 ..	300	8 0 0
20 ..	18 ..	24 ..	400	8 0 0
20 ..	18 ..	30 ..	500	10 0 0
24 ..	24 ..	30 ..	750	15 0 0
24 ..	24 ..	30 ..	850	14 0 0
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NETTINGS and SHADINGS** of all kinds,
ROT PROOF, DAMP PROOF CANVAS.

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MARKET VAN, powerful HORSE, and HARNESS for Sale. Apply to
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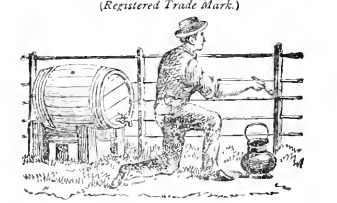
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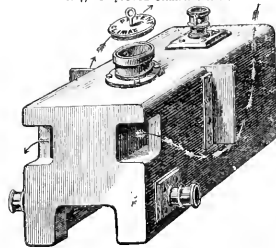
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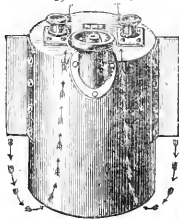
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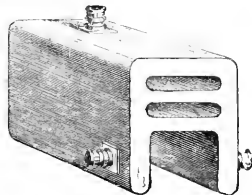
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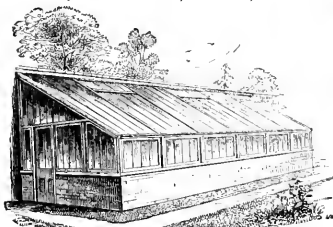
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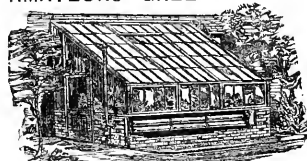


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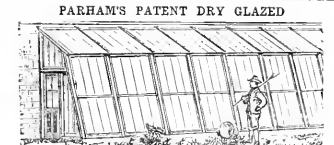
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FOREMAN, a steady, single young man, seeks a situation as above in a Gentleman's establishment. Can be well recommended as to character and abilities.—F. G. Mrs. H. M. Miller, Russell Street, Battersea Park Road, Battersea, London, S.W.

FOREMAN, in a Nobleman's or Gentleman's Garden, where a married man is required.—Age 23; thorough practical knowledge of Gardening. Good references.—W. HOUSEKEEPER, Corn Exchange Chambers, Seething Lane, London, E.C.

FOREMAN (INSIDE).—Age 25; eleven years' experience. High-class testimonials.—M. ELLICE, John's Place, Corstorphine, Edinburgh.

FOREMAN and PROPAGATOR.—Age 30; twelve years in leading London Nurseries. Good knowledge of Stove and Greenhouse, Hard and Soft-wooded Plants, and Orchids.—J. S., Mr. Speed, Bolton Bridge, near Skipton, Yorkshire.

FOREMAN, or FIRST JOURNEYMAN in a good establishment.—Age 24; two years in present place under Glass, and three in previous one. Would not object to Premium for the first year.—N. S., The Gardens, Walton Hall, Warwick.

FOREMAN PROPAGATOR and GROWER.—Well up in the Cultivation of Roses, Conifers, and Ornamental and Soft-wooded Plants. First-class references.—HORTUS, New Cubington, near Leamington.

FOREMAN.—Single, well up in all branches of Gardening, and Late Forcing, and the routine of a first-class establishment. Good character.—N. S., Winton House, Holderhurst Road, Bournemouth.

FOREMAN, or SECOND, in a good situation.—Age 24; over nine years' experience. Three years' good character from last situation.—Apply, stating wages, &c., to W. H. JONES, Bryn Hall, near Wrexham, Denbighshire.

JOURNEYMAN, in a good establishment.—Age 21; first class reference.—J. E. SCAMMELL, Pineapple Nursery, Maids Vale, N.W.

JOURNEYMAN, in the Houses, in a large establishment.—Age 27; seven years' experience. Good character.—T. H., 27, Bandon Road, Victoria Park, London, E.

JOURNEYMAN, in a good place.—Seven and a half years' good experience; last place three and a half years', wholly Irish. Good characters.—J. FRIEND, Penrhyn, East Grinstead, Sussex.

JOURNEYMAN, in the Houses.—Age 20; five and a half years' experience in large establishments. Good character. Total abstainer. State particulars.—T. H., 5, Cromwell Place, Twickenham.

JOURNEYMAN, in a good establishment.—Age 21; five years' experience. Well recommended.—Apply, in first instance, to W. BUGBY, Springfield, Lyons, Cornwall.

JOURNEYMAN, in the Houses.—Age 20; five years' experience in one and eight months in last situation. Strong and energetic.—W. HIGGINS, Ebenezer Cottage, Fleet, Winchfield, Hants.

IMPROVER, in a good establishment.—Age 20; can be well recommended from previous and present places.—JAMES HOFFHAM, Clumber Gardens, Worsop, Notts.

IMPROVER, in a Nobleman's or Gentleman's Garden. Age 21; can be well recommended. Has had four years' experience.—H. POLLARD, Monk Sherbourne, Easingtoke.

FORESTER (HEAD).—Scotch; thoroughly practical. Satisfactory Certificates.—PETER S. ROBERTSON, Trinity Nurseries, Edinburgh.

SEED TRADE.—A GENTLEMAN of experience, well known on the Road, will shortly be open to treat with any British House.—CONFIDENTIAL, *Gardener's Chronicle* Office, W.C.

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Wholesale Seed or Nursery Trade. TRAVELLER, MANAGER, or SHOPMAN.—Many years' experience in every branch of the Trade. At present with one of the largest houses in the North of England, and is well known amongst Market Gardeners and Seedmen.—W. H., 10, Sunning Street, Lovaine Place, Newcastle-on-Tyne.

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NURSERY CLERK.—Has had twenty years' experience in the routine of both the Nursery and Seed Trade. For the last two seasons with Messrs. Wm. Paul & Co. in an above capacity. Efficient, corresponded and looked after the business of the Nursery. Moderate salary.—E. M., Key Gate, Ekeator Road, Waltham Cross, N.

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To Seedsmen and Florists. ASSISTANT.—Age 20; respectable. Can offer good references.—D., 91, Fentola Road, Ealham, S.W.

EPPS'S CHOCOLATE.

By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has prepared this delicious beverage which may save many a heavy dollar's cost of a doctor's bill. It is the judicious use of such articles of diet which constitute may be gradually built up, and it is the best remedy for all the maladies attending adult and every tendency to decay wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure Bile and a properly-nourished frame.—*Gen'l Serv's Gazette.*

Made simply with boiling water or milk. Sold only in packets, labelled, JAMES EPPS and CO., HOMEOPATHIC CHEMISTS, London. Makers of Epps's Chocolate Essence for Afternoon use.

HOLLOWAY'S PILLS are securities of health to all nations, of whatever clime. They have given hope, relief, and comfort to millions. In constitutions debilitated by excesses of any kind, or in general prostration of the system, their effect is tonic and restorative. They eradicate from the system the moral cause of ailments, thereby in the frame its pristine animality, health and vigour. They greatly increase the appetite, give tone to the stomach, assist the digestion, and impart elasticity to the spirits; they encourage the circulation, and carried through its course exert its cleansing power over every organ. In the lungs they effect most striking changes, converting the impure venous into pure arterial blood, by which the whole frame is enriched and interstitial deposits removed.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING and COLLECTING MACHINES for 1882.

THE WINNERS OF EVERY PRIZE IN ALL CASES OF COMPETITION.

Patronised by Her Most Gracious Majesty the Queen on many occasions, His Royal Highness the Prince of Wales, the King of the Belgians, the late Emperor of the French, the Emperor of Russia, and most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. *The "Journal of Horticulture," of June 9, says:—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Son, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."*

Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856,

And Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

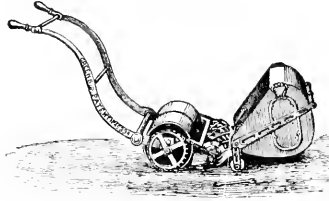
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible.
- 2d. They are worked with much greater ease than any other.
- 3d. They are the least liable to get out of order.
- 4th. They make little or no noise in working.
- 5th. They will cut either short or long Grass, wet or dry.

Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower.

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
*To cut 22 inches. By Two Men ...	8 10 0
*To cut 24 inches. By Two Men ...	9 0 0

*H made stronger, suitable for Donkey, 30s. extra.

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey ...	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

PRICES.

Without Grassbox.

To cut 6 in. £1 1 0
To cut 7 in. 1 8 0
To cut 8 in. 1 15 0

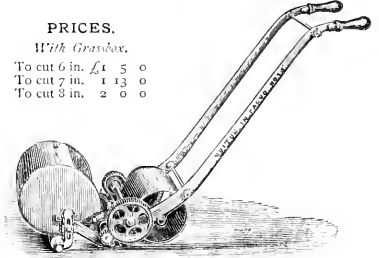
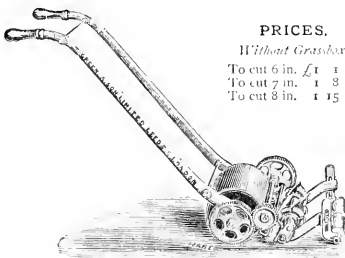
This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, serviceable machine, and very easy to work.

PRICES.

With Grassbox.

To cut 6 in. £1 5 0
To cut 7 in. 1 13 0
To cut 8 in. 2 0 0

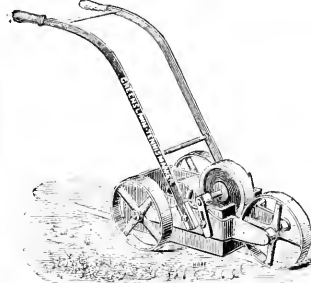
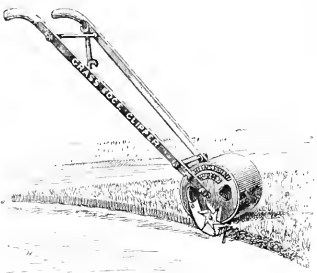


GREEN'S PATENT GRASS EDGE CLIPPER. GREEN'S PATENT LAWN TENNIS COURT MARKER.

Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.

SIZE and PRICE.

Wide. Diam.	
8 inch .. 7 inch ..	£1 10
Packing Case, 2s.	



This Machine is of novel design and construction, and the simplest and most effective in its operations.

In the trough containing the liquid there is a loose drum which revolves when the machine is in motion, and conveys the marking material to the intermediate pulley, which in its turn transmits it to the front one, so that the ground is marked effectively as the machine is pushed along.

Price, 21s.

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.

Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

No Lawn Mower Manufacturer keeps so large a stock of Mowers as is to be found at our London Establishment, 54 and 55, Blackfriars Road, where purchasers can select out of several hundred Machines, of Hand, Pony, and Horse Power, and have their Orders executed the same day they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

THOMAS GREEN & SON (Limited), Smithfield Ironworks, Leeds; and 54 and 55, Blackfriars Road, London.

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{ WITH SUPPLEMENT. }

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

THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, is \$6.35 for Twelve Months. Agent for America.—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE!—COMMITTEES MEETINGS. Fruit and Floral, at 11 A.M. Scientific, at 11. General Meeting for the Election of Fellows, &c., at 3 P.M. NATIONAL AGRICULTURAL SOCIETY'S SHOW, Farnham, and Band of the Royal Horse Artillery, 209 in the Conservatory on TUESDAY NEXT, April 25. Open to the Fellows at 12 and the Public at 1 o'clock. Admission, 1s. Shiley Hibberd, F.R.H.S., will Lecture on the Early History of the Arbutus, at 3 P.M.

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

The SECOND EXHIBITION OF SPRING FLOWERS will take place on WEDNESDAY, April 26. Gates open at 2 o'clock. The Band of the Royal Horse Guards will play, by kind permission of Colonel F. Barnaby, from 2 to 3 o'clock. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 2s. 6d.

ALEXANDRA PALACE, JONES & BARBER, Lessees.

The following are the FLOWER and DECORATIVE SHOWS fixed for the present season:—

- June 20.—DECORATIVE EXHIBITION and PELARGONIUM SHOW.
- July 8.—GRAND ROSE SHOW.
- Aug. 1.—NATIONAL GOLF CHERREY SHOW.
- Aug. 12.—GRAND DECORATIVE EXHIBITION and SHOW of GLADIOLI.
- Oct. 7.—NATIONAL GOLF SHOW.
- Nov. 4.—EXHIBITION OF HARDY FRUIT.
- Dec. 21.—EXHIBITION OF HARDY TREES.

Schedules can be obtained upon application to J. FORSYTH JOHNSON, Director of Horticultural Exhibitions.

THE BURTON-ON-TRENT FLORAL and HORTICULTURAL SHOW.

The FIRST EXHIBITION of the Season will be held on JUNE 21. Open to all England. £20, £10, and £5 will be given for the best twelve Show and Greenhouse Plants. Schedules and further information may be obtained by applying to R. W. BARRATT, Abbey Cottage, Horninglow Street, Burton-on-Trent.

LEEDS FLOWER SHOW, JUNE 21, 22, and 23, 1882.

The SCHEDULE of PRIZES is now ready, and may be had of the Secretary, J. H. CLARK, Printer, Briggate, Leeds.

RICHMOND HORTICULTURAL SOCIETY.

The EIGHTH ANNUAL EXHIBITION of this Society will be held in the Old Deer Park, Richmond Green, on THURSDAY, June 29. Schedules may be obtained on application to GEORGE EYLES, Honorary Secretary, Lesham Villa, kew. N.B.—The Veitch Memorial Prizes and Medals will be competed for at this Show.

WILLIAM SHEPPARD, LANDSCAPE GARDENER, &c. (SUCCESSOR to the late Mr. N. Niven), begs to inform the Nobility and Gentry that he has REMOVED from Oxford Road, to CHARLEVILLE, CHURCHTOWN, DUNDUM, DUBLIN.

Notice of Removal.
JAMES BOYD BOND, Son, Paisley and London, beg to intimate that they have REMOVED their London Office from 6, Suffolk Street, Pall Mall, to 48, PALL MALL, S.W.

KING'S NEW COLEUS for 1882.—The splendid varieties Certified by the Royal Horticultural Society last season, are now being offered by JAMES CARTER & CO. Particulars on application to The Queen's-Seedsman, 237 and 238, High Holborn, London, W.C.

Tea Scented Roses on Brier. EDWIN HILLIER'S stock of the above is now fit for distribution: fine healthy plants in 48-size pots by the dozen, 100, or 1000. CATALOGUES, Nurseries, Winchester.

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To the Trade. CATALOGUE of NEW ROSES for 1882. TEA ROSES, &c., now ready, and may be had post free on application to THE QUEEN'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

TUBEROSES, double American. LILIUUM CHALCEDONICUM. LONGIFLOKUM, imported from Japan. GLADIOLUS COLVILLI ALBA, "The Bride." G. DAVENPORT'S, 10, FLORENTINUS. RAMOSUS. NE PLUS ULTRA. Special quotations on application. WATKINS and SIMPSON, Wholesale Seedsmen, Exeter Street, Strand, W.C.

To the Trade. PRIMROSES.—PRIMROSES. Double WHITE, per 100, 14s. Double YELLOW, per 100, 14s. All fine plants. RODGER, McCLELLAND and CO., 76, Hill Street, Newry.

THOMAS RIVERS and SON are now prepared to supply PEACHES and NECTARINES, in pots, fine healthy Trees, beautifully set with Fruit, 7s. 6d. and 10s. 6d. each. The Nurseries, Sawbridgeworth, Herts.

Plants for Spring. CHARLES TURNER'S CATALOGUE. Is now ready, containing full lists of Flower Plants, Pelargoniums of all classes, new Roses, Bedding Plants, &c. C. TURNER especially directs attention to his fine collection of Carnations, Picotees, and Cloves, at this most seasonable time for planting. The Royal Nurseries, Slough.

Pelargoniums. PELARGONIUMS.—Show, French, and Fancy varieties, strong, healthy plants, established to single pots, 15s. per 100, packing included. Cash with order. JAS. HOLDER and SON, Crown Nurseries, Reading.

Sweet Bay (Laurus nobilis). JOSEPH T. GLENN, BAUMANN, Ghent. Belgium, has a splendid stock of the above to offer, from £1 to £20 per pair. CATALOGUE with illustrations may be had free on application.

Verbenas—50 000 Now Ready for Sale. S. BIDE can now supply really good strong S. spring-struck plants of Purple, Scarlet, White, and Pink VERBENAS at 6s. per 100. Good exhibition varieties, 8s. per 100. Packages free for cash with order. Also strong healthy Cuttings of the above at half price free by post. S. BIDE, Alma Nursery, Farnham, Surrey.

Gardeners and Others having a Surplus Stock of MAIDENHAIR FERNS, will find a ready Sale by applying, by letter, stating size and price, to A. Z., Smith's Bookstall, West Dulwich Station, S.E.

WANTED, EUCHARIS, TUBEROSES, GERANIUM, &c. for bed and ground. Also FRENCH BEANS, GRAPES, &c.—WISE AND EIDSON, Fruit and Flower Salesmen, Covent Garden, London, W.C.

WANTED, large quantities of the following, must be well rooted, and nice healthy stuff, out of pots:—CALCEOLARIA, Golden Gem and aurea floribunda. GERANIUM, 24 bed and ground, Pink and Scarlet. Silver-leaved, Flower of Spring. ALTERNANTHERA, amena and paronychioides. LEUCOPHYM BROWNII.

Forward samples, with lowest price per 100, for cash, to G. REYES SMITH and SON, Astor Lower Grounds, Birmingham.

WANTED, a quantity of EVERGREEN PRIVET, from 2 to 3 feet. Send lowest price per 100. M. EDWARDS, Florist, &c., Upper Newwood, Surrey, S.E.

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Now is the time to Transplant HOLLIES.—Grand specimens of all sizes to 10 feet high, and of the Best Variegated and green kinds. See LIST free on application. These Trees should be seen to be appreciated. RICHARD SMITH and CO., Worcester.

HOLLIES—HOLLIES.—5000 Golden and Silver Queen Hollies, 2y. grafted. Prices, with samples, on application to R. AND A. MORRISON, The Nurseries, Elgin, N.E.

GERANIUMS for BEDDING-OUT. Strong healthy autumn-struck plants, in good variety, at 10s. per 100. Silver Variegated, 12s. per 100. Packages free for cash with order. S. BIDE, Alma Nursery, Farnham, Surrey.

1882—Illustrated Hardy Perennials.—1882. THOMAS SWALE will have pleasure in posting the above CATALOGUE free upon application. It contains a grand collection of Rare New and Hardy Perennials. Hale Farm Nurseries, Tottenham, London, N.

BEDDING VIOLAS.—Admiral, Duchess of Sutherland, Sovereign, Daisy, and Victoria, all autumn struck in open ground, 8s. per 100. Double crimson and white PAINTS, full of bloom, 2s. 6d. per 100. SANTOLINA INCANA, autumn struck, 8s. per 100. GRAPE HYACINTHS, ANEMONE JANICA, SCHIZOSTYLIS COCCINEA, and the finest SEED per bedding, all at 8s. per 100. T. L. MAVOS, Nurseryman, Hereford.

DOUGLASSI SEED.—Crop 1881, from the celebrated Douglas's Forest at Murphree Castle, Perthshire. Price per pound, 8s. per 100. R. AND A. MORRISON, The Nurseries, Elgin.

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Verbenas—Verbenas. VERBENAS.—Strong, healthy, well-rooted Cuttings, perfectly free from disease, Purple, Scarlet, and Pink, 6s. per 100. 50s. per 100. 100 strong rooted Cuttings, in twelve most splendid varieties, First-price Flowers, for 3s. Terms cash. EXECUTORS of the late H. BLANDFORD, The Dorset Nurseries, Blandford.

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EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

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SINGLE DAHLIAS.

A grand Collection, including all the beautiful NEW VARIETIES, and the best of the older sorts; also ZIMAPANI, The Black Dahlia, JUKARZI...

CATALOGUE of the above may be had Post-free upon application.

THOMAS S. WARE,

HALE FARM NURSERIES, TOTTENHAM, LONDON.

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MR. J. C. STEVENS has received instructions from **Mr. F. SANDER** to **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, April 27, at half-past 12 o'Clock precisely, a splendid Importation of

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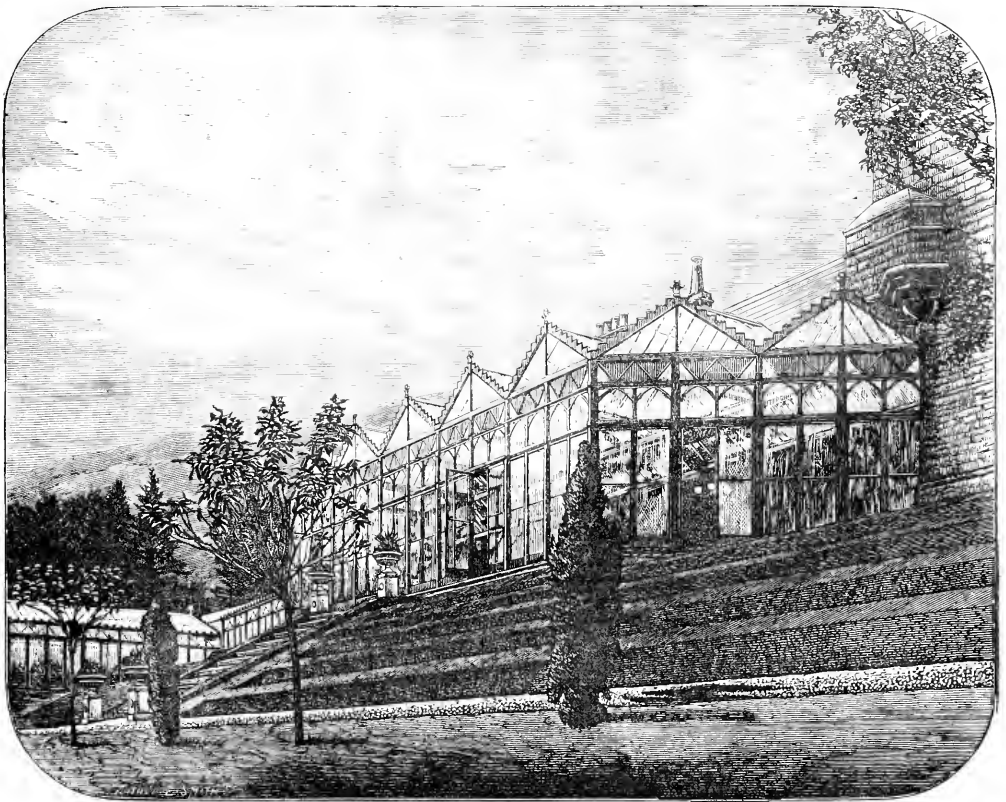
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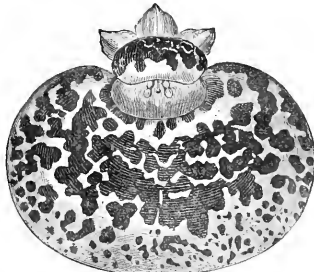
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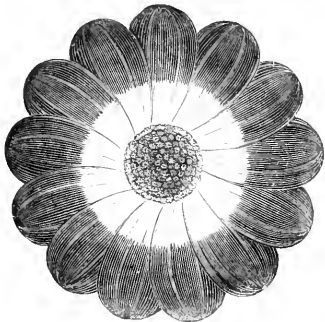
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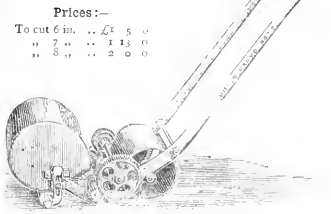
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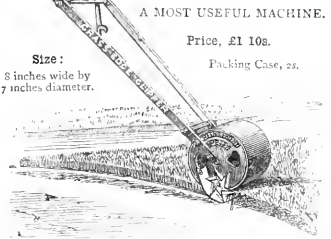
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THE Gardeners' Chronicle.

SATURDAY, APRIL 22, 1882.

GERMS AND BACTERIA.

THE part formerly played by electricity seems now likely to be assigned to Bacteria. A few years ago, when any new or strange phenomenon was made known, a ready explanation was found in the word electricity, and most people of an unscientific turn of mind complacently went on their way without giving a longer thought to the matter. Now-a-days "Germs" and Bacteria are accepted by many as the causes of various phenomena with just as little real enquiry. It is not that electricity is really any less potent than before, but the potency of Bacteria is a new revelation. Although the word is getting common, and the effects more and more recognised, the definition of Bacteria is not yet settled, their place in organised Nature not known beyond dispute, their life-history by no means fully unravelled. It must suffice for us here to remind the reader that these Bacteria are, in all probability, plants; they are certainly of extreme minuteness, and of extreme simplicity of structure, and they are probably mere transitory stages of some more perfect organism. Under certain circumstances they exist in prodigious numbers, and under certain circumstances, they bring about changes and diseases in the unfortunate animals or plants into which they gain an introduction. It is natural to suppose that these minute germs are but the accompaniments of fermentation and putrefaction—effects, not causes, and this may be so in some instances. In other cases it has been proved to demonstration that certain changes and diseased conditions arise when they are introduced, and do not arise when by various means their entrance is prevented, or their activity destroyed. By experiments on animals, amongst other means, these facts have been established, and not only this, the means of prevention have been found. One hundred and fifty thousand horses, cattle, and sheep, have now been vaccinated by M. Pasteur and his disciples, and the success in preventing the access of splenic fever, if not absolute, is yet so large as amply to prove the greatness of the benefit conferred. As we have already referred to this matter, explained the *rationale* of the process, and recorded the already vast beneficial results, we need not again enter into details further than to remind cultivators of fruit trees that they have their concern in the matter, since it has been asserted—though the statement requires confirmation—that a particular form of canker in Apple trees is caused by the presence of these Bacteria.

It is our purpose, however, now to once again call attention to an aspect of the matter in which cultivators, whether farmers or gardeners, have the deepest concern—we mean the existence of these agents in the soil and the work they do in it. In some remarks contributed to these columns under the title *How Horticulture*, it was shown by the writer how the difference between the inert "dead soil" and

the "live soil" might be accounted for by the presence of these wonder-working agents in the one and their absence in the latter. Sterile poor soil may and often does owe its sterility, not to any real deficiency of plant food in the soil, but to the absence of those go-betweeners whose office it is to convert the insoluble to the soluble, the useless to the useful. The food may exist in abundance, but for want of proper cooks it may be of no avail to the hungry plants. The actual quantities of certain ingredients taken from the soil by plants are often so small that it rarely happens that a soil does not prove on analysis to contain ten times—a thousand times—more than what would be required for the plants growing upon it. The analysis of a soil by a chemist is, however, one thing, the analysis of the same soil by a plant is quite another. Most soils, for instance, contain as much potash as the plant is likely to require, and yet it is not always yielded up to the plant in sufficient quantities, as is proved by the beneficial results of the application of potash manures. We do not yet know whether Bacteria play any part in the supply of potash in an available form, but quite apart from potash it is certain that we often actually pay for large quantities of fertilisers when there is a more than sufficient supply already in the soil could we but make them available. We do not lay this down as absolute truth, of universal application at all times and seasons; we are far too ignorant as yet to deal in dogmas; still what we have said is, we believe, substantially a correct illustration of a general truth, and represents, so far as it goes, the present state of science on this matter.

The latest publications on the subject are those of Mr. Warington, who lately addressed the Society of Arts on the subject. Nitre, or saltpetre—in chemical language potassic nitrate, or nitrate of potash—is, as has long been known, formed in the soil in large quantities in certain hot countries, and it was ascertained by chemists that this production of potassic nitrate was due to the combination of nitric acid and potash. The nitric acid necessary to form the combination does not exist ready-made in the soil, but is derived from ammonia. Now, when oxygen is added to ammonia (a compound of hydrogen and nitrogen) the ammonia is oxidised, as it is said, and the ammonia becomes converted into nitric acid. Thus much was known for certain, but until the last few years it was not known what brought about the oxidation of the ammonia. Two French chemists, MM. Schlessing and Muntz, in 1877, proved that the formation of nitre in the soil was due to the action of a living ferment. Mr. Warington investigated the subject for himself in Mr. Lawes' laboratory at Rothamsted, and has been enabled to confirm fully the theory just mentioned, and the proof was afforded by the same means as those we have before alluded to. When access of germs was prevented, no nitrification took place; when they were allowed ingress, or when they were purposely added, then the process began: so that in the inorganic lifeless soil, as well as in the organic living plant or animal, these humble organisms play a part of first-rate importance. Mr. Warington having succeeded in producing nitrification at will, proceeds to show how the process may be carried on on a large scale for commercial purposes; and a perusal of his paper among other things suggests the possibility of making our own nitrate of soda, and of thus reducing the cost of this valuable manure.

Another very important aspect of the case is touched on by Mr. Warington; we allude to the purification of sewage. The purification of sewage by the soil depends upon one or more of the following causes:—1, simple filtration; 2, on the precipitation and retention by the soil of ammonia, &c., previously in solution; and lastly, and especially, by the oxidation

of the ammonia and of organic matter by the agency of living organisms (Bacteria). These organisms are abundantly present in surface soils, but are probably absent, or nearly so, from sub-soils, but sewage and farmyard manure contain the organisms necessary for their own destruction, and the supply of the plant with food. The amount of nitrates formed in the soil, and which are so important to plants—inasmuch as it is through them that vegetation derives its nitrogen—is very large, and has formed the subject of special investigation at Rothamsted. There the rainfall, the amount of drainage water per acre, down to a depth of 60 inches, and the quantity of nitrogen in that water have been determined for the last five years; the general result being that nitrates are seen to be produced in large quantities even in unmanured fallow soil, more especially in the hot autumn months; on the other hand, during the rainy months a large quantity of the nitrates will be washed away, to the detriment of the soil's fertility. The growth of any crop on the land checks this outpour of nitrates, first because much more water is evaporated from the soil and the plants together than from the bare soil, so that the amount in the drainage will be diminished, and because the roots greedily take up the nitrate from the soil, so that the drainage waters collected from a Wheat field in June—July were found to contain little or no nitrate—all, or nearly all, had been taken up by the plant. The Wheat, however, ceases to take up nitrates after its season of growth is over, and there is, therefore, the risk, the certainty rather, that the remaining nitrogen will be drained out from the soil. But in the case of root crops the growing period goes on much longer, so that the roots get the benefit of the summer production of nitrates and obviate much of the loss and waste in the autumn. Permanent pasture, where there is a crop on the land all the year round, obviates the loss of nitrates even more effectually. With reference to this waste of nitrogen (valued at about 1s. for 7 lb.) the practical question is, whether it is cheaper for the cultivator to buy nitrates at a high price (the present value is £16 a ton) or to take more or less expensive means to prevent the waste.

It may, however, be within the bounds of possibility that even as we have now the means of effecting oxidation and consequent solubility, so chemists and microscopists may some day be able to tell us how to reverse the process. There are many kinds of Bacteria, and we already know that their life habits are very varied. Mr. Warington himself tells us that while one will ensure the formation of nitric acid, another will only form nitrous acid, an acid containing a less proportion of oxygen than the nitric. There is, then, nothing inconceivable in the suggestion that as some of these organisms are now known to act as cooks and dish up good food to the plants, others may be found to stop or counteract the process. When we have reached that happy stage we shall turn on the nitrogen just when we want it, and turn it off when it is of no more service, just as we have done for years in the case of gas, and we are now doing with the electric light.

New Garden Plants.

RHODODENDRON OLDHAMI, *Maximowicz*.
AZALEA OLDHAMI, *Hort. Veitch*.

BOTANISTS have given up the task of trying to find unimpeachable distinction between Rhododendrons and Azaleas, for however well the deciduous or the persistent foliage, the scaly or the setose pubescence, the five or the ten stamens, may answer in particular cases, they are each and all apt to fail us in other cases, so that there is a pretty general agreement now to include Azaleas as a section under Rhododendron for botanical purposes and further to separate the Chinese Azaleas (§ Azalea proper), with their soft

sticky foliage and five-stamened flowers, from the Indian Azalea (§ *Tsusia*), with their darker firmer foliage usually more or less covered with appressed setae. For garden purposes it is probably better to keep up the name Azalea for both Chinese and Indian sections. No gardener, for instance, would think of calling the present plant anything but an Indian Azalea.

It was introduced from Formosa to Messrs. Veitch's establishment by Mr. Maries, but had previously been found by Mr. Oldham (Coll., n. 212). Maximowicz's description, below cited, was drawn up from imperfect specimens collected by Oldham; it may therefore be desirable to give a further description, taken from the living plant that was lately exhibited by Messrs. Veitch.

A dwarf shrub, densely covered with long brownish strigose hairs, some glandular. Branches slender. Leaves about 2 by 1 inch, some smaller, some larger, spreading, crowded beneath the flowers; stalk about $\frac{1}{2}$ inch; blades lanceolate or oblong lanceolate, tapering to the base, acute or rounded, apiculate. Leaf-buds perulate, young leaves covered with white silky scales. Flowers in a terminal truss, surrounded by deciduous or subsistent concave brownish sticky scales, the inner ones longer than the outer; pedicels $\frac{1}{2}$ inch long, provided, like the calyx, with long, dense, white hairs. Calyx lobes free to the base, lanceolate acuminate, as long as the pedicels. Corolla about 2 inches in diameter, reddish-salmon coloured, funnel-shaped, tube glabrous, furrowed, longer than the calyx; limb irregularly 5-lobed, the three upper lobes forming an upper lip, the two lower a lower one; lobes all oblong, the upper central one larger and broader than the other, suffused with rose-lilac and with numerous small darker blotches. Stamens ten, declinate; filaments of unequal length, slender, reddish, rather shorter than the corolla; anthers minute, purple; pollen yellowish. Style filiform, reddish, longer than the stamens, flattened and curved near the apex. Ovary small, ovoid concave, covered with white setae. *M. T. M.*

THRIXSPERMUM SILLEMANUM, *n. sp.**

A terete-leaved Thrixspermum (*Sarcocilius*), with all the habit of *Vanda* there, but not quite so strong a growth. It has a two-flowered peduncle, which may improve by-and-by. Its flowers are equal in size to those of a good *Thrixspermum falcatum*, or even surpassing the common individuals, as if we have flowered them at the Hamburg Botanic Garden. The colour of them is milk-white with a very slight tinge of the lightest yellow. The square side lacinia of the lip are striped with numerous oblique nearly parallel purple lines. The short retuse fleshy middle lacinia has two purple blotches on its yellow outer surface, and is yellow inside. There is some yellow on the outside of the strong conical spur. Column short, thick, with purple stripes at the base on the inner surface.

I obtained this lovely curiosity from Mr. Harry Veitch, who informed me it came from Mr. J. Sillem, Lawrie Park, Sydenham, to whom it is dedicated with satisfaction. *H. G. Rehb. f.*

[To the best of my belief I received the plant in a case of Orchids a friend of mine procured for me, several years ago, from Burmah, but I do not venture to speak quite positively on the subject, for I have had a good many importations from one part and the other, of which, as usual, I suppose a good many are no more, and I may be in error as to this one. We always supposed it to be *Vanda Hookeri*, but the 'great authority' has pronounced otherwise. It was a long time before we could get it to do more than go on existing, in fact it is only since the last two months, or thereabouts, that it has become a thriving plant. We grow it in the East India-house on a raft,

dilloso-apiculatis, basi in petiolo brevem angustatis, nervis primariis 4-5 arcuatis; lacinia longe prestantioribus concavis; pedicellis sessilibus setosis; internodiis longioribus; pedicellis viscidis setosis; calycibus albidis-setosis setis appressis; calycis segmentis apicibus linearibus acuminatis; corolla (diam. sub tubo calycem duplo superante, limbo sub bilabato, labio superiore trilobo, lobis oblongis obtusis, medio latiore rubro violaceo maculato labio inferiore bilobo); staminibus 10 declinatis inaequalibus; antheris parvis purpureis; stylo curvo; ovario albis exserto; ovario albis setosis; capsula . . . Ex *Inf. Formosa* advenit c. Maries. v. in hort. Veitch. *H. T. M.* *Thrixspermum Sillemianum*, *n. sp.*—Habit *Vandae* tenax, tenerior; foliis teretibus elongatis tenuibus, pedunculo brevibus; lacinia sessilibus, sepalis lateribus campanulatis; oblongo-bilobis; bracteis valde inaequalibus, antheris parvis purpureis; stylo curvo; ovario albis exserto, ovario albis setosis; capsula . . . *Sarcocilius Sillemianus*, *H. G. Rehb. f.*

* *Rhododendron* (*Tsusia*, Planchon) *Oldhami*, Maximowicz, *Rhodod. Asiae Orientalis Novae Act. Imp. Sc. Petrob.* vii. ser. tom. xvi. (1876), p. 34; *Azalea Oldhami*, hort. char. ampliat.—Ramus gracilissimus; petiolis foliisque dense ferrugineo glandulosoque setosis; foliis lanceolatis vel oblongo-linearibus glan-



FIG. 81.—*NEPENTHES DORMNIANA* ×; GREEN, SPOTTED WITH DULL CRIMSON.

to which the roots cling, very much as do those of a *Vanda teres* or *Renanthera coccinea*. *Jar. Sillem.*]

NEPENTHES DORMNIANA ×, *Hort. Williams.*

This is a very fine hybrid, our portrait of which (fig. 81) was taken in the nurseries of Mr. B. S. Williams, of Holloway. The leaves are broadly lance-shaped, acute at the apex, and finely ciliate at the edges. The full-sized pitchers measure nearly 6 inches in length by 3 in breadth, they are flask-shaped, pointed at the base, distended below the middle, tapering upwards into a broad tube, the rim of which is broad, finely ribbed and slightly oblique; the wings are deep fringed at the edges and rounded at the base, the lid broadly ovate, with radiating venation and with a simple spur at the base. The ground colour of the pitcher is green, heavily spotted with deep red blotches, which contrast with the light green of the mouth and throat. It is decidedly one of the handsomest varieties we have had to chronicle. We believe it to be of American origin, but do not know its precise parentage. *M. T. M.*

MASDEVALLIA ESTRADÆ DELICATA, *n. var.*

A new variety, with far more yellow at the base of the upper sepal, and much lighter purple over the base of, and at the base of, the lateral sepals. It was kindly forwarded by Mr. W. Bull. *H. G. Rehb. f.*

ODONTOGLOSSUM SCEPTRUM, *Rehb. f. Wauw.*

When degrading this fine thing to a variety of luteo-purpureum, I may have been guided by some hybrids between the two varieties or species. At all events, it well deserves to rank as a distinct garden form. It is very fine in its clear colours, finest dark lemon-yellow, with well marked blackish-purple rich spots—no hue of that light copper colour one is tired of seeing. The bristle-like calli of the base of the lip are very downy, stand almost in a circle, and have bent tips. The anterior part of the lip is almost circular, much toothed, and very wavy at its base. I have just now a very fine flower at hand, kindly sent me by my very skillful and ardent correspondent, Mr. James O'Brien, who had it from Mr. R. P. Percival, Cleveland, Birkdale, Southport, Lancashire—a gentleman who is regarded by many of my Orchidic correspondents as most enthusiastically engaged in Orchids. The charm of the plant is also founded on its round flowers. *Odontoglossum facetum* comes near it, but the primary type, as it was sent by Mr. W. Bull, is very distinct even by its curious marking. All other specimens of *facetum* I have had in single flowers (alas! when Mr. W. Bull most proudly sent me the whole inflorescence) were really apocalyptic riddles to me, most of all a grand thing obtained from Mr. F. Sander, that may, perhaps, better deserve a proper name. Such abnormal things should not be sent in single flowers. It might do to begin with a single fresh flower, and then, when the family, all the visitors, friends and acquaintances, have enjoyed the wonder, increased by the tale of the fine price paid, the whole inflorescence might be sent to show the constancy of its features. *H. G. Rehb. f.*

ODONTOGLOSSUM LUTEO-PURPUREUM (*Linden*)
AMPLISSIMUM.

This is a very surprising variety, quite a pleasure after those endless monotonous specimens of luteo-purpureum and *l. radiatum*, and *l. radiatum*, &c. It has a very conspicuous flower, with exceedingly broad sepals and petals. The sepals (0.023; 0.05 m.) are striking. The ground colour is a very clear light yellow. There are few cinnamon spots and streaks at the base, and a few very large cinnamon blotches on the disc. Column and rather small lip as usual. It was kindly sent by Mr. Harry Veitch, who had it from W. E. Brymer, Esq., of Dorchester. *H. G. Rehb. f.*

ODONTOGLOSSUM LEEANUM, *n. hybr. (?)*

Scientifically, this novelty ranks beside *Odontoglossum delto-glossum*. It is distinguishable by its far longer and narrower lip. All the colours are distinct. The wavy lanceolate acuminate sepals and petals are of a very bright yellow, with numerous small well-marked cinnamon spots, and a few similar lines at the base. The lip is bright yellow at the base and apex, light yellow on the disc, with a few cinnamon spots. Column light, whitish-yellow and white, with a few small cinnamon markings and falcate subulate apicular wings. There is a linear thick keel at the base of the lip going out in two rhomboid toothletted lamellae. It appeared at the Royal Exotic Nursery of Messrs. J. Veitch & Sons, who wish it to bear the name of that excellent orchidist, Mr. W. Lee, of Leatherhead. *H. G. Rehb. f.*

REGENT GARDENS, DAWLISH.

THESE gardens, which are situated in the fashionable and rising little town of Dawlish, South Devon, and are owned by Mr. Manning, an enthusiastic florist and Grape grower, bear striking testimony to the steady progress of horticulture in its most useful branches in every quarter of the kingdom. Grape growers who have spent half a lifetime in acquiring the art, and many of them even now uncertain upon salient cultural points, should see Mr. Manning's vineeries as an example of what may be done by self-teaching and perseverance. Mr. Manning raised the Vines himself and planted them two years ago last month. The principal vineery is in two divisions, and is about 90 feet long and 15 feet wide, with a run of rafter between 17 and 18 feet.

In the Hamburgh division, where there are twenty-eight Vines planted at 2 feet apart, there are close upon 1000 bunches hanging at the present time, which is a remarkable crop considering the age of the Vines. By the way the Vines were a year old when planted and a batch of supernumeraries occupy the centre of the house, and these of course are bearing fruit from the top of the house down to about its centre, at which point the permanent Vines also in bearing meet them. To an ordinary observer the two sets of plants are not noticed, but under any circumstances the crop is a marvellous one, not so much because of the size of the bunches as because of the fertility of Vines so young and the regularity of the crop. The object of planting so close is with a view to cutting down every alternate cane about every second year and so furnish the house with young wood without losing a crop. But this will hardly be required to be done for some years to come, though such a promising lot of Vines certainly deserve more space, which it is to be hoped the cultivator will have the courage to give them.

Late Vines are also looking strong, but are breaking somewhat irregularly. Several other structures are stocked with plants in variety for decorative purposes and for supplying cut flowers of Pelargoniums, Spiræas, forced Roses, tuberous rooted Begonias, Bouvardias, fine Azaleas in full blow, and Camellias marking their growth. Of luxuries for the table, Beans, Cucumbers, and Strawberries are swelling off crops of average merit, the latter in places where both skill and attention are necessary to finish off good well-flavoured fruits. *Visitor.*

MUCK AND MONEY.

MANURE even more than money forms an integral part of a nation's wealth. No one will deny, I imagine, that manure properly dealt with is a species of wealth; silver and gold are no more than this—we cannot eat them, nor can we clothe ourselves in them. We make them up into articles of use and ornament which we call plate, the value of which over similar articles made of other metals only consists in the greater rarity of the gold and silver over such other metals, not in the greater usefulness of the articles. We also make them up into coins, which we call money, which are valuable only for what they will buy. The following remarks will, I hope, establish in the minds of readers who have not before looked at the subject in this light the close analogy between money and manure.

Money and wealth of gold and silver plate hid in a drawer, or in a hole in the earth (or for the matter of that, hidden for a length of time anywhere), so long as they remain hidden from the sight or knowledge of a community, are of no more use to that community than they were while they remained as ore unmined in the bowels of the earth.

Manure which, after having once been used in the production of food or other produce, is, on the decay of that food or produce, thrown into the river or the sea, in the shape of sewage, is exactly analogous to gold or silver, which after having once been brought to light and made available to man's uses, is again withdrawn from circulation, or hidden in the earth or otherwise lost to man's knowledge or control. The money of a community which is circulated, say, ten times in a certain period for the useful purposes of trade and business makes that community ten times as rich as another community would be made by the same amount of money circulated by it only once in the same period for the same purposes.

The manure of a community which has once been

used and then thrown into the sea can seldom, if ever, again be of use to that community unless it be recovered. In almost all instances of the kind, however, it remains unrecovered practically for ever. Manure used once, and on again and again assuming (in the natural course of things) a manurial condition is again and again used, enriches the community, so using it over and over again. Manure only once used and then lost only once enriches the community so using it.

The mere possession of gold and silver lying idle benefits no one, nor do gold and silver lying unmined in the side of a mountain. The mere possession of manure lying idle in heaps is of no use to any one; nor is the existence of it in rivers or seas, or other places where it is beyond man's control, of any direct benefit to him, though indirectly in certain cases he may receive some benefit from it. The value of coin consists in some measure in its portability; gold being a scarce metal is valuable even in small and very portable pieces, its very portability tending greatly to increase its use and therefore its value; but if it were to become ten or twenty times as plentiful we should have to carry, not only at least ten or twenty times as much of it about with us to purchase the same value of goods as we now do, but somewhat more, on account of its value having been still further reduced because of its greatly decreased portability.

It is the same with manures. Those which contain the essence of a large quantity in the smaller bulk are most valuable, as they can be easily and cheaply sent long distances—their portability being, in fact, such that they can be profitably carried from where they are produced or exist in superabundance, to where they may happen to be required, even though half the world separate the two places. Manure increased to ten or twenty or more times its bulk with water, as in the case of sewage, becomes so unportable that, where it is produced, it is not only of no value whatever, but is indeed so far from being valuable, that it costs large communities very large sums indeed to get rid of it.* Stable manure in the centre of London and large towns, on account of its bulkiness and the expense of carting it from where it is produced to where such a commodity is in request, is frequently valueless; indeed, money has often to be paid for its removal. If by any cheap method the essence could be extracted from stable manure, the product would be a remarkably valuable commodity even in the centre of large towns, because it could then be so easily carried from there to the fields requiring enrichment by its means; only a very small portion of its value would then be consumed in the cost of its transportation. There is another analogy between manure and money. Every one knows that money misapplied is a very powerful agent for evil. It, by no means, however, surpasses manure in this way, which, whether it be misapplied or neglected, is a most active agent in the propagation of evils, such as ill-health, disease and death.†

Manure, then, as I have endeavoured to show, adds like money to the wealth of a community in proportion to the number of times that community makes use of it over and over again; also that, like money, to be of extraordinary value it must also be extremely plentiful; and again, that where it is extremely plentiful, there it is also—as is indeed the case with all other commodities—very valueless unless it can be converted into a portable condition. Manure, however, at the present day and in our country is very unlike money, in that the latter has every care bestowed upon it and is held in the highest estimation by everybody, while manure is to an enormous extent wasted and neglected.

Money is valuable only for what it will buy. If manure were properly dealt with most kinds of produce would be much more plentiful and therefore cheaper than they are now. In other words, the same amount of money would then buy much more than at present. Who can say that it is not quite as profitable for a nation to look as carefully after its manure as after its money?

In England not only is enough manure produced to (under a proper system) sufficiently fertilise every inch of cultivable land in the country, but a large surplus beyond, which should be available for exportation; and as England is continually increasing her imports

* A very small portion of these sums is sometimes recovered by means of sewage farms.

† Improperly treated sewage is known to have brought about in the last few years the serious illness (almost approaching death in one instance) of two members of the Royal Family of England.

of produce (food stuffs, for instance) which after use, in the natural course of things, quickly decay within her, so in like proportion does the production of manure increase too. If manure once received were never wasted, but used again and again as often as it kept reverting to the manurial condition, the supplies of manure would increase in a far more rapid ratio. As produce decays manure results, and manure, properly dealt with, rapidly becomes again valuable produce. The merchant lives by exchanging money for produce, and produce for money, and the more rapidly his exchanges follow one another, according to business rules (other things being equal), the faster he becomes rich.

Man as a cultivator of the soil is continually endeavouring to change manure (*i.e.*, plant food) into produce, and produce is, in the natural course of things, continually reverting (faster or slower according to its kind) to the condition of manure, and when it reaches this it should at once be made use of again, in order that no delay in the circulation of this peculiar kind of wealth may take place.

Scientific men have not only pointed out the necessity which exists for the proper dealing with manurial substances, but also the comparative ease with which they may be so dealt with, but as the general community takes so little interest in the matter, scientific men have hitherto spoken on this subject to a great extent in vain.

If those who, but being exactly what are generally understood by the term scientific men, but who have a thorough appreciation of the importance of this matter, will take it up and lose no chance that offers of rendering its importance known to everybody, they will be assisting to bring about reforms which will not only immensely increase the wealth of the country, but will also tend to greatly increase the health, and therefore presumably the happiness, of the individuals forming its population.

From the foregoing remarks I trust it will appear plain to all readers who have not before given their attention to this subject that manure forms not only an equally but actually a far more important part of a nation's wealth than do its gold and silver. These two metals we might indeed manage to get on fairly well without, but it would be barely possible without manure for large civilised and populous nations to exist.

When this country awakes to a proper appreciation of the facts connected with its vast manurial resources, then it will also perhaps acknowledge another fact, *viz.*, that it has, since it has become populous, lost an infinitely greater amount of wealth through the destruction or loss (for all practical purposes) of manure, than has ever been extracted from all the gold and silver mines in existence since the world began.

The moral of all this is, that our methods of dealing with a very large proportion of the manurial matters of this country (notably the human and animal excrement of large towns) being thoroughly bad, we should at once amend our ways in regard to them, and make a proper use of such matters, dealing with them in an enlightened and scientific manner. When we do this, our towns, cities, and country places will benefit, as before stated, to an immense extent in both health and wealth. This is true. "*Magna est veritas et prevalebit.*" J. E. Ewing, Eaton, Norwich.

RAISED BLINDS FOR ORCHID HOUSES.

DURING the summer months we have found raised blinds very beneficial to the growth of Orchids, especially to those requiring cool-house culture. When the hot summer's sun is shining upon the glass it is very difficult, where raised blinds are not employed, to keep the temperature sufficiently low. The glass roof of the structure upon which the sun is shining becomes very hot, even when shaded with ordinary blinds; but if raised blinds are used a current of air is allowed to pass over the entire surface of the roof, and the glass is kept comparatively cool. The effect of this is to decrease very appreciably the internal temperature of the house; and the moisture, which would otherwise be dried up by the burning heat of the sun, produces a nice humid genial atmosphere, in which Orchids delight. Having thus far referred to the advantages to be derived from the use of this method of shading, we may now explain briefly the mode of construction.

Supposing that the house to be furnished with

raised blinds is an ordinary span-roofed structure, it is necessary in the first place to provide a second ridge elevated about 6 inches above the top of the existing one. This should not consist of a solid plank, but of a strip of timber sufficiently strong to bear the weight and strain of the blinds and roller, and should be supported on blocks of wood placed at intervals, in order to allow the current of air from below to find an outlet, which would not be the case if a solid ridge-board were adopted. Having arranged for the ridge, the next thing is to provide supports for the rollers. Either wood or iron may be used for this purpose, but we have found iron to be the lightest-looking and the most durable. Where the length of the rafters does not exceed say 8 feet, $\frac{1}{2}$ -inch rod-iron will be found to be strong enough, and this should be cut into proper lengths, with the lower end turned up in a semicircular form, so as to catch the roller when it descends, and prevent it running off the supports. These supporting rods should be fixed to the bars or rafters of the house, about 6 inches above the wood-work, by being welded to vertical iron stays, which latter should be flattened out at the base, and provided with holes, so that they can be screwed to the rafters or bars of the roof. In this way a strong support for the blinds to roll upon will be formed; the blinds themselves can be attached to the elevated ridge in the ordinary way, and the gearing usually employed for the purpose will be found to answer well for pulling them up or down. Many Orchid growers have already adopted these raised blinds with very beneficial results. *E. S. W., in the "Orchid Album."*

PANSIES IN SPRING.

WELL-ESTABLISHED plants of these, both in pots and in prepared beds, are now coming into flower with great freedom, and at no other season of the year, except in late autumn, do the blooms show such fine colour and marking. Plants put out in beds in October have become thoroughly well established, and scarcely checked in their continuous growth during the winter, are as healthy-looking and vigorous as they can be expected to be in spring. Such plants, coming into bloom now, should carry on the floral service till July, when the plants may be lifted and divided in showery weather, and planted out in a prepared bed; or, if it be not deemed expedient to do this, cuttings of the fresh young growth can be taken and put into a bed of prepared soil under a hand-light in a cool, shady spot. As a general rule, the most compact-growing plants are those raised from cuttings, and they are better adapted for cultivation in pots than those obtained from divided plants.

Cuttings taken in autumn, winter, and spring, succeed best when put into pots, pressing the cuttings firmly and closely into the soil round the edges of the pots, using a light sandy soil, and pots that are clean and well drained. The pots can be placed in a cold frame in a shady place. The main difficulty with cuttings put in about the month of July is, that the worms will find their way into the cutting-beds, and working among them will thrust the cuttings up out of the soil. It is best to make a raised bed on a cool shady border, and placing something at the bottom that will operate to prevent the worms from making their way upwards. The cuttings must be protected from heavy rains and exposure to the sun; but not sufficiently covered as to cause them to damp off. All depends on the situation, which should be open to the light, but screened from the sun. Harsh, drying winds, such as those now prevalent, should be guarded against. The great advantage of small frames and handlights for cuttings is, that they screen the cuttings from heavy rains, and can be shut down close when desired.

Pansies are somewhat accommodating in their nature, but they do best in a good mellow sandy loam, with which should be mingled some rotten manure that will crumble to pieces, and also leaf-mould and grit of some kind. The Pansy needs a soil in which the roots will ramble freely; a heavy retentive soil will cause the main roots to decay, and the plants are soon dried up under the influence of the warm sun. A soil that is too light is almost as objectionable as one that is too retentive, and needs to be made heavier by the addition of a strong loam, but not clay.

In choosing a site for a bed it is well to select a spot that is shaded from the sun for a time during the day when it is in the meridian. This shade causes

the flowers not only to come finer, but to have the margins better defined. It is this which makes a good show Pansy so attractive.

A sowing of seed of a good strain can be made now. This will give a batch of plants that will bloom in the seedling bed in three or four months, and the best varieties can then be marked for planting out permanently in autumn to bloom in spring. In planting a Pansy bed the plants should be 15 inches apart, as, when they become established, they soon spread, and if at all compact in growth make dense tufts or masses. The leading shoots should be pegged down to keep them from being blown about by the wind, and the value of an occasional top-dressing of good soil cannot be too highly estimated. The young growths root into this, and this one plant, at the time for dividing it, produces many. It is in this way that varieties are propagated more rapidly than by means of cuttings.

If beds of Pansies are made a feature in the garden it is well to keep the show and fancy varieties apart, if some good seed is wanted. Besides, the latter are generally much stronger in growth than the former, and will smother the more spare growing varieties. The gorgeously coloured fancy varieties kill the more refined colours of the show varieties, and so both are seen to the best advantage when kept separate. Among the fancy varieties there are now some exceedingly pretty striped forms that are very attractive in the garden. A selection from these put into a bed by themselves, has a very pleasing effect indeed. The Pansy appears capable of almost indefinite illustration in relation to shades and combinations of colour. Seedlings obtained from seed obtained from the Continent show the possession of shades unknown to those of English growth, and English raisers are taking these in hand and giving solidity and definiteness to the new tints, and size and substance to the flowers in which they are displayed. It is in this way the striped varieties have become so much improved of late. In all the improvements being made, the importance of vigour of habit must not be overlooked. Time was when the flower only was regarded, and a race of poor growing varieties with fine flowers came into culture, and proved disappointing to many. The mistake is being corrected. Habit is receiving more attention than it formerly did; and this once obtained, good flowers will follow as a matter of course. It is better in the long run to begin with habit and go on to increasing the size, shape, and brilliancy of the flowers, than to reverse this process. *R. D.*



FLOWERS IN SEASON.

OUR correspondent "Jack Towel" sends from his suburban garden flowers of *Daphne pontica*, now flowering profusely; the foliage is bright, and the greenish flowers are very fragrant. It grows freely in London suburbs, and is in every way to be recommended.

RUBUS SPECTABILIS.—An old-fashioned Bramble from the same source, with light green pinnate foliage and dark rose-lilac bell-shaped flowers, acceptable for its early blooming, but objectionable in the numerous suckers it throws up.

KERRIA JAPONICA, a very old-fashioned but gay-flowering shrub, with a profusion of yellow flowers. It was at one time called a *Corchorus*, but has nothing to do with that *Tiliaceae* herb.

Berberis sibirica x.—Perhaps the most beautiful of evergreen Berberis: its slender over-arching branches are crowded with deep orange-yellow flowers. It is even more beautiful than *B. Darwini*, which is saying a great deal.

DOUBLE DWARF ALMOND (*Amygdalus pumila* fl.-pl.).—Mr. McMillan, St. James' Road, Kingston-on-Thames, sends from his nursery a spray of this beautiful shrub grown on a bank fully exposed to the north-east, where it has stood uninjured for the last twelve years. It is very like, in general appearance, the *Spiraea prunifolia* fl.-pl., but has larger flowers.

MORICANDIA SONCHIFOLIA.—This remarkably showy and interesting Crucifer is now flowering freely in a cold frame in the herbaceous department of the Royal Gardens, Kew. It is a somewhat recent addition to our list of ornamental herbaceous plants, having been introduced only some six years ago. As a pot plant for cool conservatory decoration it is a decided acquisition, flowering, as it does, at a welcome time, and requiring no special trouble for its successful cultivation. The large violet-blue flowers are freely produced, and the habit of the plant is good. It is a native of Northern China, and was first discovered by the veteran traveller and botanist, Professor BUNGE, of Dorpat, who accompanied a Russian mission to Peking from Siberia in 1831. As above stated, only some six years, however, have elapsed since seeds were first received at Kew; these were sent by Dr. Playfair, late medical officer attached to the embassy at Peking.

GENTIANA VERNA.—This beautiful gem of spring can now be seen to perfection in a sheltered nook in the rockwork at Chiswick. We have some charming hues of blue in hardy spring flowers, as witness the *Forget-me-not*, *Scilla*, *Hyacinth*, *Anemone*, *Omphalodes*, &c., but their richest tints fail to reach that of the beautiful spring *Gentian*. Quite a small clump, carefully planted in good soil in a suitable position, is to be seen flowering in rare form. But it is to be met with in but few gardens, and rarely so well displayed as at Chiswick. It is a plant that requires a little special care, which it abundantly repays; but probably, in the multitude of good and useful plants that in these days flourish with comparative ease, and with but little oversight, something that needs special culture, like *G. verna*, has to give way. Even the more robust *G. acaulis* appears to be gradually disappearing in the South. More's the pity that it is so. Formerly it used to be more the practice than it is now to grow a few things, and grow them well; it is the fashion to grow many, and too often with something below average results.

CHIONODOXA NANA.—A good patch of this pretty bulb is now flowering in the herbaceous department at Kew. Although not so showy as *C. Lucilie* it is nevertheless a lovely little plant, with its Squill-like pale flowers, flushed and keeled with violet-blue. It exhibits a considerable resemblance to *Fuschkinia scilloides*, with which, indeed, it has more than once been confounded. It is the oldest species of *Chionodoxa* known, and is a native of the mountains of Crete, where, at elevations of from 5000 to 6000 feet above the sea, it flowers in May close to the melting snow. It is perhaps hardly necessary to state that, as well as *C. Lucilie*, it is quite hardy in this country.

PULMONARIA SIBIRICA.—The spotted leaves of this charming little plant are very telling in the rock garden in the early spring months, and the flowers (purplish-blue) last over a considerable period, much to the gratification of lovers of hardy plants. It is not a striking plant from a distance, but grows interesting under examination, and taken all in all it is a capital plant for an amateurs' collection where beautiful leaves are usually as much admired as beautiful flowers.

Berberis Darwini.—The beauty of this elegant free-flowering spring shrub is so often adverted to that little remains to be said about it that is either new or culturally interesting. But there are exceptional plants even among common shrubs to be met with that it would be a pity to leave unnoticed. One of these is in the nursery of Messrs. Curtis & Sandford, Torquay, which from its size and form is quite a marvel of natural growth. It is 17 yards in circumference, and from 18 to 20 feet high, so dense in habit as to form a huge circle tapering somewhat loosely at the top. It is smothered with flowers, which are rather late in opening owing to the plant occupying an exposed situation in the nursery. It is, however, so conspicuous an object that the visitor is irresistibly drawn to admire it. It is one of the original plants sent out by Mr. Veitch, of Exeter.

TUSSILAGO ALPINA is just the plant for a rockery, its procumbent habit, neat rounded leaves and cylindrical flower-heads of rosy-lilac thrown up well above the foliage are very pretty.

IBERIS GIBERTARICA is the noblest of the perennial Iberis. Its bold habit and large trusses of white flowers shaded with lilac are very attractive.

LIST OF GARDEN ORCHIDS.

DENDROBIUM.

(Continued from p. 471.)

156. D. MARGINATUM, Teijsm. and Binnend. *Nederl. Kruidk. Arch.*, iii., p. 398.—Native country not given. Buitenzorg Botanic Garden.
157. D. MARMORATA, Rehb., *J. Gard. Chron.*, n.s., ii., p. 492.—Borneo. Flowered by Messrs. Low, who obtained it through their collector, Mr. W. Boxall. Allied to *D. transparens*. Flowers white tipped with purple; labellum purple, ciliate.
158. D. MESOCOLORUM, Lindl., *Bot. Rec.*, 1847, sub tab. 29; Lindl. and Paxt. *Fl. Gard.*, i., p. 63, fig. 13; *Walp. Ann.*, vi., p. 273. Imported by Messrs. Veitch, and flowered by them in 1847. Flowers medium size, white tipped with violet, and having a green blotch in the centre of labellum. Hort. Kew.
159. D. MICRASS, Rehb., *J. Gard. Chron.*, n.s., p. 332.—A hybrid between *D. Wardianum* and *D. florium*, raised by Mr. Seden in the establishment of Messrs. Veitch. Ground-colour pale purple, deeper upwards; lip white, with two dark purple spots.
160. D. (BOLBODIUM) MICROBOLBON, A. Rich., *Ann. Soc. Nat.*, ser. 2, xv., t. 8; Lindl., *Journ. Linn. Soc.*, iii., p. 19; *D. humile*, Wright, *J. Pl. Ind. Or.*, 1843; *D. crispum*, Dalzell, Hooker's *Journ. Bot.*, v., p. 111.—India. Cultivated by Consul Schaller at Hamburg in 1857. Of botanical interest only.
161. D. MICROGLAPHYS, Rehb., *J. Gard. Chron.*, 1868, p. 104.—Borneo. Discovered and introduced by Mr. Hugh Low, and first flowered in the garden of Mr. Wentworth Buller at Strete Raleigh, near Exeter. Allied to *D. aduncum*. Flowers rose-moss, whitish, with five purplish stripes on the lip.
- D. MILLIGANI = *D. striolatum*.
162. D. (STACHYDIUM) MISERUM, Rehb., *J. Gard. Chron.*, 1856, p. 382.—Assam, India. Introduced by Mr. J. Day. Quiescent in fruiting with small, green flowers, and a lip bordered with purple.
163. D. (PEDILONUM) MOHLIANUM, Rehb., *J. Bot. Zeit.*, 1862, p. 214; *Bonplandia*, 1862, p. 334; t. 16; Seemann, *Flora Vitensis*, p. 303; t. 91 (copied from *Endandra*); *J. Gard. Chron.*, n.s., vi., p. 139.—Fiji Islands. First discovered by Dr. Seemann and subsequently introduced into this country by Mr. Peter Veitch. Stems slender, terminated by a cluster of small vermilion flowers. A very striking species.
- D. MONILIFORME, Swartz, *Act. Lin. Soc. 1809*, p. 246; Rehb., *J. Walp. Ann.*, i., p. 777; *Ann. Soc. Hort. de Gand*, iii., p. 215, t. 137; *D. japonicum*, Lindl., *Gen. and Sp. Orch.*, p. 89; *Bot. Mag.*, t. 252; *Orchidum japonicum*, Blume, *Indrag. Bot. Et. Nederl. Ind.*, p. 268.—China and Japan. This has long been in cultivation, though not commonly cultivated. Flowers white, deliciously fragrant, borne on the upper part of the previous year's leafless stems. Hort. Kew.
165. D. MONGHYLLIUM, F. Muell., *Fragm. Phytogr. Austral.*, i., p. 186; Benth., *Fl. Austral.*, vi., p. 282; *D. tortile*, A. Cunn., *Bot. Rec.*, 1839, Misc., n. 33, non Lindl.—Queensland and New South Wales, Australia. A diminutive plant with small yellowish flowers. Flowered at Kew in 1880. Hort. Kew.
166. D. MOOREI, F. Muell., *Fragm. Phytogr. Austral.*, vii., p. 29; Benth., *Fl. Austral.*, vi., p. 281; *Gard. Chron.*, x., p. 139.—Lord Howe's Island, New South Wales. Cultivated by Messrs. Veitch in 1878. Flowers pure white, petals very narrow.
167. D. (STACHYDIUM) MOSCHATUM, Wallich, *Don. Prod. Fl. Nep.* (1825), p. 34; Lindl., *Gen. and Sp. Orch.*, p. 82; *Wall. Pl. Asiat. Kar.*, t. 195; *Paxt. Fl. Gard.*, iii., p. 241; *Bot. Mag.*, t. 387; *Mouder, Botanical*, t. 37; *D. calceolaria*, Carey, Hook., *Exotic Fl.*, iii., t. 184; *Pudry, Les Orch.*, t. 15; *D. unicum*, *Bot. Rec.*, t. 179.—Eastern peninsula of India. Messrs. Sheppard, of Liverpool, received the form figured in the *Exotic Flora*, from Dr. Carey in 1827, and the form figured in Paxton's *Magazine of Botany* is said to have been sent to this country by Dr. Wallich in 1828. I have followed Lindley and others in reducing *D. calceolaria* (not calceolus, as often written) to *D. moschatum*, because, although I agree with the Rev. Mr. Parish that more than one species is represented by the figures quoted, I am unable to give the time requisite to sift the matter to the bottom. The forms hereunder included are all of the finest of the genus, and they are characterised by having a slipper-shaped labellum with a beautifully fringed margin. I think the form having pale orange or tawny flowers, as represented in most of the figures cited above, is a *varietatum*, whilst the *Exotic Flora*, t. 184, and the *Bot. Mag.*, t. 387, are calcularia. In those figures the flowers are strongly veined and tinted with rose. Paxton states that the plant from which his figure was prepared was 6 feet high. Hort. Kew.
- D. MUCKENLATHUM, Blench, *Hort. Dismot.*, p. 156, in adnot.—Received from Calcutta. Allied to *D. crenatum* and *D. transparens*.
169. D. (OSYCHUM) MUTABILE, Lindl., *Gen. and Sp. Orch.*, p. 86; *D. rigidum*, Lindl., *loc. cit.*; *D. tridentatum*, Lindl., *Bot. Rec.*, 1846, sub tab. 64;

- 1847, t. 1; *Bot. Mag.*, t. 6285; *Gard. Chron.*, 1847, p. 175; Rehb., *J. Walp. Ann.*, vi., p. 294.—A very pretty species, having small white flowers tinged or marked with rose, in close panicles at the ends of the leafy stems; labellum furnished near the middle with three white or yellow tubercles or glands. Hort. Kew.
170. D. (AYURHUM) NATHANIELLS, Rehb., *J. Schiller's Cat. Orch.*, 1837, p. 28; *Walp. Ann.*, vi., p. 279; *Aporum cucullatum*, Wallich, *Bot. Rec.*, 1841, Misc., n. 7.—India. Sent to Messrs. Loddiges by Dr. Nathaniel Wallich. Habit of *D. anceps*, but having smaller flowers.
171. D. (ETIOPENDROBIUM) NORTLEY, Lindl., *Gen. and Sp. Orch.*, p. 79; *Sert. Orch.*, 13; *Paxt., Mag. Bot.*, iii., p. 7, with a coloured figure (very large); *D. varicostum*, Lindl., *Sert. Orch.*, t. 18; *Bot. Rec.*, 1844, Misc., p. 48; *Gard. Chron.*, n.s., ii., p. 594, fig. 29.—Chinsya Hills, India. Mr. Roxley brought the original specimens of *D. nobilis* in Macao, China, and it first flowered with Messrs. Loddiges in 1837; and Mr. John Gibson collected the original *D. cœrulescens* in the Khasya Mountains at an elevation of 4000 feet. They flowered at Chatsworth in 1838, and its merits were at once recognised. Hort. Kew.
- D. NOBILE FALLIDIFLORUM = *D. primulinum*.
- D. NOBIUM = *D. Aphrodite*.
172. D. OCHREATUM, Lindl., *Bot. Rec.*, sub tab. 1756; Rehb., *J. Walp. Ann.*, vi., p. 287; *D. Cameraria*, *Bot. Mag.*, t. 28; *Paxt., Mag. Bot.*, iii., p. 295, with a coloured figure; *Bot. Mag.*, t. 4450.—Khasya Hills, India. Introduced by Mr. J. Gibson for the Duke of Devonshire in 1837. It is a handsome species, allied to *D. chrysanthum*, with deep orange flowers in pairs on the leafy stems, and the labellum with a large deep purple-brown blotch. Hort. Kew.
173. D. OCHROLEUCUM, Teijsm. and Binnend., *Nederl. Kruidk. Arch.*, iii., p. 398; reprint, p. 8; Miquel, *Fl. Nederl. Ind.*, iii., p. 636.—Java. Buitenzorg Botanic Garden, 1866. Incomspicuous.
174. D. PALMERI, Lindl., in *Journ. Hort. Soc.*, v., p. 53; Lindl. and Paxt., *Fl. Gard.*, i., p. 48.—India. Imported by Messrs. Veitch. "A charming species, in the way of *D. densiflorum*." Flowers white, with a deep yellow spot at the base of the labellum, which is deeply fringed. Hort. Kew.

(To be continued.)

FORESTRY.

THINNING.—While planting may be regarded as the operation of putting the tree into its proper place and position to grow, thinning may be considered the handmaid to the process of growing it. If a tree is improperly planted, whether as respects place, position, or otherwise, no future treatment, however skillfully or judiciously performed, can ever compensate for the loss or overcome the injury inflicted. But, on the other hand, however well a tree may be planted and placed under the most favouring conditions for growing, the whole prospects may be, and very frequently are, completely blasted by improper and injudicious thinning.

Thinning, like pruning, is a work of primary importance, upon which satisfaction or disappointment, delight or sorrow, pain or pleasure, gain or loss, often entirely depend. Mixed plantations are at all stages of growth more difficult to thin, require more constant attention, and are more easily injured for want of it than those composed of only one species of tree. Different species of trees also require different modes of thinning, and even the same species grown under different conditions require very different modes of treatment.

Thinning may be justly enough regarded as a necessary evil, an antidote for a bane, a cure for a disease, or at the most Art doing under an artificial system what Nature can usually better accomplish if left to do her own work in her own sphere without such aid. It is no sufficient objection to thinning merely that it is an artificial operation rather than a natural one, because the whole system of tree culture whose ultimate object is the fulfilment of some artificial requirement is artificial.

The simplest form of thinning is that of cutting down such growths as interfere with the healthy development, value, and usefulness of the remaining crop, and it is this form of thinning that has probably suggested the term "weeding." There is certainly more reason for the use of the term "weeding" than at first sight appears, for according to Mr. Stevens, the well-known author of the *Book of the Farm*, a weed is defined as signifying a plant growing where it should not grow, or where for the time being it is not desired it should grow. The term itself is, however, of the smallest moment, while the operation and effect is of the very greatest.

The growth of forest trees, as is universally known, is at the fastest a slow process, while, on the other hand, the cutting down, or work of thinning, is the very reverse. Two trees have grown up together, it may be ten, twenty, or thirty years, unmolested, undisturbed, and undangered in any way and in every part, and having thus grown up they have completely adapted themselves to each other and formed powerful attractions, and in a very important manner formed strong affinities for each other.

In this state and condition the two trees are found growing and doing well so far, and so on with other pairs, triples, or larger groups throughout the whole plantation or forest. Why, then, and wherefore, break up this long cherished friendship and disturb the congenial relationship of those trees, since they have grown so long and so well together? The answer, which must of necessity be of considerable length, will, it is hoped, be found in the sequel. Trees, like everything subjected to growth and development, are constantly undergoing change, sometimes more rapid and sometimes less, according to an infinity of prevailing influences which surround them.

In thinning forest trees two primary considerations are to be kept constantly before us. The one is the full, free, and perfect development of every part of the tree, so as to produce vigorous growth and prolonged life in the tree itself. The other is the growing of the tree so as to form the best and most suitable subject for some one or other of the many requirements of art or industry serviceable for man.

In the growing of a group, plantation, or forest, several important changes are gradually yet imperceptibly produced both upon the trees individually and collectively—upon the soil in which they grow, upon the surrounding atmosphere and climate, and consequently upon every subject in the whole neighbourhood and district.

What these changes are, how they are produced, what takes place when the producing causes or active influences are removed, are considerations alike important and worthy of investigation.

It is self-evident that as two or more trees approach each other, which they do in a threefold way, namely, by the points of the lateral branches elongating themselves by annually extending the points of their young shoots; by the roots mixing, interlacing, and sometimes even grafting each other in their subterranean ramifications; and in the annual enlargement and increased diameter of their stems or trunks. Other and different changes are produced upon the soils in which the trees grow, and different species of trees also produce different results.

The changes produced upon the soil may also be regarded as of a two-fold character, namely, chemical and mechanical. The chemical changes produced are alike obscure, difficult to trace or understand; nor has science done much, if anything, to throw light upon the darkness, or reveal what is unknown or hidden. That the constituent parts of the soil are not the same after having produced a crop of wood or timber as they were before, is certain, but whether the change is produced by something being taken out, or something put in, is, and may remain long, a mystery. [See p. 523.] The mechanical changes produced, however, are most observable, and obvious to the senses. The roots of the tree, as they year by year force their way through the soils—first through the active and then through the subsoil—thereby disintegrate the adhesive compact parts, whether of earth or rock, and thus pulverise the soil and admit air and water to mix and mingle with the deeply imbedded substances, thereby altering and changing their composition by a slow but certain process.

All trees, at one or other of their successive stages of growth, are either susceptible of vast improvement by thinning, or of being injured almost to complete ruination for want of it. Some certainly are less injured than others, and some species if once injured can never by any future treatment be at all restored to vigour of growth. Amongst hard woods the Ash tree of all others is the one most easily injured by want of thinning, and most benefited by it; but if once neglected, even for a few years, all its prospects are thereby for ever blasted. Amongst Conifers, the Scots Pine on the hand, either benefits most by thinning, or, on the other, suffers most for want of it.

In consideration of the vast importance the writer attaches to the subject of thinning, he at present concludes with the view of continuing it in due course. C. J. Nichol, *Cullen House, Banffshire, April 15.*



Florists' Flowers.

THE PINK.—This is one of the sweetest of the old florists' favourites, and it is pleasant to know that there are yet many growers of them. Those who have their plants put out in beds, as they ought to be, should now surface-dress them with rich compost. This has also been a good season for them,

beds. The plants are now all above the ground, and growing freely. The surface of the ground must be stirred with a small hoe; the beds require no other attention but to be kept clear of weeds, and to have a good supply of water; indeed, if the ground is dry at the time the plants are pushing through the ground it is a good plan to water the beds, using a rose on the water-pot. Seedling Ranunculi are also very useful, and do not take long to come into flower after the seeds germinate. They grow more freely than the old Scotch varieties, and produce a much greater number of flowers.

THE VERBENA.—The very beautiful and distinct variety of the Verbena exhibited by Mr. Cannell, of

AUSTRALIAN PLANTS.

BARON FERDINAND VON MUELLER, of Melbourne, has published a complete list of the genera of Australian plants, including those discovered since the publication of the *Flora Australiensis*, and the Cryptogams, including "Algs" and "Fungs." In this new example of the Baron's zeal and industry he has given credit to pre-Linnean authors for the genera established by them, thus *Tribulus* is referred to De l'Oisel, *Linum* to Tournefort. Considering that the addition of an author's name is no mark of honour or distinction, but merely a means of facilitating reference and identification, it seems a pity to disturb the confessedly arbitrary arrangement which assigns to Linneus the establishment of the genera in question. At first sight it might seem that an in-



FIG. 82.—THE "BOTHY" AT LAMETON CASTLE, DURHAM. (SEE P. 533.)

If any plants in the beds have died they must be renewed with plants from a reserve kept in pots for the purpose. Those planted out in the spring do not produce such good well-laced flowers as are produced from autumn-planted healthy young stuff. If the weather continues dry give water to them.

THE RANUNCULUS.—I was quite surprised at the strong healthy growth and fine blooms we had from our beds of these last year, and attribute it to the treatment. Our soil is not naturally adapted to their healthy development, but as we had plenty of fine peat siftings from the Orchid peat, mixed with a little chopped sphagnum and a third-part of fine loam, this material was placed on the beds to the depth of 2 or 3 inches, and the roots planted in it to the depth of about 1½ inch. They were planted the same this year, and there are no blank spaces anywhere in the

Swanley, and named Stars and Stripes, deserves more than a passing notice. The flowers were very distinctly striped with white and pale rose, with a sweet perfume. It will be of great value either as a greenhouse flowering plant or to plant out in the mixed flower border. Mr. Cannell has shown us how well adapted the Verbena is for exhibition as cut blooms; it is also grown in pots for exhibition in many country districts. Intending exhibitors of cut blooms about the end of July, or in August, should at once select strong healthy cuttings from the early propagated plants. They will root in a week or so in a hotbed, and with good management they will produce the best possible flower-trusses. Even if the plants are to be exhibited in pots it is much the best way to grow them on from spring-propagated plants. The most successful growers of the Verbena, whether as a bedding, border, or greenhouse plant, trust entirely to spring cuttings. J. D.

justice was done to earlier authors, but it is not really so, because in a monograph their names would be cited with the date of publication. Shakspeare founded many of his plays on prior legends, or even dramas, yet no one for general purposes cites any other authority for, say, *Romeo and Juliet*, than Shakspeare. In historical dissertations, however, the sources of Shakspeare's inspiration are very properly noted. As to the limits of genera "four decennia" of systematising have led the Baron to preserve large genera rather than split them up into smaller groups, the characters of which are not easily remembered. Genera are considered as artificial aggregations, while species are treated as natural groups, accepted with a limitation equivalent to that of *Ardea herodias*—of man himself. The genera of Australian plants amount to 2122, a number that might be readily doubled by those whose views tend in the opposite direction to those of Baron von Mueller. No fewer than 300 authors have, it appears, stood sponsors for these genera.

Orchid Notes and Gleanings.

WORK IN THE HOUSES.—The prospect of a good show of flowers in the East Indian-house may now be pretty accurately judged, as the greater part of them, being summer-bloomers, will be showing their spikes freely; and while these are young and succulent extra precautions must be taken to prevent them from getting spoiled by cock-roaches or any other pests. Where a regular supply of choice flowers is required during the London season few plants can surpass the different kinds of *Acridies* for this purpose, especially those kinds that throw short spikes and plenty of them. Among the best of these are *A. odoratum*, *A. Larpenae*, *A. virens*, and *A. Schröderi*. The last-named is a scarce plant, but it is one of the best for cutting purposes, as it throws a stiff closely branched spike that stands nearly erect on the plant. Of the kinds that throw out fine branching spikes *A. Lobbiai*, *A. Fieldingii*, *A. affine*, and *A. Veitchii* are among the best, but they are not so useful for cutting. While the above are developing their spikes they should not be allowed to suffer from the want of moisture at the roots. Where it has not been retarded, the late-flowering form of *Angraecum sesquipedale* will now be going out of flower, and the plants should be well cleansed, and afterwards re-surfaced with clean sphagnum moss. This is a shy-rooting plant, and requires very careful handling when interfering with its roots. It should be placed in one of the warmest positions in the house. Any of the *Vandas* that have been removed from this house while flowering should be brought back as soon as their beauty is over, placing them in the coolest end of the house. One of the most distinct and beautiful in this genus now flowering is *V. Denisiana*. The *Dendrobiums* will now demand a good share of attention, as some of the earliest will be making rapid growth, and must not be allowed to suffer for lack of moisture either at the root or in the atmosphere. Others will be just starting into growth, and must not be too freely deluged with water, and particular care should be taken not to damage the young growths by allowing any water to hang about them. Any just going out of flower should be repotted or top-dressed, if they need it, without delay, as once they start into growth their development is very rapid. Those intended for the latest flowering must still be kept dry, unless the spikes show that any further retarding would be injurious, when a slight moistening of the material about their roots will assist the plants to perfect their spikes. Two of the most useful *Cattleyas*, *C. Mossiae* and *C. Mendelii*, will now be pushing up their flowers, and a very slight increase of moisture at the root will be beneficial to them, and the plants should be well up to the light while they are developing their flowers. *Cattleya Warneri*, *C. crispata*, *Laelia purpurata*, and others, that are far advanced in their growth, will take a maximum supply of water at the root, and a good supply of atmospheric moisture will assist in bringing their growths to the highest perfection. As the majority of the plants in each division will now be making growth, a mild and constant circulation of fresh air should pass through the houses; but this should never be admitted to such an extent as to seriously affect the humidity of the atmosphere. *J. Roberts, Gunnersbury.*

CYMBIDIUM EBURNEUM.—With us this grand Orchid grows finely in the Cattleya-house, where the night temperature ranges from 50° in winter to 65° in summer, and when it can be flowered well year after year. I venture to say it can scarcely be equalled by any other Orchid. I have heard from many sources that hitherto this plant has not come up to expectations in point of flowering. Here the case has been very different, and nothing could well have been finer than the display of blooms this year, a few plants in all sizes bearing about eighty spikes. The plant (fig. 78, p. 497) bore last year seventeen spikes, this year twenty-one, and some small plants growing in 45's and 32's have even this year borne two strong spikes. They are all grown in rough fibrous peat, with plenty of broken pieces of charcoal and crocks, and it is most important that the drainage should be perfect, an abundance of water being required throughout the year; in fact the plants must never be allowed to get

dry. Some of your correspondents, whose remarks I have always read with great interest, have at different times recommended growing them in a compost principally of loam, and I have no doubt but they have done well with them. We have never used it here, for the simple reason that our plants have year after year grown fairly well, and have flowered excellently, and we have thought it best not to alter our treatment. *J. Mill, The Gardens, Reddisham Hall.*

ORCHIDS AT KEW.—Seeing a note on one of these in last week's issue, I send you one on the rest of the collection. I was there on the 15th, and was much pleased to see the improvement in the collection in the last eight months. Among others in flower were as follows:—*Cattleya Trianae* (a good lipped variety), *C. citrina* (two pairs of blooms and one single one from three good leads); *Celia Baueriana*, *Coleogyne cristata*, *C. cristata Lemoiniiana*; *Cymbidium eburneum*, *Cirriophorum picturatum*, *Chysis bracteensis*, *Cypripedium barbatum*, *C. hirsutissimum*, *C. villousum*, *C. Roezlii*; *Dendrobium crassinode*, *D. crepidatum*, *D. Farmerii*, *D. crystallinum*, *D. Jamesianum*, *D. fimbriatum oculatum*, *D. litiiflorum*, *D. macrophyllum* (several large varieties), *D. Pierardi*, *D. nobile* (a fine bold variety, well marked as to depth of colour), *D. Wardianum*; *Epidendrum bicoloratum*, *E. erectum* (a very pretty species); *Gongora bufonia* (a peculiar and beautiful Orchid, well worth a place in all collections); *Ionopsis paniculata* (a little two-bulbed piece, having a fine panicle), *Masdevallia ochthodes*, *Maxillaria luteo alba* (a fine specimen, full of flower), *M. variabilis*; *Odontoglossum biconiense*, *O. maculatum*, *O. Pescatorei*, *O. Cervantesii decorum*, *O. pulchellum* (very fine), *O. claviceps*; *Oncidium abortivum*, *O. Batemanianum*; *Pontipha maculata* (this is the Orchid referred to last week), *Phalenopsis amabilis*, *P. Schilleriana*; *Phaius grandifolius*, *Sophranopsis grandiflora*, *Spathoglottis species* (very like *Lobbiai*), *Sobralia Galeottiana*, *Thunia alba*, *Vanda suavis* (several well bloomed), *V. tricolor*, *V. tricolor insignis*—this last plant was quite a sight alone, being over 4 feet high, well clothed with leaves, and spikes in bloom and bud, viz., four, bearing respectively thirteen, ten, ten, seven, and large in proportion. The spotting is very good, and the plant is a specimen. There is also a plant of *V. tricolor* deserving of special notice for its dark round flowers, that attract one's eye at once from the six or seven examples of *V. suavis* in the same house. It is gratifying to see the old garden's collection thus improving in tone. It is to be regretted that there is so little space devoted to this grand order of floral aristocrats. There being no Mexican or Peruvian houses cool Orchids cannot be cultivated, but people begin to hope these houses will not be wanting long. Even the present ones could be better filled with greater variety, there being some dozen or more large plants of *Angraecum eburneum virens*, besides many others, smaller. Were these exchanged for others with private growers the collection could be improved with no expense whatever compared to the benefit thereby gained. I noticed also a great acquisition there in the shape of *Cattleya labiata*, marked "the old variety," a rich five-bulbed plant, breaking well. This, I believe, has arrived lately; also some newly imported *Dendrobium Wardianum* and *Cattleya Warneri*, the latter, I think, from Low's, by the look of them. It is pleasant to watch the movement upwards of the nation's yet very small collection, but I hope next note I send you to be able to enumerate more variety in bloom and yet greater steps forward. The health of the plants is better in all respects. *D. B. C.*

DENDROBIUM PULCHELLUM.—It is not often that such a fine specimen is seen of this pretty little Orchid as one which was sold at Stevens' Rooms on Thursday. The mass of strong healthy growths measured 18 inches through, and was an almost perfect mass of pale translucent blossoms. It is one of the cultural triumphs of the Hon. and Rev. J. Townshend Boscawen.

THREE-LIPPED DENDROBIUM NOBILE.—Mr. B. S. Williams sends us a flower, received from H. Knight, Esq., wherein the two side petals have assumed very much of the colour and markings of the lip proper, and is also perfumed like *D. heterocarpum*. Such malformations are not very uncommon in Orchids, and are botanically interesting, while the florist may see in them indications of the possibility of producing regular flowers. For our own part we should be sorry to see Orchids brought under the florist's standard, but if it be so desired such flowers as that before us show the possibility of the feat.

The Flower Garden.

BEDDING-OUT PLANTS.—The stock of these should now be closely looked over, and any deficiencies provided for by immediate propagation. This applies principally to sorts usually required in large numbers, such as *Mesembryanthemum cordifolium variegatum*. This propagates quickly with the aid of a slight bottom-heat, and is soon ready to harden off for use. The whole stock should at present be kept under glass at night; so also should *Coleus*, *Iresine*, and other like tender subjects. Cuttings of spring-struck *Pelargoniums* have had an unusually favourable season, and are now in fine condition for transferring singly into small pots; at the same time provision may be made for further contingencies by filling a number of boxes with spare cuttings, which will be found useful at planting time, to be transferred at once from box to border.

SOWING, PLANTING, AND PRICKING-OUT ANNUALS.—The welcome rain has come at last, bringing the soil into a fine condition, so that all arrears of sowing, particularly of the finer sorts of hardy annuals, should be finished off at once, and those which were sown early in pots may be planted out at once. Early-sown tender annuals should all be pricked off on a gentle bottom-heat. The sorts most requiring this particular attention are French and African Marigolds, *Helichrysum*, double and single *Zinnia elegans*, very beautiful in beds, and harmonising well with others in the mixed borders. *Tagetes signata pumila*, a most useful plant, should also be so treated; indeed a large amount of space furnished with a gentle bottom-heat should now be at command for pricking out rooted cuttings of *Alternanthera*, *Lobelia*, seedlings also of the same, *Asters*, *Phlox Drummondii*, *Gaillardia*, *Petunia*, and *Golden Feather*. This latter, however, is such a free grower, that if care be taken to sow the seed early under glass, but without bottom-heat, plants quite large enough for bedding out may easily be obtained.

SUBTROPICAL GARDEN.—Much room is now required for established and advancing plants in this department, and there are many of the earlier-potted and well-rooted plants which may be transferred to cooler quarters, such as *Ricinus*, *Wigandia*, *Humea*, *Canna*, *Chamaepeuce*, and the like; these will make room for the advancing stock of the same, which it is necessary to bring forward into a condition to allow of their being well hardened off as soon as possible; in fact, this will be a subject requiring very strict attention for the next month or so, as it is ruinous to plants to transfer them suddenly from a heated temperature to the open air. Whenever spring gardening is carried out to any extent it will be some time yet before the spring occupants can be transferred to the reserve garden, or, as in the case of bulbs, be lifted with safety, but the season being an early one these will be ready sooner than usual, and no time should be lost when the beds are ready to prepare them for their summer occupants. Most of the subtropicals require extremely good and deep soil; it should therefore be highly manured and deeply trenched as soon as possible—but the beds intended for the general run of bedding plants need not be highly enriched, as the object sought is an abundant inflorescence, and not rampant growth like subtropicals.

VIOLETS.—Where strong plants of these are required for potting and early frame work in the autumn the present is the most eligible time to prepare them for the purpose by selecting strong rooted layers of *Neapolitan*, *Lee's Victoria*, and *The Czar*, and planting them in rows in the open quarters 18 inches apart and 1 foot in the row, at the same time the weaker layers will serve admirably for planting in beds for spring flowering. The beds should be changed occasionally, and a fair amount of fertilising matter be incorporated therewith during the process of preparation; water is an absolute necessity, and in dry weather they require a constant supply. This matter should have immediate attention, as if relegated to the busy bedding-out time it is apt to be left too long for the plants to attain the necessary strength for potting purposes, &c. *John Cox, Redleaf.*

The Orchard House.

The stoning period is generally considered to be the most critical in the growth of Peach, Nectarine, and other trees, and it is usual to leave a considerable number in excess of what the trees will really bring to perfection until this period is over. My own experience is, that when the trees are maintained in good health, and have no check to their growth from want of water at the roots, or too much of it owing to defective drainage, the fruit will not drop off, and it may be thinned out more freely in the early part of its growth. As soon as the stoning period is over, the fruit, which had been apparently stationary during the previous six weeks, will begin to swell freely. The temperature at night may be increased to 65°; the trees syringed freely with tepid water night and morning, shutting the house up as early as possible in the afternoon. If the trees are grown in pots they should be surface-dressed as soon as the fruits begin to swell. I have previously described the best material for surface-dressing; it is that recommended by the late Mr. Rivers, viz., one part horse droppings, one part mull or kiln dust, and one part loam; make a heap of this large enough to ferment, and if it is dry, throw a few pailfuls of manure-water on it. Take care that the mass does not heat too violently, or its rich manurial properties will evaporate. In the late house the blossoms are now all over, and in the house here we have had a good set, without the use of any artificial heat. Although there were frequent sharp frosts when the blossoms were opening, the warm sunny days raised the temperature sufficiently to keep it well above the freezing point through the night. We now syringe the trees freely with the garden engine early in the morning, admitting air immediately after, and also in the afternoon as soon as the house is closed. Strawberries on the shelves are now coming on rapidly, and where the plants in pots have been standing close together one half of them ought to be removed to give the others sufficient space to develop themselves; if they are crowded too closely together they will not produce good fruit. Give them plenty of water now, and weak liquid manure at each alternate watering. Syringe freely until the blossoms open, when it is best not to syringe them any more until the fruit is set; afterwards syringe twice a day with the fruit trees. *J. Douglas, Lexford Hall, Ifford.*

The Pine Stove.

SOME discrimination is required to ascertain the proper time the plants require water, and close observation should be made before this is done. Plants in different stages and grown under different conditions vary considerably as regards the state of moisture at their roots, therefore watering is not an operation that can be done by rule. Where plants are grown plunged in fermenting materials they require less water, and the soil invariably becomes drier towards the surface. On the other hand, plants plunged over hot-water pipes or in close proximity to flues require more water, and the soil of these becomes drier towards the base of the pots; and when these different conditions are kept in mind they materially assist in determining the time water should be applied to the roots to keep the soil in a uniform state of moisture. Instead of frequently looking over the plants and disturbing the soil, which if indulged in breaks off some of the most active roots, make a thorough examination of all the plants at least once a week, and this is sufficient for all practical purposes even in the summer months. In ascertaining the true state of the soil it should be examined some distance down the pot, as the surface soil becomes wet by syringing or other influences from evaporation; there are also fewer roots towards the surface to absorb the moisture. A good and safe plan is to knock out a plant or two, when the true state of the soil and roots can be accurately tested, but this is not necessary every time watering is done. Pines should at all times be plunged, as the roots are kept in a more equable state and are not exposed to those sudden transitions which are inevitable if the pots are affected by currents of cold air and the scorching rays of the sun. Modern growers have pronounced against the mixing of any kind of manure with the compost, with the exception of a little soil, or bones, or bone-meal, and we think the verdict a sound one. Therefore all feeding and stimulants have to be applied in the shape of liquid manures. When using these it is

better to apply them often in a weak state than apply it less frequently in stronger doses. Disproportionate and unsightly crowns are often the results of injudicious applications of liquid manures. Good guano may be used, but sheep or deer droppings can always be relied upon; these should be gathered in a fresh state, and soaked forty-eight hours before using; in this time they are dissolved sufficiently to pass through the spout of a can or a long tube, when the same can be diluted according to the strength required. We use an 8 or 9 inch potful of fresh droppings so dissolved to water ten fruiting plants, and for succession plants it is made weaker, according to the quantity of roots and the size of the plants. As soon as the roots of succession plants get to the sides of the pots, liquid manure is given them in a weak state, and gradually increased in strength until the fruit commences to colour. When watering, if the water stands on the soil and does not enter in the usual way, but is noticed to bubble, it must be taken to mean that the ball is very dry, and an extra watering should be given them. After minute tests, we find that liquid manure given very strong, although not killing the roots, does not aid in swelling the fruit, but has the contrary effect, producing small fruit with large crowns. The plants also assume a yellow, unhealthy colour, and this is a sure symptom that they are either getting too much liquid manure, or otherwise too much moisture at the roots. If these conditions are not changed, all other good culture will be counterbalanced. *D. Wilson, Castle Hill, Devon.*



The Hardy Fruit Garden.

THIS season's prospects are in this department more promising than those of several years past; the fruit blossom is even more plentiful than it was last year, and the rather sharp frosts of the beginning of the month seem to have done less injury than might have been expected. Plums and Cherries are excessively full of bloom, far surpassing their usual prodigality in that respect; and every care should be exercised to ward off the disastrous effects of any late frosts we may chance yet to experience, by having protecting material in readiness to apply on emergencies; but it will be well not to protect those later blooming and harder fruits regularly at nights irrespective of the state of the weather, for by ill-considered shelter an amount of tenderness may be induced which tends to produce the very result it is intended to prevent. Pears appear to be an exception to the rule of general fruitful promise; some trees exhibit but an indifferent show of bloom, and especially is this the case of trees that bore heavily last year. If the mild weather continue it will be advisable to remove any light protecting materials, such as herring-nets, that may have been left upon Apricot walls until now, but temporary coping boards may be retained a little longer, and will prove useful in the event of sudden changes of weather. Keep a sharp look-out after the maggots amongst the leaves, and commence shortly to remove some of the worst placed shoots in young trees, also some of the grossest growths from such parts of established trees as require to have their extra luxuriance repressed, in order to maintain or correct the balance of the branches. Any protection afforded to Peach trees, if of a heavier character than that of a single ply of wide-meshed netting, may now be removed, and only that of a light form retained. Let the garden engine be now frequently used with tepid water during mild weather to thoroughly cleanse the trees, and prevent the establishment of insects; and where this means is insufficient to prevent the spread of aphides use an insecticide without further delay. Soft-sap should be either boiled or mixed with boiling water, and left to stand all night before being added to the quantity of water to be used; for, adhering to the tender leaves and shoots of Peaches and Nectarines will be found to deface and injure wherever they rest. Complete at once any grafting that may be in arrears; as it is now getting late for performing the operation, and it is only where scions and stocks have been duly prepared, and consequently retarded, that success may be confidently expected. Look to all grafts put on last month, damping the

clay to prevent its falling to pieces through cracking, re-mossing where insecure fastenings or the work of birds have rendered such attention necessary; and look out for weevils, which frequently take up their quarters amongst the moss, and sally forth at night to feast upon and destroy the young growths of the scions as soon as the buds burst. Make the soil firm around any cuttings of bush fruits that have been inserted during the autumn and winter; for although this operation is not so necessary as it would be after the upheaving effects of severe frosts, yet it is of advantage to make certain of their stability, and thus hasten their establishment as rooted plants. Trimness and neat keeping should be especially attended to in the hardy fruit department at the present time, when the beauty of the plentiful blossom in its varying tints invites close inspection, and rivals in effectiveness the purely ornamental departments. Box edgings may now be cut with every prospect of the period of frosts being past before the growth starts afresh. The ordinary hedge-shears are yet used in some gardens for clipping the edgings, but either a short stiff scythe or the grass edging-shears will be found a preferable instrument for cutting the sides, getting over the work more speedily and effectually, and leaving only the top to be trimmed off with the shears. No form is more pleasing to the eye or better calculated to insure a close lase than the wedge shape, which either of the tools mentioned above will readily produce, and if the sharp apex be cut off as recommended, as perfect an edge will be formed as can be desired, provided that the work be done neatly and annually. *Ralph Crossling, St. Fagan's Castle.*

Grapes and Vineries.

THE earliest Grapes will now be nearly ripe, and must be kept in a drier atmosphere. Damp down the paths and borders early in the morning on bright days only. When there is a good supply of air on, keep a little on the back and front ventilators day and night, and increase it as the temperature rises. Keep a little fire-heat on, even on the brightest days, as it will make the atmosphere more light and buoyant. Keep the night temperature at 65°, with a rise of 10° by day. If the border is dry, water with clear tepid water at 85°; but if the border was watered when the Grapes commenced to colour, it is generally sufficient until they are ripe. Keep the evaporating-pans dry, and let the laterals grow within reasonable limits. Succession Hamburgs that are swelling will take liberal supplies of tepid manure-water at a temperature of 85°, giving plenty of atmospheric moisture, and keep the evaporating-pans filled with weak manure-water. Look over the bunches, and take out small or stoniless berries. Give air early in the day on the back ventilators, and close early in the afternoon. Hamburgs that have just been thinned must have a good soaking with tepid manure-water, and the temperature kept at 65° by night, with a rise of 10° by day. Later houses can be disabused and the shoots tied down as they require it, being careful to leave only those shoots that are best placed. The latest house must still be kept as cool as possible. See that none of the young growths touch the glass, for every little frost will catch hold of them. Do not close the house for the present unless there is danger of frost. Young Vines planted last month will take liberal supplies of clear tepid water and a moist, growing atmosphere. Let them run to the top of the house before stopping, which will fill the border with healthy roots. Syringe the paths and Vines overhead when closing in the afternoon. Any vineries with outside borders only, will be better if not planted before May, as the soil will then be warmer, and they will make better progress afterwards. Muscats that are swelling their fruit can be kept at a night temperature of 70°, with a rise of 10° by day, giving the borders when dry liberal supplies of tepid manure-water. Keep a sharp look-out for red-spider, and if it appears sponge the leaves with clear water; raise the temperature early in the day, and give air early, say at 7.30, steadily increasing it as the heat rises. Close early in the afternoon with abundance of atmospheric moisture. Late Muscats will now be coming into flower, and can be kept at a night temperature of 70°, with a rise of 10° by day. Give the border a good soaking with clear tepid water before they come in flower, and do all the stopping, so that they will not require stopping again until they are set. Raise the heat early, and give air on the back ventilators early in the day. Damp the paths and borders early on bright days, so that it will dry up before mid-day, and the atmosphere be light and dry. Tan the roots several times daily to disperse the pollen, and damp the paths and borders at closing time. Late varieties of Grapes must be tied down and stopped as they require it, stopping them at about four joints beyond the bunch; leave only sufficient growths to cover the trellis without crowding. They can be kept at a night temperature of 65° to 70°, with a rise of 10° by day. *Joshua Atkins, Lockinge Gardens, Wiltshire.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, April 25	Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M.; Scientific Committee, at 1 P.M.
WEDNESDAY, April 26	National Aircults Society's Southern Show.
THURSDAY, April 27	Royal Botanic Society's Second Spring Show. Sale of Imported Orchids, at Stevens' Rooms.

IN a previous number (p. 468) we adverted to the report of M. BOPPE on forest management in Scotland and South Britain, forwarded to us from the India Office, and to the recommendations of that gentleman as to the establishment of one or more Forest Schools in this country. We may now in continuance of our remarks pass in review what M. BOPPE has to say about Windsor Forest, in which it may be remembered actual profit is not so much considered as landscape effect and arboreal beauty. Those of our readers not familiar with this noble demense we may refer to our Windsor Supplement, published in October, 1874, and copiously illustrated. The materials for this supplement were got together from several visits paid for the purpose by ourselves and our artist, in company with the late surveyor, Mr. MENZIES, and Mr. JONES, HER MAJESTY'S gardener at Frogmore. "Windsor Park," says M. BOPPE, "is one of the most magnificent fields for the study of forest botany that even the wildest imagination could conjure up. Here may be seen growing singly or collectively in clumps specimens of all the finest trees, native or exotic, which exist in Great Britain; and since care has been taken to keep an exact record of the age and origin of each plantation the forester would be enabled to follow out in detail studies of the highest interest and importance regarding the growth of the principal forest species."

With reference to the New Forest M. BOPPE remarks on the barrenness and poverty of the soil, "which has sufficed to preserve it from being plundered even at an epoch when land was valued more for its extent than its fertility. . . . For many centuries, however, the New Forest has been a prey to commoners who use up its resources without either method or control. . . . The sole remedy for this state of things was to restrict the commoners to certain defined localities, and that could only be done by sacrificing a portion of the forest to save the rest. The part which has been freed is sufficiently extensive to constitute some day a respectable forest, while the part given up is hurrying to its destruction in a manner deplorable to behold, and before very long there will be nothing left but a worthless barren heath. . . . Without contesting the marvellous beauty of some parts of the New Forest, so dear to artists and lovers of Nature, we are bound to say that before long it will not be here that a professor of sylviculture, desirous of teaching his science, will choose to pitch his tent."

As to the Forest of Dean, "In less than a century more than 16,000 acres of the original 20,000 have been replanted. The older plantations are generally of pure Oak; the Beeches, Chestnuts, and Birches form but a small percentage of the trees. . . . The state of vegetation is generally good, varying however with the quality of the soil, but indicating in every point the artificial nature of the forest. . . . A plantation of broad-leaved trees takes a much longer time to establish itself than one of needle-leaved trees—Conifers; . . . the cause of this is that Oaks furnish the soil with much less vegetable manure than coniferous trees, and again, in an Oak plantation there is a marked absence of under-shrubs and spontaneous ground vegetation, which, by their organic remains, tend to increase and improve the surface soil. It is rare also that a plantation of Oaks on a soil which has been long unoccupied by forest vegetation, and is but moderate in quality, succeeds well during

the first generation; it is only at the second generation that the trees acquire their normal development. At present, while the trees are yet in their youth, the only cultural operations that can be undertaken are the periodical thinnings, and these are here conducted with great skill. There is no doubt, however, a great future in store for the Forest of Dean, thanks to the workmanlike manner in which it is managed, and to the laws regulating the pasturage, which date back to the time of Charles I."

The establishment of a Forest School is advocated on these grounds:—For the purpose of replanting the 5,000,000 or 6,000,000 acres of moor and waste land in the Highlands—the depressed state of agriculture, which demands the maximum production from a minimum area—the enormous extent (hundreds of millions of acres) of forest land in India and the British colonies, estimated to be collectively 340,000,000 acres. All these natural resources of wealth are worked by British enterprise and British capital, and consequent on the present wonderful development of commerce throughout the globe, it is a matter of importance to every civilised nation that this vast accumulation of forest riches should not fall into the hands of ignorant persons, or be squandered away regardless of the future. For these reasons the establishment of a Forest School in England becomes a matter of primary importance."

After some remarks upon the absolute necessity of the connection of a scientifically managed forest, with a school for theoretic instruction, the author goes on, as we have said, to recommend the founding of two Professorships of forest economy, one at Cooper's Hill, near Windsor, the other in Edinburgh. As to the Professors, "they should be selected from the young men who have been trained at the Continental Forest Schools, and who have had eight or ten years' practical experience in India. The course of instruction should comprise all the essential parts of the education of a forester, and it would only be necessary to supplement it by sending the selected students for one year to a Continental school, where they would have the opportunity of perfecting themselves in the practical details of forest culture. After this it would be advisable for them, accompanied by their English Professor, to complete their training by making a tour of inspection in some of the mountain forests of France, Germany, and Austria. So prepared the young men would be perfectly capable of undertaking forest work in any portion of the Indian Empire." These are the conclusions, which are substantially the same as we have advocated repeatedly in these columns; and we trust that the time is now not far distant when they will be carried into effect.

— HOUSE ACCOMMODATION FOR GARDENERS AT LAMBTON.—If, during the present generation there had been such general improvement in the habitations in which gardeners and their assistants are housed as there has been in the structures in which are grown the plants they cultivate, many of the craft would be better off in this respect than they at present are. This of course refers to the matter generally, not exceptionally, for, to the credit of many who own large gardens, there has been a marked improvement in recent times, not alone in gardeners' houses, but, also in the places where the young men are lodged. Amongst such there are few places where more thoughtful consideration has been given to the wants and comforts of all engaged in and about the garden, than there has been at Lambton Castle, as will be seen from the views we here give of Mr. HUNTER'S house (fig. 83), and also that in which the young men live (fig. 82, p. 529); both are really handsome buildings, possessing every convenience, with plenty of room in them. In the young men's house, which was spoken

of in the notice of Lambton that appeared in the *Gardeners' Chronicle*, p. 401, n.s., vol. vii., there is a dining-room, reading-room, and bath-room, and a separate bed-room for each man. Neither are the garden labourers forgotten in the matter of their dwellings. Within five minutes' walk of the garden there are half-a-dozen pretty commodious cottages that have not only an air of comfort about them, but their external appearance is such as to induce the occupants to take a pride in keeping them nice.

— BEACONSFIELD BUTTONGHOLES.—"Out of the Hurly-Burly," writing to the *Times* of April 14, says:—"It is an interesting fact worth noting that during the last day or two a demand has arisen in every part of the West-end for what are called 'Beaconsfield buttonholes'—that is, small bunches of Primroses, for wearing on the anniversary of Lord BEACONSFIELD'S death on the 10th inst. [and which, in fact, were largely worn on the occasion]. It will be remembered that the Primrose was his favourite flower. It has always been a popular practice, as classical mythology, church history, and heraldry prove, to associate great names with particular flowers, and it is still in full force, the Emperor WILLIAM being associated all over Germany with his Imperial Majesty's favourite flower, the 'Prussian Blue' *Eleonette* (*Centaurea cyanus*). The greatest savants and naturalists have been prone to have flowers named after themselves, and thus the *Linnaea borealis* was named by GROENOVIIUS in honour of LINNÆUS. They have even condescended to spite each other by the abuse of this practice, as when LINNÆUS named the *Buffonia tenifolia* in unworthy derision of his great contemporary BUFFON'S slender title to fame as a botanist; and JACQUIN still more unjustly called the *Hillia parasitica* after Sir JOHN HILL, in sympathy with his defamation by English scientific men for writing against the Royal Society after rejecting him (Sir JOHN HILL) as a Fellow." "Out of the Hurly-Burly" is, however, scarcely correct in his facts, and had he been aware of the existence in the *Journal of the Linnean Society* (Botany), 1858, of the letters of M. FIE and of the late J. J. DENNETT he would not have perpetuated the error. The writer in the *Times*, following no less an exemplar than Sir JAMES SMITH, considers the epithet *tenifolia* was given in disparagement of BUFFON'S claims as a naturalist. Most botanists would know that such an epithet was given for very different reasons, and LINNÆUS did but adopt a previous name, as the synonymy of the plant shows. Moreover, this was not the real charge brought against LINNÆUS. He was accused of having purposely misspelt the generic name *Buffonia*, by omitting one *f*, so as to suggest an offensive comparison with a toad, *bufo*. Investigation of the evidence, which we need not here bring forward, and of the dates of publication, show that LINNÆUS was not really the author of the name in question, but SAUVAGES, and that the omission of the one *f*, not by LINNÆUS, but by SAUVAGES himself, was a pure oversight; nevertheless, it is true that LINNÆUS did not correct the mistake, but the insult which it was supposed this childish name-calling was intended to avenge was, it seems, not committed till two years after the name was misspelt. It is clear, then, that the genus was named in compliment to BUFFON, the director of the Botanic Garden at Paris, that the misspelling of the name was an accidental occurrence, and that the epithet *tenifolia* was adopted by LINNÆUS not only because it was very appropriate to the plant, but also because it had been attributed to it long before BUFFON'S time, as by RAY and FLETCHER. As these authors are actually cited by Sir JAMES SMITH, in the synonymy of this plant, it was a singular oversight on his part to make the charge which "Out of the Hurly-Burly" has once more set in circulation. FIE points out that LINNÆUS named *Siegesbeckia*, a most beautiful Composite, in honour of one of his furious antagonists, and Adansonia, one of the largest trees and finest flowers, in honour of ADANSON, also in some sort a rival.

— ASARUM VIRGINICUM.—This is an interesting if not particularly showy plant. It is, however, a much more handsome species than our native *Asara* baccata, *Asarum europæum*; it has shining glabrous heart-shaped leaves and inflated bell-shaped calyx-tube of a lurid purple colour spotted with whitish. *A. canadense*, the wild Ginger, Indian Ginger, Canada Snake-root or Coltsfoot of the United States *Pharma-*

macrochaeta, is a softly pubescent species, with kidney-shaped leaves double the size of those of *A. virginicum*. Both species are now in flower at Kew.

— **POTASH FOR POTATOS.**—Some recent experiments carried out by the County of Cork Agricultural Society, with much circumstantiality of detail, and with due reference to unmanured plots, show that of several manures employed kainit (sulphate of potash) was most efficient. It was applied at the rate of 2 cwt. per acre, and yielded a crop of 13 tons 0 cwt. per acre, a gain of 9 tons over the crop on the unmanured plot. Double the quantity of kainit per acre by no means doubled the result; indeed, only about 1 ton more produce was supplied than with half the quantity of the fertiliser. Two

S. Camposii, *S. canaliculata*, *Meum nevadense*, *Seseli granatense*, *S. nanum*, *Primula vulgaris* var. *balearica*, a variety with white flowers closely resembling, according to the figure, some of the forms in cultivation, but less "sophisticated" as to the form of the flower. *Linaria oligantha* and *L. faucicola* are yellow and purple flowered species respectively, and of weedy habit. *Smilax aspera* var. *balearica* is remarkable for its close set branches, which do not trail or climb like those of the type. *Narcissus jonquilloides* is a curious species, with flowers in umbels, each with a long narrow tube, a yellow spreading short-lobed limb, and a deep orange cup.

— **CLEMATIS INDIVISA.**—The growing demand for cut flowers in private establishments—rather

when flowers are held in high esteem, a healthy plant will supply them by the thousand, and what a boon it is to be able to cut a basket of white flowers without the interminable lopping off from pot plants, many of which are perforce cut into mere scarecrows. A plant or so given a favourable root-run travels rapidly, and no better time could be selected for planting than during the present month.

— **EARLY FLOWERING CHRYSANTHEMUMS.**—The value of these, in consequence of blooming so early in the summer, is being increasingly shown year after year. A batch of dwarf-growing Chrysanthemums that can be had in flower in July and August cannot but be an acquisition to gardeners. The best of the select number of early flowering varieties are:—*Aureole*



FIG. 83.—THE GARDENER'S COTTAGE AT LAMFON CASTLE. (SEE PP. 520, 533.)

hundredweight of kainit gave a heavier yield than 30 tons of good ordinary farmyard dung. The variety of Potato experimented on was the Champion; it does not follow that the results with other varieties would be the same in degree, though they probably would be the same in kind. Kainit has the advantage of being cheap, and would form a good manure for Vine borders.

— **THE SPANISH FLORA.**—The fourth part of Professor WILLKOMM'S *Illustrationes Florae Hispaniae*, consisting of coloured plates of rare and interesting Spanish and Balearic plants, has lately been issued. The text is in Latin, French, and Spanish. The figures are of their customary excellence, faithful and instructive, without exaggeration or artistic distortion. The plants represented are *Microcenerum fastigiatum*, *Gerista micrantha*, various *Saxifragas* allied to *S. triclactylites*,

increasing than diminishing—cannot fail to impress the reflecting mind that provision must be made for the future. A gardener must be a man of observation if he is to be successful, and if he can anticipate the exigencies of the future before the shoe pinches too severely, so much the better for himself and for the well-being of his charge. Where a basket of cut flowers, twice a week, was at one time thought sufficient, at least double the quantity is required now; and, by the way, church decoration at Easter-tide is gradually growing into something like a flower carnival. To meet such a demand the roofs of all cool structures, especially large conservatories and other houses that want ornamenting bad enough, should be covered with creepers that are useful for cutting as well as for looking at. The *Clematis* above named is a plant worthy of extended cultivation for the purposes mentioned. During the spring months,

rosy-crimson, the centre petals tipped with lemon, large flowered; *La Petite Marie*, medium-sized white flowers, borne in large clusters on dwarf sturdy plants, not exceeding 9 to 12 inches altogether, commencing to flower in July and continuing till October—one of the dwarfest varieties grown; *Lucinda*, white; *Madame C. Desgrange*, creamy-white, flowering like a Japanese variety; *Nanum*, bluish-white, very free; *Scarlet Gem*, brilliant chestnut-red, very free and showy; and *Souvenir d'un Ami*, snow-white, a very pleasing and useful variety.

— **THE ROCKWORK IN THE YORK NURSERIES** is well furnished with plants in flower at the present time. *Primula rosea* in large masses forms a striking object at a little distance; there are also many of the other species and varieties of *Primula* in flower. *Soldanellas* of several species are flowering on the

ledges of the rocks in shallow soil. *Omphalodes verna*, with its nice deep blue Forget-me-Not-like flowers, forms masses of bloom very quickly when planted in good soil and partially shaded. A very beautiful plant, too, was the *Polygala chamaebuxus purpurea*; it was densely covered with its reddish-purple and yellow flowers, which are sweetly scented.

— THE FLORA OF AFGHANISTAN.—The recently issued part of the *Journal of the Linnean Society* contains the continuation of Surgeon-Major AITCHISON'S valuable report on the flora of the Kuram Valley. Some of the more interesting features of this communication have already been alluded to in these columns. A Palm, *Nannorhops Ritchiana*, is remarkable for its branching stem, a condition attributed to arrest of growth of the large inflorescence. This Palm, it appears, attains a lofty stature in this region near Thal, lat. 33° N., on the high ground where the winters are very rigorous. In the same neighbourhood the common Box was met with in some quantities. The leaves of the Palm above-mentioned are in some places used as ladles for drinking purposes, one being pulled off as occasion serves, but in other places bows made of the bark of the Apricot, or of the Walnut, lay floating on the pools for general use. In the Malana and Zéran valleys, at a height of from 7000—10,000 feet, the Walnut grows wild, the fruit being quite different in shape from that of the cultivated tree, besides possessing an extremely thick shell, with little or no kernel. The natives, moreover, call it by a vernacular name, while the cultivated Walnut is known by its customary Persian appellation. The Walnut grows in the warm nooks and outer valleys. *Aitchisonia rosea*, a new *Rubiaceae* genus described by Mr. HEMSLEY, who assisted Dr. AITCHISON in the determination of his specimens, is interesting as connecting the stellate-leaved series with two-lobed fruit, and the *Cinchonaceae* with their opposite leaves and interpetiolar stipules. It is described as a low shrub, growing in clumps, with terminal clusters of lovely rose-pink, rather fugacious flowers, which the figure shows to be like those of a *Bouvardia*. The beauty of this shrub is such that it is said it would prove a good acquisition to the floriculturist. Its leaves when bruised are, however, stated to be very fetid. *Nepeta piniatorum*, a very showy plant, with large bright lavender coloured flowers, has been introduced and flowered at Kew in June, 1881, from seed collected in 1879. Thirty lithographic illustrations of plants accompany this interesting memoir. Among the plants figured are the *Rosa Eca* and other species, to which we have from time to time referred. Among *Rhododendrons* two new species are figured—*R. Colletianum*, with close heads of *Daphne*-like regular pale rose flowers, with included stamens, and *R. afghanicum*, with conical heads of slightly irregular greenish flowers, with long protruding stamens. This latter species is said to be poisonous.

— THE CARRIAGE OF GARDEN PRODUCE.—At Penzance on the 13th inst. Mr. C. C. ROSS, M.P., presided over a large number of market gardeners and others interested in the transit of garden produce to the North of England to hear from Mr. STEVENS, of the firm of MARSHALL, STEVENS & CO., of Liverpool, details of his proposal of carriage by steamers from Penzance to Garston Dock and thence, *viz.* London and North-Western Railway, to all markets north of Birmingham. Mr. STEVENS stated that he was prepared to run three or four steamers a week from Penzance to Garston during the season, the rates to be not more than Jersey, and at least 10s. a ton less than the railways at present charge. A resolution pledging support to the scheme was unanimously carried. In proposing a vote of thanks to the Mayor for presiding Sir JOHN ST. AUBYN, M.P., said the railway interest in the House of Commons had increased and was increasing and ought to be diminished. Those who had experience of railways knew that unless there was opposition they would never reduce their rates or give the public accommodation. The market gardeners were perfectly justified in the action they had taken.

— AUSTRALIAN GRAPES.—The General Horticultural Company (JOHN WILKS), Limited, last week received an experimental consignment of Grapes from Sydney, New South Wales, but which unfortunately proved a failure. Five different methods of packing were adopted, but in every case the samples were rotten or rotting, and quite worthless. Their condi-

tion at starting must have been fairly good, though they were small in bunch and berry, but had they arrived sound would probably not have met with a ready sale.

— CYDONIA JAPONICA AS PYRAMIDS.—Some plants of this fine hardy flowering shrub are just now a striking feature in an old-fashioned garden attached to a farmhouse in East Kent. The trees were planted some twenty years ago, and have been pruned back yearly in a rough and ready fashion; but each year they bloom with surprising freedom, and maintain their floral mantle of bright crimson for a considerable time. Standing in a line with some old espalier fruit trees, they contrast both with the form of the apple trees and the colour of the flower-buds; and so vivid is the mass of colour in the case of the *Cydonia*, that passers-by stop and wonder what it affords such a remarkable glow of colour. The soil is of a stiff sandy loam, which, by the way, does not nearly so well suit the espalier Apple as it does its gorgeous neighbour.

— ESSEX FIELD CLUB.—The twenty-seventh ordinary meeting of this Club will be held at 3, St. John's Terrace, Buckhurst Hill, Essex, on Saturday evening, April 29, at 7 o'clock. The following papers are promised:—1. "Primeval Man in the Valley of the Lea, with an Exhibition of his Weapons and Tools;" by WORTHINGTON G. SMITH, F.L.S., F.R.H.S., M.A.I., &c. 2. "The Lepidoptera of the District Around Maldon, Essex; a Contribution to the Insect Fauna of the County;" by GILBERT H. RAYNOR, M.A., Vice-President of the Cambridge Entomological Society.

— AN OLD-FASHIONED FLOWER GARDEN.—When any one is interested in plants, and especially in those which bloom in the spring, it is difficult to resist the impression that an old-fashioned flower garden has very frequently elements of interest that cannot be found in gardens modelled and planted after a more modern style. Take, for instance, a flower garden attached to an ancient farmhouse near the sea-coast in East Kent. It must be at least two generations since this garden was planted, and with the exception of an annual digging and top-dressing, and the addition of a few subjects from time to time, the majority of the plants have remained undisturbed since that period. Here are patches of single blue and double red *Hepaticas* that have grown into enormous proportions, and which bloom with amazing freedom year after year; and not only are the flowers numerous, but of large size and finely coloured. In the moist sandy loam the roots go down to a great depth. Near these are clumps of double lilac and double white *Primroses*, of equal size and age, that produce flowers of such uncommon size as to look quite unlike what is seen in ordinary gardens. The beautiful vernal *Omphalodes verna* can be seen in patches a yard in diameter, the Forget-me-not-like blossoms large and of a beautiful clear hue of blue. Common *Primroses* throw flowers of enormous size, though not superior in size to those found in the luxuriant hedgerows that flank the Kentish lanes. Christmas Roses, varieties of *Crocus* versus with a gross growth of foliage; purple and white *Honesty*, Crown Imperials in clumps that have been undisturbed for years, Snowdrops, double *Daffodils*, the double white and Poet's *Narcissus*, *Anemone fulgens*, and *Mysotis dissitiflora*, both of comparatively recent introduction to this part, but thoroughly established; *M. sylvatica*, in large masses; the single scarlet *Anemone*, varieties of early and late Dutch Tulips, that grow to amazing size in this congenial southern home, with patches of *T. Gesneriana* that will be shortly masses of regal beauty; the English and Spanish Iris, *Paeonies*, clumps of white Lilies that produce some thirty to fifty flower stems; Solomon's Seal, Lilies of the Valley, &c., with Sweet Williams, Phloxes, Michaelmas Daisies, Pyrethrums, Canterbury Bells, and others too numerous to mention, bringing up the rear. There is no order in the distribution of these subjects, and they have so much outgrown the space originally allotted to them that they have become somewhat intermingled, but their luxuriant growth and profusion of bloom command the fullest admiration. Then there are Roses, Clematis, Ribes, Spring, *Daphne*, Berberis, and other flowering shrubs and climbers to furnish their quota of floral service. The garden walks are of soft turf, and the fences are

hedgerows of Yew, Thorn, and Privet. The soil does not crack in the hottest and driest weather; the sub-soil is composed of sand and sandstone, and is always cool and moist. If this garden were re-arranged according to modern notions one-half of its peculiar charms would be gone. Many of the subjects succeed so well because they remain undisturbed, and they are sustained by liberal dressings of manure and leaves laid on in autumn and winter. It is a real delight to spend a few hours in this garden; one notes the subjects with delight, and leaves it with reluctance. May old-fashioned gardens long be spared to us to show us how great a charm they are in spring and early summer.

— RHODODENDRON COUNTESS OF DALKEITH.—The fine new *Rhododendron*, exhibited by Messrs. IRELAND & THOMSON at the late exhibition of the Royal Caledonian Horticultural Society under the erroneous name of *R. Thomsoni*, has been renamed *Countess of Dalkeith*.

— PRIZE FOR ORCHIDS.—We learn from the Hon. and Rev. J. TOWNSEND BOSCAWEN, steward of the Horticultural Department of the Bath and West of England Society, that at the meeting which opens at Cardiff on Whit-Monday a silver cup of the value of ten guineas will be given for the best collection of Orchids.

— THE QUEEN AT MENTONE.—On Wednesday, April 5, the QUEEN visited Dr. HENRY BENNET'S garden at Grimaldi, accompanied by the Princess BEATRICE and her suite. Her MAJESTY walked over a great part of the garden. Her MAJESTY'S attention was riveted by some fine specimens of the *Aracaria excelsa*, which thrives thoroughly in the more sheltered regions of the Mediterranean; and also by some masses of *Opuntia vulgaris*, or Barbary Fig, in full bearing. Several members of the Royal party tried the ripe fruit. The following day, April 6, Dr. HENRY BENNET was formally presented to Her MAJESTY by Sir HENRY PONSONEY, by special command. The QUEEN mentioned her visit the previous day to the Grimaldi garden, expressed great pleasure and delight at the views and flowers, and asked Dr. HENRY BENNET how he had contrived to make so charming and fertile a garden on the mountain side, apparently on an all but barren rock. Dr. BENNET, in reply, explained his success by the fact that there was a very ardent sunshine at Mentone—"Very ardent, indeed," remarked Her MAJESTY. Secondly, there was no winter frost whatever in the garden, so that the plants lived on from year to year. Thirdly, he had managed to secure, in one way or another, an ample supply of water. Fourthly, gardening skill and appliances were called into use. Previous to Her MAJESTY'S departure, Dr. BENNET received from Sir HENRY PONSONEY, by the QUEEN'S command, "in remembrance of Her MAJESTY'S visit to Mentone," a handsome gold medalion seal, bearing the Royal initials, V.R., the Royal motto, and the Rose, Shamrock, and Thistle, elegantly engraved. In his letter Sir HENRY PONSONEY says—"The QUEEN commands me to thank you for all that you have done to render Her MAJESTY'S residence here a pleasant one. The QUEEN has been delighted with the splendid flowers which you have daily sent Her MAJESTY from your beautiful gardens."

— ABUTLON BOULE DE NEIGE.—A remarkable specimen of this well-known variety is now a very attractive sight in Regent Gardens, Dawlish, owned by Mr. MANNING, florist, of that town. The plant is growing in an 8-inch pot, is over 6 feet high, and is literally smothered with flowers. Two hundred flowers were gathered from the same plant less than a week ago. For buttonhole work alone, where trade is brisk, such plants ought to pay for their cultivation.

— THE BANANA IN FRANCE.—According to the *Revue Horticole* the Banana has fruited in the open air at several parts of the Eastern Mediterranean coast of France, particularly at Cannes, in the beautiful garden of M. DOGUIN.

— CAMPANULAS AS POT PLANTS.—Amateurs and others desiring to have a cheap display of flowers in their greenhouses cannot do better than turn their attention to the cultivation of these plants. A large batch of them (double varieties) coming into flower in a cool house in the Devon Rosery, Torquay, shows

clearly what may be accomplished in the way of show by giving attention to the cultivation of inexpensive plants. The plants are grown in three distinct colours, viz., white, blue, and pink, and a charming display is produced by the association of these three colours alone, to say nothing of the additional pleasure that may be derived from a more elaborate arrangement with other plants.

— **BALL DECORATIONS IN GLASGOW.**—The Bachelors' Ball, given in St. Andrew's Hall, Glasgow, on the 14th inst., seems to have been a very successful affair, from a floral point of view, if we may judge from the glowing descriptions of the handiwork of Messrs. J. & R. THYNE given in the local papers. "A greater profusion of plants has not been seen in Glasgow at any similar gathering."

— **SIR HENRY COLE.**—The death of this able and devoted public servant will bring home to the nation with very forcibly the value of the services this truly remarkable man rendered to the cause of progress in art, science, and literature. If not the initiator, at least for many years the chief guiding spirit of undertakings such as the Great Exhibition of 1851 and its successors; the foundation and management of the South Kensington Museum—a wonderful testimony to the ability and perseverance of the man; the establishment of the Science and Art Department, which is doing so much excellent work to promote special education and general welfare; and of very numerous other schemes for the improvement of the people: such a man deserves to be held in the highest honour. It is not the time to call to mind the way in which he sometimes compassed his ends; no one now doubts either their extreme importance, his own disinterestedness, or his wonderful success. His splendid success, indeed, will remain—the memory of his method of work will be forgotten, as it ought to be. Few things, indeed, which he was associated with did not prosper; and an exception may be mentioned in his connection, years ago, with the Royal Horticultural Society—a connection by many supposed to be the beginning of the disasters that have befallen that institution; but whether that be so or not Sir HENRY COLE'S triumphs were so great and so valuable that posterity will not fail to mark him as one of the greatest benefactors to the nation that the century has produced. Sir HENRY was at one time a frequent contributor to literary undertakings, and in past years was an occasional correspondent of this journal. In 1873, after fifty years of varied and untiring work, he retired from the public service; but rest for so active-minded a man was an impossibility. He continued to the last to occupy himself with schemes destined to promote the welfare and comfort of his fellow-citizens, and died, after a short illness, on the 18th inst., in the seventy-fifth year of his age. Doubtless, no time will be lost in taking means adequately to commemorate the work of one of the most distinguished public servants of whom the country could at any period boast.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending April 17, issued by the Meteorological Office, London:—The weather has been very dull and unsettled; much rain has fallen in the south and south-west, and heavy snow and rain in the north, while a thunderstorm was experienced in the south-east on the 15th. Temperature has been below the mean in all districts except "England, S." and "England, S.W.," where it was about equal to the average. In Scotland the deficit was as much as 4° to 6°. The maxima were generally registered either on the 11th or 15th, and ranged from 54° in "Scotland, W." to 62° in "England, S." and "England, N.W." The minima were very low for the season, a reading of 25° being reached at Maree Castle on the 10th, and 26° at Durham, Churchstoke, Douglas, and Brookborough, while at many other stations the thermometer fell to between 27° and 31°. Rainfall has been more than the mean in all districts, the excess being considerable in all parts of the kingdom except "Ireland, N." Bright sunshine has been much less prevalent than during last week, the percentages ranging from 30° in "England, S." to only 9° in "England, N.E." Depressions observed:—The distribution of pressure during this period has undergone sudden and considerable alterations, several depressions having advanced over our islands from the westward or south-westward. The wind has consequently been very variable in direction, but was generally between south and east during the earlier part of the period, and between north and north-east (except over Ireland) on the 15th and 16th, while by the 17th it was southerly to westerly over England and Ireland, and southerly to easterly in Scotland. In force it was light to moderate on most days, but on the 13th, 14th, and 15th, a strong breeze or fresh gale was experienced.

DEATH OF CHARLES DARWIN.

THE intelligence of the death of Mr. Charles Darwin, in his 74th year, on the 19th inst., will be received with the greatest concern. To few, comparatively, was it privileged to have personal acquaintance with this remarkable man, as, owing to his always feeble health and retiring disposition, Mr. Darwin, though he became world-famous, yet entered little into public society. He was born at The Mount, Shrewsbury, in 1809, and was the son of Dr. Charles Waring Darwin and a grandson of Dr. Erasmus Darwin, several of whose speculations, as published in the *Botanic Garden*, were, as it were, revived and continued by his grandson. Charles Darwin was educated at the Grammar School at Shrewsbury, whence he proceeded to Edinburgh and afterwards to Cambridge, which has thus the glory of having a Newton and a Darwin among its many illustrious pupils. At Cambridge Darwin became a pupil of the late Professor Henslow, to whom and to Professor Sedgwick he owed much as regards the development of his scientific tendencies. Mr. Darwin, long before he became known to the general public, had achieved renown among his scientific brethren. His services as naturalist on board the *Beagle*, during its five years' voyage round the world, and the results of which were given in his *Journal of Researches into the Geology and Natural History of the Countries Visited*—gave him a place amongst the foremost of rising naturalists, a place which was confirmed by his labours at the Geological Society, and by his numerous papers and works on coral-reefs, the natural history of the cirripeds, &c. It was not, however, till his *Origin of Species* appeared, in 1859, that he became known to the public at large.

That work—a masterpiece of lucid argument and cumulative evidence—has sufficed, in less than a quarter of a century, to revolutionise natural history. At first it was received with suspicion even by many naturalists, and with open hostility by that larger public who, unable to appreciate the line of argument, and unable to estimate the enormous body of facts upon which it was based, made it the subject of the grossest misrepresentations, and looked upon the work as an attack on their cherished prejudices and prepossessions. Gradually, however, as the argument began to be better understood, and the consummate genius with which the facts brought together were marshalled and brought to bear on the theory became recognised, the tide of feeling, especially among naturalists, turned in favour of Mr. Darwin—a circumstance largely aided by the personal character of the author, the perfect candour of his statements, and his resolute avoidance of polemical controversy. The steady support from the first of such men as the late Sir Charles Lyell, of Sir Joseph Hooker, Professor Huxley, Mr. Bentham, and others—the more valuable as it implied the abandonment on their parts of opinions formed and steadfastly acted on for years by men whose caution was known to be equal, to their sagacity—powerfully helped on the new theories or the new development of old ideas, and they were also most materially assisted by the writings of Wallace, whose experience as a naturalist in the tropics had led him to similar and independent conclusions. The two volumes on *The Variation of Animals and Plants under Domestication*, which contain the justification of the now famous theory, form an encyclopædia of facts relating to natural history the value of which, quite apart from any theory, can hardly be too highly estimated. Nowhere else can such a body of facts be found, and, as we have said, the way in which they are disposed, and the perfect fairness with which they are set forth, are such as of themselves stamp the genius of the man. Personal observation and extensive research did not satisfy Mr. Darwin. The most elaborate actual experiment was brought to bear with a sagacity in conception and a patience in carrying out which have never been surpassed, and rarely equalled. These experiments related to the fertilisation of Orchids and of numerous other plants, the movements executed by growing plants, the curious phenomena of digestion carried on by the leaves of certain so-called carnivorous plants, the action of worms on the soil, and other subjects now so well known, that the mere mention will suffice. These manifold researches have raised Darwin to the highest rank among naturalists and experimenters, a rank accorded to him by universal consent, seeing that, not only in this, but throughout the civilised world, Universities and Academies have been proud to enrol him among their members.

We need not now stop to detail the various arguments derived from many sources by which Darwin laid down in these later times the doctrine of evolution. In principle, if not in detail, it is now almost universally accepted; and what was received with hostility and ridicule has now become so generally accepted as true that the terms evolution, inheritance, variation, the battle of life, survival of the fittest, have become household words, and are applied to circumstances and conditions never dreamt of by Darwin himself. The origin of living beings from a common stock, their divergence according to circumstances, the force of competition in moulding their forms and other circumstances, upon which the theory of evolution is founded, are now accepted, in principle if not in every detail, by almost all naturalists; and the proof of their underlying truth is shown in the vast advances that have been made in every department of natural history consequent upon the application of the theory to the unravelling of the problems of life and organisation. This mighty and varied development never could have arisen from a theory that was intrinsically false. Things before inexplicable fall into their places, heretofore isolated facts cohere into one harmonious whole. Classifications before arbitrary become truly natural. The significance of morphology, the meaning of rudimentary and now useless structures, becomes apparent; the adaptation of the organisms to the work they have to do, the inheritance from generation to generation of particular forms, the variation according to circumstances—all these, instead of being isolated facts—mere curiosities—become welded in one symmetrical theory by which the structure of the universe and its inhabitants, and their relations one to the other, become clear and harmonious to a degree that was hardly conceivable a quarter of a century ago.

As to the bearings on what, for convenience sake, is called the Darwinian theory, we may be allowed to repeat here what we said on a former occasion. We might add greatly in points of detail, but that is not necessary for our present purpose. Writing in 1875 we said:—

Comparatively few among practical horticulturists have duly considered the extent of Darwin's services to horticulture. Succeeding generations will, it may be, apply his principles to their daily work quite unconsciously, but even now physiologists will admit that, since the days of Thomas Andrew Knight, no physiologist has done so much to extend the basis on which successful culture, whether of animals or of plants, depends.

We have, however, much more direct reasons for claiming him as the physiologist who has done the most in our time to advance the science of horticulture. The intelligent reader needs but to read the headings of the chapters in the *Origin of Species* or the *Variations of Animals and Plants*, to find ample justification of our remarks.

Let any one who knows what was the state of botany, in this country at least, even so recently as fifteen or twenty years ago, compare the feeling between botanists and horticulturists at that time with what it is now. What sympathy had the one for the pursuits of the other? The botanist looked down on the varieties, the races, and strains raised with so much pride by the patient skill of the florist as on things unworthy of his notice and study. The horticulturist, on his side, knowing how very imperfectly plants could be studied from the mummified specimens in herbaria, which then constituted in most cases all the material that the botanists of this country considered necessary for the study of plants, naturally looked on the botanist somewhat in the light of a laborious trifler. Both classes carried on their investigations in a narrow spirit of isolation, unconscious or unheeded of the assistance that either might give to the other.

The investigations of Gaertner, of Kulerter, of Sprengel, of Vaucher, had been allowed to remain by British naturalists as so many dead letters. It was a chance if a page or two were devoted to them in textbooks; rarely, if ever, were they mentioned in lectures, still more rarely was their bearing on horticulture alluded to. Darwin, by his renewal and extension of these experiments, and especially by his deductions from them, altered all this. He made the dry bones live; he invested plants and animals with a history, a biography, a genealogy, which at once conferred an interest and a dignity on them. Before, they were as the stuffed skin of a beast in the glass

case of a museum; now they are living beings, each in their degree affected by the same circumstances that affect ourselves, and swayed, *mutatis mutandis*, by like feelings and like passions. If he had done nothing more than this we might still have claimed Darwin as a horticulturist; but, as we shall see, he has more direct claims on our gratitude.

The apparently trifling variations, the variations which it was once the fashion for botanists to overlook, have become, as it were, the keystone of a great theory. The variations which the florist saw, seized on, perpetuated, "improved," furnished the suggestion for the theory of "natural selection." It is quite unnecessary to go into explanations now-a-days on this point: suffice it to say that an apparently trifling variation may be (it has not been proved absolutely that it is), may be—probably is—the first stage in what will, under favourable circumstances, eventually develop into what we call a species. From this point of view a new variety raised by man, as Darwin himself says, is a more interesting subject for study than one more species added to the crowded lists. Darwin borrowed the idea of "natural selection," or, as it is more accurately termed, "the survival of the fittest," from the gardener. The gardener or the florist selects, causes to survive, and propagates varieties showing one particular quality or tendency which he may happen to desire; but in Nature the selection or the survival is not so simple an affair. If it were a mere question of strength, "the weakest would always go to the wall;" if of speed only, the hare must outrun the tortoise; but we all know how diverse and complicated are the conditions under which living beings, plants as well as animals, exist, and we admit with Solomon that "the race is not always to the swift, nor the battle to the strong, but time and chance happeneth to them all." We may safely interpret the word "chance" here as the equivalent to our "circumstances."

Passing from this question of selection, in which, if Darwin has taken much from the practical man, he has repaid him with abundant interest, we may allude to one of the great elements in the consideration of the aforesaid circumstances, viz., the "interdependence of living organisms." We all know and admit this principle to some extent, but it is probable that few of us realise how greatly and of necessity one organism is dependent upon another. Almost every gardening book we take up has a chapter or a paragraph on the insects injurious to this or that crop, but we do not find, at present, in our theories of horticulture and books of the garden, any but the slightest reference to the insects that are beneficial to the plants we cultivate. We ought to have learnt something about this from Sprengel, from Gaertner, and others. Herbert did learn and did teach somewhat of this, but his lessons never took much effect. Surely the laborious researches of, and the important practical results obtained by, Darwin will open our eyes to this matter, and fix our attention a little more closely and fixedly on what is of such vital consequence to us. We must remember this is no visionary theory; if anybody wants facts let them study the record of Darwin's labour and Darwin's patience in the *Journal of the Linnean Society* and in our own columns, to which Mr. Darwin has contributed from the first. These labours and these facts establish beyond controversy the manifold and intricate way in which living beings are tied together, and the extreme complexity of the conditions under which living beings have to maintain their struggle for existence.

Space would fail us if we attempted to give further illustrations of this: it must suffice to mention the great subjects of fertilisation by insects, of cross-fertilisation, of hybridisation, of dimorphism, on all of which Darwin has experimented patiently and written lucidly. While the florists have for years been selecting their pin-eyed and thrum-eyed varieties of Auricula, selecting the one and rejecting the other, it seems never to have occurred to them to inquire what was the meaning of the difference. Here was a difference brought prominently under their notice, they regulated their course accordingly, they acted from motives of mere fancy or fashion, without troubling themselves any further about the matter. "Why should we do this?" they might well have asked, in pre-Darwinian days. "Of what good would it be to us? We know what we want and how to secure it—why concern ourselves further?" And the pre-Darwinian botanist, if he considered the

matter of any interest at all, would have been unable to answer these questions. How altered is the state of things now! Thanks to the laborious experiments of Darwin—thanks to the example he has set, the purpose of this, as of many other curious points of structure, passed over before as merely curious, has been made apparent. No more persuasive apostle of natural history, indeed no more powerful advocate of the argument furnished by design and adaptation, ever lived than Charles Darwin.

We cannot now go into further details of physiology, important as they are. If the florists now ask the botanist the meaning of the pin-eyed and thrum-eyed flowers and other similar variations they will learn something very much to their advantage. They require improved varieties, fixity of form, abundance of seed, and robust constitution in the seedlings. Let them study the chapters on cross-fertilisation and dimorphism which Darwin has written, and they will see how they may attain their ends. So with such cases as "bad setters" among Vines or Cucumbers, such things as blind Strawberries, the great physiologist of our day has supplied the thoughtful cultivator with innumerable facts, careful observations, and suggestive inferences. It is impossible for us to do more than indicate these matters, nor can we do more than allude to the many other subjects elucidated by the genius of Darwin, and which have, or may have, a direct practical bearing on the pursuits of the gardener and agriculturist.

Enough for us now if we have shown that to Charles Darwin, setting aside, as beside the question we are at present concerned with, all direct reference



FIG. 54.—BIRTHPLACE OF CHARLES DARWIN, SHREWSBURY.

to his theories as to the origin and progress of species, are due grateful homage and reverence from every thoughtful horticulturist of the present, from every careful practitioner of the future.

At the meeting of the Linnean Society on Thursday evening, the President, Sir John Lubbock, alluded in fitting terms to the loss which the Society and natural history in general had suffered by the death of Mr. Darwin. He alluded to the fact that the latest of Mr. Darwin's papers, on the action of ammonia on roots, was read quite recently before the Society, as reported in these columns. Mention was also made of the excellent portrait of the great naturalist by Mr. Collier, recently presented to the Society, and after a feeling tribute to Mr. Darwin's personal qualities as a friend and neighbour, Sir John proposed the adjournment of the Society as a slight tribute of respect to the memory of one of its most distinguished Fellows.

We learn that preliminary arrangements are being made by the Presidents of the Royal and of the Linnean Societies with a view to the interment of the illustrious biologist in Westminster Abbey, subject to the wishes of the members of the family.

TACCA ARTOCARPIFOLIA.—At New this striking and curious *Monocotyledon* is now in flower. The leaves are about three in number, with petioles about 3 feet or more in length, surmounted by a compound leaf about 2 or 3 feet in diameter. The brown upright scape overtops the foliage, and bears a head of numerous stalked greenish flowers, the sterile ones being reduced to brown pendulous threads some foot or so in length. Although the species now under notice can boast of no gaudy colours, the elegance of its leafage and its strange inflorescence make it well worth growing in any choice collection of stove plants. A native of Madagascar and Johanna Islands.

HOME CORRESPONDENCE.

African Tuberoses.—Recent correspondents upon the subject of the culture of these bulbs have taken rather diverse views as to the cause of their failure in producing blooms in our midwinter months. Whether this is due to the short supply of daylight at that time of year, as held by many, or because large bulbs make but few roots, as assumed by "J. McK." (p. 474) it is very desirable should be, if possible, determined. For ourselves we should be disposed to think that a meagre production of roots must be attributed to undue haste in forcing, rather than to any special deficiency in this direction peculiar to large bulbs. Hence an error of cultivation. Should, however, "J. McK.'s" view be correct it will corroborate an opinion we have often expressed, that the desire on the part of growers to always obtain the largest bulbs, irrespective of other qualities, is not supported by knowledge. We have still, it appears, much to learn respecting the treatment of these bulbs, and at this moment we should specially like to be informed how any of your readers may have fared who potted these Africans in the autumn, but checked the development of their flower-stalks until February or March. If such experiments have succeeded they will, at least, form a valuable adjunct to the American or European bulbs, which cannot be brought in so soon. The vigorous and healthy growth of the African Tuberoses leaves nothing to be desired, and the question of its successful culture is one of commercial as well as scientific interest. We are glad therefore to see that it is being publicly discussed.

Hoppe & Co., Covent Garden.

"Failure" appears to be the epitaph that may appropriately be written over the departed African Tuberoses, as neither through the columns of the gardening papers nor from private sources have I heard of success being attained in a single instance although they have been grown by the thousand. In contrast with these accounts of cash and labour lost, of withered hopes and blighted expectations, it will be highly interesting to the gardening fraternity to learn that I had them in bloom since March 20, notwithstanding I can only count by the dozen instead of the thousand. For reasons which I need not explain, I wished to bloom a portion of them by the end of January or beginning of February. These failed. The remainder I did not require until the end of March and during April. These have succeeded. I judge from this either that they do not possess sufficient constitutional stamina to stand the forcing necessary to bloom them at the earliest period named, or that the length of day is too short between November and February to ensure success. This is a question that may be determined ultimately by the aid of the electric light. Meanwhile, however, it will be seen that there is a possibility of blooming them, and that they may be in the market in quantity by Easter. They throw up a flower-stalk about 4 feet in height, with from twelve to twenty blossoms at the top, and are very strongly perfumed, one spike being as much as any lady or gentleman would care to have in the drawing-room. *H. C. Wilson.*

Tulipa sylvestris.—I am much obliged for your reply about the *Tulipa sylvestris*. The orchard in which it grows was formerly used as gardens attached to some small houses, and the ground now occupied by the bulbs (in five distinct patches) represents part of at least four different gardens as they were some fifty years ago. Can these *Tulipa sylvestris* have been cultivated originally in these gardens? I observe that in last week's *Gardeners' Chronicle* Mr. Horsfield also sent an account of the same plant, and growing not 15 miles from this place in the Wylie Valley. I think perhaps that the reason why *Tulipa* so few blooms may be owing to the grass being cut early in the season, before the foliage and bulbs have had time to ripen. In fact, one patch has already been so treated this spring, before I knew what mischief was being done. If the bulbs were lifted later in the season, and planted in a border, would they be likely to do better, and bloom more freely? And, if so, ought I to select a sunny or shady spot? [The former. Ed.] *H. M. Holloworth, Wilton, Salisbury.*

Galeandra nivalis.—This beautiful and rare Orchid was shown at the meeting of the Royal Horticultural Society on March 18, by Sir Trevor Lawrence. The *Galeandras* are tropical American Orchids, with slender erect fleshy jointed stems, the joints slender and glaucous; the two-ranked sheathing leaves are narrow lanceolate. From the apex of the stem proceeds a nodding raceme of flowers, each about 2 inches in length with narrow reflexed light olive-coloured segments with a large funnel-shaped white lip, marked with a central violet blotch. It is a species demanded

ing a high temperature and abundance of moisture during the growing season. *M.*

Planting-out Forced Bulbs.—If one quarter of the bulbs that are annually purchased for forcing were only planted out instead of being consigned to the rubbish-heap, gardens all over the country would be greatly enriched and beautified during spring, as bulbs are not among the things that perish after a year's growth, for the majority of them are hardy, and if placed under anything like favourable conditions they increase and multiply at such a rate that tufts of them soon become large and imposing. Where the greater part of them look most at home is under or immediately around deciduous trees or in the foreground of shrubs among grass, and by leaving the latter uncut or trimmed it forms a natural green carpet, that sets them off to advantage. In beds and borders bulbous plants have a hard time of it, as under the present system of embellishment they are either dug up and laid in some out-of-the-way place, or

soon able to root out beyond and establish themselves, Primulas and other perennials of like nature may be lifted with large sods of earth and dropped in like manner, when with a good watering they will take to their new quarters at once. By starting now with the planting, a good effect may be produced next year, which will be heightened as each season comes round. *F. S.*

Arisæma speciosum.—I know nothing more curious than the way in which this plant appears aboveground. The large leaf is divided into three segments, each 8 to 10 inches long, which are separately rolled up in the bud, the two lateral ones pointing downwards. The middle one, which points up, first escapes from the large bract which envelopes the whole, and it is then perceived that the extraordinary thread-like appendage which terminates the spadix is carried up in the leaf quite apart from the flower, which is not then aboveground. This thread measures from 18 to 20 inches long, and is dropped from the

certainly news to learn that they were offered in commerce in this country prior to the present season. I may say, that if offered through a list from an American house, the committee of the International Potato Exhibition do not recognise such publication as offered in commerce in this country, because such offer must be necessarily limited, and would not reach the general public. All sorts to be regarded as in commerce here, must have been offered through some home house. After all, am I fighting a shadow? and does "W. K." confound the autumn or winter of 1881, with the season of 1882, as understood in the trade, which includes autumn, winter, and spring, of 1881-1882. *A. D.*

Fuchsia splendens.—In reply to "S." I can, from experience, say that this Fuchsia always flowers well with me. I grow it in a compost of three parts fibrous loam, the rest leaf-soil, with a little silver-sand well mixed together, and water with weak liquid cow-manure. I start them in gentle bottom-heat, and



FIG. 85.—GALEANDRA NIVALIS. (SEE P. 536.)

have the tops hurried off long before they are ripe, the result of which is that they dwindle and die. Planted in the positions named, they can have their own time to swell and mature their roots, and by remaining undisturbed they gradually gain in strength and flower with the greatest of freedom. Instead of the long grass being an eyesore, it is a positive ornament, especially if left with irregular margins, as may easily be by a few turns of the mowing machine, so as to give bold swells and sweeps to the lines, which will make the shaven part look like a green flowing stream, wending its course through the higher banks of rich verdure with these all aglow with the loveliest mixture of gay coloured blossoms. Among the grass may be planted Daffodils, Hyacinths, Crocus, Snowdrops, Squills, Lilies, Primroses, and many other things as they come to hand or could be spared from the beds or borders, when thinning or re-arranging the same. All that is necessary in the case of bulbs at starting is to dig out with a spade or trowel holes in the soil large enough to admit the ball entire when the plants are turned out of the pots, as by planting them entire they receive no check, and are

middle segment of the leaf as it unrolls. The flower is quite small at first, but rapidly increases in size on escaping from the bract. When first visible the thread is closely wrapped in the point of the spathe. What is the use of this thread no one has yet been able to make out, but there is a curious tendency in some of the terrestrial plants of this family to develop a prolongation either of the spathe or spadix, which I do not remember to have noticed in any of the epiphytal Aroids. *H. J. Elwes.*

New Potatoes.—I should have felt grateful to "W. K." for his corrections of my list of new sorts of Potatoes, which he makes at p. 504, if he had given with them the authorities for his statement. Of Ingleston Flake I know nothing, except that it was quoted in the same list as Cromwell as a new kind by a Northern seed firm. As to Cromwell, I recollect that it was exhibited in the class for seedling white kidneys at the Crystal Palace International Potato Show, in September, 1880, by Mr. Ironsides, as a variety "not in commerce." As to the two American sorts, Queen of the Valley and Adirondack, it is

afterwards grow them in a cool house, and when in flower remove them to the conservatory, shading when the sun is very hot. *T. C.*

Edgings to Walks.—Although Box is generally used as an edging to walks, and answers the purpose very well, it will not compare for beauty and effect with *Gentiana acaulis*, long lines of which are simply superb, the lovely deep blue of the flowers being quite unrivalled by any others, so intense are they in their shading. The finest sight of them I ever saw was at Howwood, where, some thirty years ago, when I had the privilege of serving under the late Mr. Spencer, the walks of a portion of the kitchen garden were bounded in a broad band of this *Gentian*, which in spring, with the upturned blossoms all facing the sun, was truly magnificent. Unfortunately, there are only certain soils in which *Gentiana acaulis* does well, which are those of a somewhat stiff character and rather retentive of moisture. The best way to make durable edgings is to use large flints or pebbles and plant the plants between, as the stones not only form a foundation as it were for the *Gentians* to rest on,

but they are great conservators of moisture, and therefore of manure help to the roots besides which, by raising the surface, they cut off the connection between the gravel and soil, and prevent the one washing on to the other. The proper season to plant *Gentians* is any time now, when the tufts may be divided by pulling them apart, and the plants thereby increased to almost any extent. All that is necessary to get them to grow is to dibble them in carefully, and after that is done, a watering should be given to settle the earth about them, and if the sun happens to be hot and the air very dry, a little shade afforded by the help of a few Laurel or other evergreen branches stuck along the side of the row, will be of much assistance towards getting them quickly established. Seed of *Gentiana acaulis* may also be had of plants raised therefrom, and if sown at once under glass, the seedlings will soon be large enough for pricking out, and will come in well for planting during the following spring. Next to *Gentians*, Thrift forms the best flowering edging, but to raise it well above the level of the gravel it should be planted between flints or stones in the way referred to above. Where tiles are used, their ugliness and stiffness may be much taken off and hidden by planting Violets or Strawberries close behind, both of which when grown in that position are handy to pick. *J. S.*

Craig-y-nos Castle.—The interesting description and illustrations of this place, given in your last issue, remind me of a pleasant day spent there in good company last autumn. Long previous to that I had a great desire to see the place, but had not time to do so. I had intended *grina donna's* connection with the place had gained it more than a local interest, and the local papers devoted columns to describing the grand natural beauty of the locality for miles around, the number of rooms in the Castle, the colour of all the wall-papers, the kind of wood the furniture in the drawing-room and the kitchen was made of, the size and numbers of all the windows and doors, besides much other information concerning the kind and general way in which Madame intended herself in her garden. Welsh neighbours, however, little or nothing was said about how the grounds around the Castle had been beautified, and how the head and hand of the artistic landscape gardener had converted a rugged mountain side into one of the most enjoyable of gardens. This in my opinion is the best, most interesting, and cleverest part of it, and it may well be considered the crowning part of Mr. Barron's many good works in South Wales. To form terraces, such as those shown in the woodcut, on a bank almost perpendicular is no easy undertaking, but nothing could be more satisfactory or substantial and beauty. The large conservatory or winter garden is an elegant and well constructed structure, and both outside and in is quite in character with the Castle and all its surroundings, and is more than can always be said to be the case. The heating, too, is done after Mr. Barron's own ideas, the boiler being one of his own devising, and it is fixed down a little ravine many feet below its work, but this is no hindrance to the contrary, it acts admirably, heating several thousand feet of piping with the greatest rapidity and efficiency, the great rise in the pipes causing the water to rise and flow swiftly to the furthest ends, which are several hundred yards from the stockhole. Fruit-houses, plant-houses, and all belonging to this department are on the most improved principles, many new ideas being introduced here with the best result. The kitchen garden is not yet finished, but it is to be hoped Mr. Barron may shortly be able to complete this, as a cucumber net is to be better hands. It is to be stated that this place is easily reached from Swansea by rail, being some 20 miles distant at an elevation of 700 feet. In traversing this distance an excellent idea of the wildness of Wales may be formed; but the mountains are rather sterile, and anything like a good plantation is not to be seen, but large strips and patches of copse occur frequently, especially up the sides and near the edges of the glens. Around Craig-y-nos there is hardly half an acre of flat ground to be seen, the mountains being of the most rugged description; the Castle itself is built of whinstone, and the part which has been so well constructed, and is now cultivated as a garden, is a curious and rare introduction to a region previously so devoid of the gardener's art. *J. Muir, Margam Park, Taitach.*

The Dispersion of Primulas.—The dispersion of plants over new areas is an interesting matter, but how it is accomplished is often a puzzle, and why with some of them it is so readily achieved is more than it is equally difficult to explain. I have recently had an opportunity of watching the spreading of Cowslips over newly made pasture. In 1872 I laid down about 32 acres of arable land as permanent pasture. It had been under the plough, with the ordinary rotation of crops, since 1796, before which time it was a common. The shape of the land is an elongated triangle running from east to west, the

acute angle at the east being truncated and bounded by a small old meadow well stocked with Cowslips. There are no Cowslips in other contiguous fields—I need scarcely say that there were none in the 32 acres in 1872. In 1874 I first saw Cowslips in the newly-made pasture; they were close to the old meadow, and small young plants. From that time to the present they have been marching steadily westward, and are now within 70 yards of the further hedge. The progress has been remarkably even, and at about the rate of 50 yards a year. It has been a purely natural seed dispersion; there have been no manurings, hay-carriages in the direction of the spreading, or other field work, to explain what has happened, or interfere with the process. How have these seeds been scattered? They are small, produced near the ground, and are destitute of any provision for aerial flight. *James Salter, Basingstoke, April 15.*

Pear Directeur Alphan.—This Pear was sent out in the autumn of 1880. I had a drawing sent of it, with a statement of its excellent qualities. It is not known in France, but I do not think it will be good for anything but cooking in England. The two fruits exhibited by me at South Kensington were from an orchard-house tree. Two others were gathered from it, and the only object I had in exhibiting them was to show that the fruits were not likely to be any use for dessert purposes. *J. Douglas.*

Sarmienta repens and *Linnaea borealis*.—Having fallen into an error (p. 504), by writing *L. borealis* synonymous with *repens*, permit me to take this the first opportunity of rectifying it by stating that the two plants are quite distinct from each other. When my note was written, I certainly was under a misapprehension, the result of perusing a private letter and of not having a standard work by me at the time for reference. I may further add that a note just to hand from a good authority on wild flowers informs me that *L. borealis* is to be found growing wild in plenty in some parts of Scotland. *J. Horsfield.*

Bougainvillea speciosa.—Doubtless some of your readers will remember that about a year ago I had occasion to ask for information, through the medium of your columns, respecting the successful flowering of the above when grown in pots. It may also be within their recollection that the only information on the point forthcoming at the time was that which was given in a communication by Mr. Summers, of Sandbeck, and that the plant which was the subject of his remarks was planted out, so that the outcome of the writing, in so far as it applied to the principal point (*viz.*, flowering in pots) was simply *nil*. Well, I am pleased to say that our own plant, which is growing in a 12-inch pot, is now one mass of bloom, and in the interest of others, and with a hope that they will derive benefit thereby, I regard it as a duty to detail the *modus operandi* by which this satisfactory state of things has been brought about. Its flowering, either in pots or when planted out, is rather the exception than the rule, and yet, plants imaginable to flower, and I feel confident that if the following directions are carried out to the letter, no one with plants in their possession need fail to flower it annually. Re-pot about the middle of May in a compost containing two parts fibry peat, one part loam, and one part silver-sand, and add thereto a handful of bone-meal together with a few broken potshards and small pieces of charcoal; use plenty of drainage, over which place a layer of moss; reduce the water both top and bottom, cutting back the shoots of the previous year to within an inch of their base; place in a moist temperature of about 60°; syringe three or four times daily, and when the young growths have made a fair start disbud rather freely, leaving only a few of the very strongest shoots, the number, of course, to be regulated according to the size of each plant. Allow them to grow of their own sweet will throughout the summer months, neither pinching them back nor tying them down into fantastic shapes. As the pots become full of roots give copious supplies of water and expose to the full glare of the sun at all times, not forgetting in hot bright weather to ventilate freely. In the autumn, or when signs of completion of growth are apparent, gradually withhold the supply of water, and for about two months in midwinter, or say, from the end of November to the end of January, keep in a cool house with a temperature of about 40° or 45°, during which time little or no water is to be given. In the spring the plants should be encouraged to make a fresh start by giving them 10° more heat. Cut back the points of all the shoots about 6 inches. Stake and tie them down into the required shape, spiral, pyramidal, or balloon, give a good soaking of water by immersing the pots in a tank for three or four hours; afterwards top-dress with rotten manure; the only further attention

needed is to syringe several times daily, and water at the root when necessary, and when the flowers, or bracts rather, make their appearance, water with liquid manure at every alternate watering. I would just remark, in conclusion, that three of the most striking points are the long green well-ripened wood, and complete rest in the winter months. *J. Horsfield.*

A Day in Derbyshire.—On a recent occasion, journeying to Rowleyshire, on the Midland Railway, and proceeding up the dale through Allport and Youlgrave, I visited the pretty little village of Middleton, where is situated Middleton Hall, the seat of T. W. Bateman, Esq. The object of my visit was to see the splendid display of spring flowering bulbs, for which the place has become celebrated. The mansion occupies a fine position overlooking the dale, and standing back from the main road to Gratton and Winstar, surrounded by well laid out and beautifully kept grounds, which Mr. Bateman takes a pride in having planted with the finest trees and shrubs. Though the situation is bleak and exposed, many of the finer varieties of trees and shrubs do exceedingly well. Great improvements have of late years been effected in the shrubberies. Entering the grounds and proceeding along the drive there burst upon me a vista of dazzling colour with gold and silver. The drive is for brilliancy and effect. A large heart-shaped bed in the centre of the lawn is filled with Hyacinths of four colours—crimson, white, dark blue, and light blue mixed. Two large double-armed rectangular beds surround it on three sides, filled with Hyacinths of the same four colours, but in four lines, each line composed of one colour. The uniformity of the height and the skillful blending of the colours give a remarkably fine effect. Each of the two latter beds contains 300 Hyacinths. A few steps further on there are two beds, one on each side of the entrance to the Hall, each containing 150 Hyacinths in lines, of the colours crimson, creamy white, and dark blue, with a margin of *Scilla sibirica*; on the south side of the Hall, opposite the library window, are three half-moon shaped beds, each containing 300 Hyacinths with the colours mingled. On the opposite side of the drive I found ten oval beds linked together and filled with Tulips, 100 in each bed; each bed contains a distinct colour. The beds are to be seen in the distance, each containing 100 double-flowered Tulips. The whole of these are looking very strong, the flowers just beginning to open, and promise a fine display. Along the line of the shrubbery which runs from the drive to the croquet lawn (70 yards in length) three rows of Hyacinths of various colours are planted; the whole effect of the 1200 flowers is grand. The blaze of colour reminds one of the bulb farms of Holland, though in miniature. To me who have often seen Hyacinths in their native country the comparison is not at all to the disadvantage of the culture in the Peak of Derbyshire. A great deal of care without doubt has been bestowed on their cultivation, and it is worth noticing that the beds are covered with cocoanut fibre, which protects the bulbs from the frost. Derbyshire being no exception to the general mildness of the recent winter, the bulbs are on the average four weeks earlier than they have been for the last four or five years. Any one with a love of Hyacinths who lives within reasonable distance would do well to obtain permission to visit the splendid *fontaine blanche*. Permission which would, no doubt, be readily accorded by Mr. Bateman. I cannot close without giving a word of praise to Mr. Cooke, the gardener, as there is strong evidence of care and good management displayed throughout. *K. T.*

Linnaea borealis.—Mr. Horsfield, at p. 504, asks if "any of your readers happens to be in a position to state positively if *L. borealis* is still to be found growing wild, or naturalised in any part of Great Britain?" I am glad to be able to inform him that it is to be found, and likely to maintain its position in the station where I last gathered specimens in June, 1880 (see *Agg. Bot. Ex. Chron.*, 1880, p. 24). There is a large bed, 30 to 40 yards in diameter, in a Scotch Fir wood, at Mellerstain, in Berwickshire. This station has been known for over forty years. It has also been found recently in other woods in Berwickshire; but I have not seen these new stations. Whether "wild or naturalised," it is impossible to say with certainty. I think it is "wild," as there are other plants in the same woods, such as *Goodyera repens* and *Hypnum cristatensis*, and both of which are plentiful in many of the Scotch Fir woods on the Borders, both in Roxburghshire and Berwickshire. *Andrew Brotherton, Kielder.*

The ooo Again.—Can you give me any satisfactory explanation of the following facts? I purchased last year from a well-known seedsman a packet of show *Auricula* seed, and I was rather surprised at the large number of seeds in the packet. They were sown with much care in a 10-inch seed-pan. At the same time I sowed the contents of three pods of my

own, also a show variety. The result was two plants from the packet of bought seed, and over 100 plants from my own seed; in fact, I believe every seed of the latter grew. Thinking, perhaps it would be more correct to say "hoping," that the result as regards the purchased seed was accidental, I made inquiries and found that my case was not at all peculiar; in fact, a relation of the head of the firm from which the seed was purchased lies near me, and I find he had exactly the same result, viz., two plants out of a packet of seed. For my own part, I can only come to one conclusion, which is, that nearly all the seed was killed before being sent out, and that only a few live seeds of the real thing placed in the packet. As to my different result, I have just sown a packet of alpine Auricula seed from Messrs. Veitch, and I believe every seed has germinated. Three years ago I purchased a packet of Primula seed from another noted firm, and as I paid a long price for it, took special care about the sowing. The result was, five seeds germinated. I at the same time sowed seed of my own saving, and certainly 90 per cent. grew. When I complained to a member of the firm personally, I was merely told that I was "lucky to have even five good seeds out of the packet," as with new varieties it is very difficult to save much good seed. Why, I ask, cannot these growers either have the honesty to say at once that they cannot afford to supply a whole packet of genuine seed for the money, or else send out only such seeds as will grow, i.e., neither light nor killed seed. We know how largely the system of mixing killed seed with good Turnip seed exists, and I conclude the same plan is pursued with certain garden and flower seeds, but it can hardly be called "honest trading," and I think it might do good if people were less reticent when they find these highly-advertised packets of seeds so delusive. *Maryin.*

Notices of Books.

On Board a Union Steamer; a Compilation. By Captain S. P. Oliver. (Allen & Co.)

We cannot wish a traveller on a long voyage at a loss for something to do to while away the time a better fate than the possession of this book, which should find a place in the library of every passenger steamship. Though called a compilation—and, indeed, it is a mixture—the compiler has added a great deal from his own extensive experience, and as he is a good observer and always in good spirits the results are agreeable and varied. The accounts of St. Helena contain, amid some amusing *periffage*, some interesting details relating to the astronomer Halley and his work, but the author should have looked into the *Treasury of Botany* where he described Adansonia as an herbaceous plant of the same order as the Asparagus and Onion—perhaps the Canary Island *Draecena* was really intended. Nothing seems to come amiss to Captain Oliver, from catching turtle to catching dew, concerning which latter desirable feat we cite the following extract:—"An idea for securing a supply of fresh water in desolate tropical islands devoid of vegetation, and which scanty or infrequent rainfall is suggested by the broad Banana-like leaves of the *Urania speciosa*, the Traveller's Tree of Madagascar, which upraised on a tall stem are well suited to intercept the rainfall. The notion is to erect on the hill-tops lines of artificial dew-catchers made in metal, and in the resemblance of the plant in question. The dew would be deposited on the broad blades, which are to be arranged at such an angle that the moisture shall trickle down by means of channels and tubes to a reservoir, with which all the dew-catchers are to be connected. In point of fact the notion is that of a number of rain-gauges of such a form as readily to admit of the deposition and collection of dew and rain. There is no doubt that some such contrivance would be useful."

— *The Ocean Passenger's Handbook and Emigrant's Guide for 1882* is the title of a new pamphlet, published by Messrs. Pitt & Scott, Passengers Agents, 44, St. Paul's Churchyard, London, price 6d., or post-free 7d. It is specially written to answer the numerous inquiries of persons intending to settle abroad.

SPIRÆA OULIFOLIA VAR. *LUTEA*.—Where and when did this golden-leaved variety of the well-known *S. opulifolia* originate? At the present time the bright yellow of its swelling leaf buds and the fast unfolding young leaves cause it to be almost as attractive in the mixed shrubbery—at a distance at any rate—as the beautiful and free-flowering *Forsythias*.

Reports of Societies.

Edinburgh Botanical: April 13.—The Society met in S. St. Andrew Square—Professor Isaac Bayley Balfour in the chair. The first paper read was "An Obituary Notice of the late Professor Sir Charles Wyville Thomson," by Emeritus Professor John Hutton Balfour. The notice embodied the main facts of Sir Wyville Thomson's scientific career, and noted the communications which he had made to the Society as President and otherwise. It was stated that his opinions lay in the corals, crinoids, and sponges, on which his opinion was held as of great weight. In acknowledging the thanks of the Society for the notice, Dr. Balfour said that Sir Wyville Thomson was one of his old pupils, and he had taken a deep interest in him, and that the object of the notice was to preserve a record of his connection with the Society.

The President then explained the general bearing of a communication by him to the Society's *Transactions* ("On the Genus *Trichia* in Britain"). There was, he said, in Britain just now, very unsatisfactory knowledge regarding *Trichia*, to which he had devoted special study for some years past, with the view of shortly publishing, along with Dr. Cooke, of Kew, a work on this and the whole group of the *Mixomyces*, to which it belonged. There was great controversy as to whether the *Mixomyces* belonged to the animal or vegetable kingdom, and, certainly, the group had strong affinities to both. But really he did not think it mattered much one way or the other. Of the genus *Trichia*, the distinctive diagnostic characters, generic and specific both, were to be found in the number of the spirals of the elaters and the markings on the spores. The genus might be at once divided into two main groups, according as the elaters were fusiform or cylindrical; and the first of these groups he again divided into two groups, according as the sporangium was stalked or sessile. Of those having a sessile sporangium there was a great number of species very like one another.

Mr. James Coats Crawford, F.G.S., late of Wellington, New Zealand, read a paper "On Fixing Blowing Sand by the means of Planted Grasses." The points on which he had greatest stress were to plant instead of sowing, and to plant deeply.

Mr. John Sadler, curator of the Royal Botanic Garden, sent in a report "On Temperatures at the Garden, and Effects thereof on Vegetation." He reported on the effects of the thermometer at the barometer was at or below the freezing point on seven different occasions. The dates were as follows:—1st, 32° F.; 7th, 30°; 21st, 31°; 22d, 30°; 23d, 29°; 25th, 32°; and 26th, 32°. There were thus during the month only 8° of frost, as compared with 120° in the same month last year. Since April commenced there had been three frosts nights—viz., 8th, 32°; 10th, 27°; and 12th, 29°; or, collectively, 74° of frost. There had come into flower at the end of the garden since last meeting upwards of 140 species of new varieties. During the past four days, owing to the continued dry, cold, and easterly winds, vegetation had been arrested in its growth.

Mr. John Campbell, Ledaig, Argyllshire, sent specimens of plants in flower with him, including, amongst others, *Oxalis muscaria*.

Dr. Cleghorn presented to the museum at the Royal Botanic Garden a specimen of *Cymonomium cocconium*, a rare plant of the *Balanophoreæ*, collected by him in the island of *Gozo* in 1869.

Scottish Horticultural Association: April 4.—The ordinary monthly meeting of this Association was held in the Hall, S. St. Andrew Square, Edinburgh, the President, Mr. Hugh Fraser, in the chair. The President delivered an inaugural address in which he alluded to the several subjects which should constitute the education of future gardeners.

Mr. Alexander McMillan, Broad Meadows, Berwick-on-Tweed, exhibited a fine collection of *Cineraria* flowers, also a fine collection of tree Carnations, which included *Alcagetea*, *Hermione*, *Miss Jolly*, *du*, *Martha Pacha*, *Sir Garnet Wolseley*, and *Alice*. Mr. James Gildowie, Willowbank House, exhibited the flower of *Wistaria sinensis*. Messrs. Todd & Co. exhibited flowers of *Narcissus poeticus ornatus*. Messrs. Downie & Laird exhibited trusses of white and speckled onions. Mr. May exhibited Radishes which had grown in the open air last winter. Miss Ann J. Hope Johnston, of Marchbank, Moffat, exhibited Bay Laurels in flower, showing the mid nature of the season.

Nottinghamshire Horticultural and Botanical: April 13.—The third monthly meeting of this Society was held at the rooms, Morley House, Nottingham, and there was a large attendance of members and friends. Mr. Edmonds, The Gardens, Bestwood Lodge, occupied the chair. Mr. German, of Mansfield House Gardens, read an essay on the *Dendrobium*, more particularly dealing with *D. nobile*, which he traced from its first introduction into this country. A long and interesting discussion afterwards took place among the members present, and the essays were awarded a cordial vote of thanks for his paper. There was a fair show of plants and cut blooms. Mr. Anderson, of Clifton Hall, sent a specimen of *Dendrobium thrysiiflorum*, bearing three fine spikes. Mr. Edington, of Woodhouse, Orange, sent a specimen of *Gardenia* and some cut blooms; he explained that his plants were grown in 6-inch pots, that they were small and bushy,

and, like the plant shown, were one mass of blooms; in fact, from less than a score of such plants he had cut upwards of sixty dozen blooms in less than three weeks, and they looked like *Aspidistra* as long again. The cut blooms shown were remarkably full and of great substance. Mr. Edmonds, of Bestwood Lodge, sent a nice collection of cut Carnations, very excellent for early work, which were greatly admired. A vote of thanks having been awarded the various exhibitors, the proceedings terminated.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, APRIL 19, 1882.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					Hydro-meteorological from Glaisher's Tables 5th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to Sea Level.	Depature from Average of 18 years.	Highest.	Lowest.	Range.	Range for Day.	Direction of Mean.	Force of Mean.	Direction of Wind.		
April 13	29.09	-0.65	59.5	47.0	5.0	40.0	60	S.W.	0.34	In.	
14	29.14	-0.60	57.5	45.5	4.0	50.0	70	W.	0.09	W.	
15	29.33	-0.41	59.5	44.0	5.0	40.0	60	S.W.	0.00	W.	
16	29.55	-0.20	53.0	34.0	10.0	42.0	72	E. N. E.	0.00	E. N. E.	
17	29.24	-0.51	55.5	43.0	12.5	48.4	80	W.	0.15	W.	
18	29.70	-0.05	53.5	43.0	10.5	57.3	60	S.W.	0.00	W.	
19	29.86	+0.10	55.5	43.0	12.5	49.4	60	S.W.	0.00	W.	
Mean	29.42	-0.35	53.2	42.0	9.7	46.7	81	S.W.	0.58	W.	

- April 13.—A dull, overcast, damp, rainy day. Wild, windy, rainy night.
- 14.—A fine bright day, with occasional showers of rain, fine clear night.
- 15.—A fine day, overcast, great gloom, thunder. Fine but cool night.
- 16.—Fine bright day. Fine still evening; very slight during the evening.
- 17.—A dull, drizzling, overcast day; thin, drizzling rain at night.
- 18.—A dull day, gleams of sunshine at intervals. Fine cold night.
- 19.—A dull, cloudy, damp morning, a cloudy day; dark, still, fine night.

LONDON: Atmospheric Pressure.—During the week ending April 15, the reading of the barometer at the level of the sea decreased from 30.32 inches at the beginning of the week to 29.01 inches by midnight of the 13th, and was 29.69 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.73 inches, being 0.41 inch below last week, and 0.20 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 61°, on the 9th. On the 13th and 15th the highest temperature reached was 52°. The mean of the seven high day temperatures was 56°.

The lowest temperature in the shade in the week was 36° 2, on the 10th; on the 13th the lowest temperature was 47°. The mean of the seven lowest temperatures was 40° 5.

The greatest range of temperature in one day was 23°, on the 9th; the smallest was 5° 5, on the 13th. The mean of the seven daily ranges was 15° 5.

The mean temperatures were, on the 9th, 46° 3; on the 10th, 44°; on the 11th, 45° 5; on the 12th, 47° 6; on the 13th, 49°; on the 14th, 50°; and on the 15th, 46° 2. Of these that of the 10th, 11th, and 15th, were 1° 7, 0° 3, and 0° 3 respectively below their averages; and those of the 9th, 12th, 13th, and 14th, were 0° 2, 1° 7, 2° 9, and 3° 7 above their averages respectively.

The mean temperature of the air for the week was 46° 9, being 1° 2 lower than last week, and 1° above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 128° on the 9th; the highest on the 15th was 60°.

The mean of the seven readings was 91° 4.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky, was 33° on the 9th and 12th. The mean of the seven readings was 36° 5.

Rain.—Rain fell on two days to the amount of 0.43 inch.

ENGLAND: Temperature.—During the week ending April 15 the highest temperatures were 63° 5 at Nottingham, 63° 3 at Cambridge, and 65° at Truro. The highest temperature at Hill and Sunderland was 56°, and at Bristol 56° 2. The general mean was 59° 3.

The lowest temperatures in the week were 29°.8 at Wolverhampton, and 30° at Truro and Hull. The lowest temperature at Brighton was 37°, at Blackheath 36°.2, and at Plymouth 35°. The general mean was 32.6.

The greatest ranges of temperature in the week were 33° at Truro, 32°.8 at Cambridge, and 32°.6 at Nottingham. The least ranges were 22°.8 at Bristol and 23° at Brighton and Sunderland. The general mean was 26°.7.

The mean of the seven high day temperatures was highest at Truro, 59°.8, at Cambridge 58°.7, and at Nottingham 58°.4; and was lowest at Hull, 51°.3, at Sunderland 51°.5, and at Sheffield 52°.4. The general mean was 55°.2.

The mean of the seven low night temperatures was highest at Plymouth, 42°.2, at Brighton 41°.8, and at Truro 41°.4; and was lowest at Sunderland, 36°, at Bradford 36°.5, and at Bolton 36°.6. The general mean was 38°.7.

The mean daily range was greatest at Nottingham, 21°.1, at Wolverhampton 19°.9, and at Cambridge 19°.5; and was least at Brighton, 13°.6, at Bristol 13°.9, and at Hull 14°.1. The general mean was 16°.

The mean temperature for the week was highest at Truro, 49°.2, at Plymouth 48°.4, and at Cambridge 47°.6; and was lowest at Sunderland, 42°.3, at Hull 42°.9, and at Sheffield 43°.2. The general mean was 45°.6.

Rain.—The largest falls were 1.89 inch at Bolton, 1.73 inch at Hull, and 1.64 inch at Sunderland. The least falls were 0.41 inch at Wolverhampton, 0.43 inch at Blackheath, and 0.55 inch at Nottingham. The general mean was 1.10 inch. It fell on an average of from three to four days in the week.

SCOTLAND: Temperature.—During the week ending April 15 the highest temperature was 59°, at Greenock; at Aberdeen the highest temperature was 46°.7. The general mean was 51°.9.

The lowest temperature in the week was 28°.5, at Glasgow and Edinburgh; at Greenock the lowest temperature was 33°.5. The general mean was 30°.2.

The mean temperature for the week was highest at Paisley, 42°.6; and was lowest at Aberdeen, 38°.6. The general mean was 40°.8.

Rain.—The largest fall was 3.25 inches, at Dundee; the smallest was 0.45 inch at Greenock. The general average fall was 1.48 inch.

JAMES GLAISHER, F.R.S.

Obituary.

G. H. HOFFMAN, a man of high scientific attainments, and of the most genial character, passed away from us on the last day of March, after twenty years of suffering, which daily increased till there was a complete wreck of one of the finest minds and most diversified talents with which it has been the privilege of the writer of these notes to have been associated. Mr. Hoffman was born in the year 1805 at Margate, where he practised as a medical man with great success till his illness in 1861. During the prevalence of cholera in that town in 1832 he was most actively employed, and notwithstanding his daily labour he stole many hours from the night watches to investigate more closely the phenomena of the disease, and with such success that his memoir, which appeared in the *London Medical Journal*, was translated in the *Annales des Sciences Naturelles* in 1834, vol. 1, and in German by Dr. Magnus. In the course of his investigation the important fact was ascertained that venous blood once arterialed by the addition of salts in the proportion in which they are normally present in the blood cannot be arterialed a second time by the addition of fresh salts. At the same time he paid great attention to comparative anatomy, a specimen of which was given in his article on "Cerithium Telescopium" in the twentieth number of *Sowerby's Zoological Journal*. His attention, however, was readily turned to every subject of interest, and it was mainly owing to his investigations that Mr. Tucker was able to conquer the Vine Midge when it first appeared in this country, though Mr. Tucker derived from it nothing more than the empty honour of having his name recorded in that of Oidium Tuckeri, the French Government entirely ignoring his merits, and giving the credit to another.

Mr. Hoffman next turned his attention to a disease which was prevalent in Onions, and succeeded in getting the little *Sclerotium* to germinate and produce a minute species of *Mucor*, as recorded in the *Horticultural Journal*, vol. iii., p. 91. He effected this by clever manipulation with closed cells, a method which has since been carried out more extensively. By the same method he succeeded in getting isolated

globules of yeast to produce the common *Penicillium*, as detailed in Morton's *Cyclopaedia of Agriculture*, under the article "Yeast Plant."

It is curious that the sporangia produced by lirefid in the course of his observations on *Penicillium* seem identical with what Rees produced from yeast globules, which, if they occurred, were at least not understood in 1851.

Much more might have been said if this were the place to speak particularly of his excellence as a surgeon, for which profession his constructive powers as a mechanic gave him great facilities, for he was equal to making any instrument, even to a compound microscope.

His remains were deposited at Margate, and a well-written article is given in Kelle's *Margate Gazette* on the occasion. The feelings which have given rise to the present slight memoir are exactly expressed in the following lines of Wordsworth, in the *Excursion*:—

"Strongest minds
Are often those of whom the world
Hears least, else sure this man had not left
His graces unrevealed and unproclaimed,
So not without distinction he had lived
Beloved and honored as far as known."

M. J. Berkeley.

— WITH deep regret, which will be shared by very many of our readers, we have to record the sudden death of the Rev. JOHN GUDGEON NELSON, Rector of Aldborough, Norwich, which took place on the morning of the 14th inst. Mr. Nelson, a clergyman of portly presence, had been for the last twenty-two years rector of Aldborough, and had besides made for himself a name in the annals of horticulture. He was a man of strong sympathetic feeling, a quiet, plodding worker in the horticultural vineyard, and inherited a passionate love for plants from his father (who was also a great gardener and the raiser, amongst other things, of the pretty little *Phlox Nelsoni*); and so strongly was this taste developed from infancy that when a youth he determined to be a nurseryman, and went to the Clapton Nursery, where he remained till he found that commercial horticulture was not his vocation, when he entered the Church, while continuing the cultivation of the plants he loved so well. It is to him that we are indebted for some seedling *Phloxes* of a very charming character, raised by him from seeds of *P. subulata* and *P. Nelsoni*, drawings of which were published in the *Garden* in the early part of last year, and there it is stated, on the authority of the late Mr. Noel Humphreys, that the raised mound, several yards in length, upon which the general crop of seedlings was sown, exhibited a delicately-blended mass of colour which was exquisitely beautiful. The undulations caused by the various tufts where each plant asserted a gentle pre-eminence cast soft masses of tender shadow, which varied the general effect of the flower-clothed ridge in a charming manner. This delightful floral composition suggested the idea that portions of rockwork might be advantageously closely planted with these charming varieties of dwarf *Phloxes*. The varieties figured include forms with bright rose, white, rosy-azure, pink, and mauve-pink flowers. To Mr. Nelson we are also indebted for the *Lachenalia Nelsoni*, one of the most charming of greenhouse bulbs, the result of a cross between *L. area* and *L. luteola*, and by combining the rich orange colouring of the former with the free-growing abundant-blooming habit of the latter plant taking a higher position as an ornamental plant than either of its parents. With thorough unselfishness Mr. Nelson has freely distributed this later acquisition amongst those who were likely to prize it at its true worth; and it is gratifying to know that he was spared long enough to see his labours in this direction appreciated, and his efforts to contribute towards the improvement of the flowers he took in hand daily honoured by his horticultural competers. His eye was so keen, and his judgment in floral matters so sound, that it is indeed to be regretted that he did not more fully and frequently record the results of his observations. The experiences of a man who cultivates a particular class of plants with zeal and discrimination for a series of years is always most valuable. His notions of the extent of variation and the limits of specific forms must needs be much more correct than that of others whose line of study and other occupations forbid more than a temporary examination. In this matter Mr. Nelson literally died in harness. To the last he was occupied in the

cultivation and careful discrimination of *Narcissi*, as is witnessed by some detailed correspondence before us written immediately prior to his decease. Mr. Nelson's death removes from our ranks one of the most amiable and acute of plant lovers, whose loss will be severely felt by those who had the pleasure of his acquaintance.

Enquiries.

He that questioneth much shall learn much.—BACON.

HOW TO FORM A ROOKERY.—Can any of your readers kindly inform me how to establish a rookery? I have tried putting old nests into some high Elm trees, but they have not been taken to, although rooks are often in the trees. *The Mag.*

Answers to Correspondents.

FUNGUS ON JUNIPERUS SABINE: *Cor.* The name of some fungus which some observers believe it to be another condition of the fungus sometimes very common on Pear leaves, and named *Rustelia cancellata*. *W. G. S.*

FUNGUS ON MUSHROOM BEDS: *J. C. A.* The name of this fungus is *Agaricus cepes*. It is of exotic origin, and sometimes a great pest in greenhouses and stoves. It does not generally grow in the open air. *W. G. S.*

JOBING BUSINESS: *A. Gray.* We cannot undertake advice you as to where there is a good opening for a seedsman and jobbing gardener.

LABEL COMPETITION: *Doubtful.* To the Secretary of the Society of Arts, John Street, Adelphi, London, W.C.

LAWN TENNIS: *Pileum.* The Eclipse is one of the most efficient markers; 6, *Agar Star*, Strand.

NAMES OF PLANTS: *H. T. B.* 1, *Rubus spectabilis*; 2, the common Quince; 3, probably *Crataegus coccinea*—specimen insufficient. The proper name of the *Spiraea* you sent last time is *S. pranifolia*, double-flowered variety, not what we stated in a former number—*Z. Perry.* *Orontoglossum Cordata*, we believe—"438." 1, *Pulmonaria officinalis*; 2, *Anemone coronaria*; 3, *Sedum reflexum*, var. *monstruosum*; 4, *Kleinia repens*; 7, *Forsythia suspensa*; 8, *Helianthemum* sp. The others we do not recognize—*Agaric.* A species of *Maxillaria*, which we are unable to identify.

ORCHIDS: *H. J. R.* Both your *Dendrobium* are macrophyllum, Lindl., *Sert.* 35, macranthum, Hook. *Bot. Misc.* 3970. Both names having been anticipated by Achille Richard, the younger Reichenbach proposed the name *superbum*. If you will compare your greater flower with the figure given by Sir William Hooker, you will see that it has quite the same size. At San Donato most probably your very same plant bore the name of *Dendrobium macrophyllum pallidum* (see *Planchon, Hortus Donatensis*, p. 156). It is, however, quite as vivid in colours as any other. *Dendrobium ansumum* is an obscure plant, said to be scentless—perhaps during cold weather—and represented with almost elliptical petals. I never saw anything quite like it. Every plant may yield fresh variations, as animals and men. In the *acm.* of *Cinchona* introduction Sir William Hooker showed me a single seedling of *Cinchona* surpassing three (3) times all its brethren. I remember with pleasure how the excellent old gentleman was interested in showing his pet. A Leipzig gentleman, Herr Gruner, went to dreafel peninsula to have a collection of European butterflies only containing four giant individuals of each, and sometimes the most minute dwarfs. Boisduval, of Paris, told me that this collection, now kept at Dresden Museum, was quite a wonder. We have some original collectors of Orchids, only one collecting individuals with the largest flowers, and one only collecting hybrids. *H. G. Reichenf.*

PACARDI, OR PACARDII: *J. S.* Supposing the Latin name to be *Pacardii*, which is most in accordance with Latin usage, then it should be written *Pacardi* in the genitive, meaning of or belonging to *Pacard*; but if you suppose the name to be *Pacardius*, like *Georgius*, then you must use the double *i*. In most cases it is a mere matter of fancy.

PHYLLOXERA: *P. M.* The roots were quite dry and shrivelled, but we were unable to find any trace of the Phylloxera.

PECKLY PEAR: *Physiologist*, 1, yes; 2, soap.

SUMMER CLOUD: *N. O. D.* If put on according to instructions, either outside or in, according to desire, it leaves a thin pale green film on the glass, which answers perfectly as a shading if a permanent shade is desirable.

VINES: *H. R.* Not the work of insects, but the result of a slight check to growth from a chill or draught. It will not do much harm if you treat them carefully.

VIOLETS: *N. O. D.* All Violets should have some scent, but some plants have more than others—why, we cannot say.

WALKS: *Jumbo.* Twelve inches in depth would be the best, if you have plenty of rough ball to fill in the bottom with; but if the subsoil is free and open 9 inches would do. We can tell you nothing as to

the cost of such work in the North of England, so much depending upon the cost of labour.

* Correspondents are specially requested to address post-paid, all communications intended for publication to the "Editor," and not to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to make them payable to William Richards, at the Post-Office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

- WILLIAM BULL, 536, King's Road, Chelsea—New and Rare Plants.
CRANSTON'S NURSERY & SEED COMPANY, Hereford—New Roses, Bedding Plants, &c.
CHRISTOPF STEINBOCK, Altengbach, Austria—Seeds, Bulbs, and Plants of the Austrian Alps.
J. CHEAL & SONS, Crawley, Sussex—Hardy Perennials, Florists' Flowers, &c.
W. M. CROWE, Upton, Essex—Florists' Flowers, Stove and Greenhouse Plants.
JAMES COCKER & SONS, Sunnyside, Aberdeen—Florists' Flowers, &c.
M. BRUNAT, Poitiers, France—Florists' Flowers.
WOOD & INGRAM, Huntingdon—General Plant Catalogue.

COMMUNICATIONS RECEIVED.—H. S.—P. I.—H. C. W.—J. V. & S.—H. L. & Co.—R. C.—Visiter.—F. Sander.—H. H.—Mrs. H. (next week)—G.—D. T. F.—H. Hall. P. G.—H. W. W.—W. C.—J. S.—Rabb. I.

Markets.

COVENT GARDEN, April 19.

Trade remains the same, with no alteration in prices. James Webber, Wholesale Apple Market.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Flower name and price. Includes items like Abutilon, Anemone, Arum lilies, Azalea, Carnation, Cineraria, Cyclamen, Eucharis, Gardenias, Hyacinths, Lilacs, and Pansies.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Plant name and price. Includes items like Aralia Sieboldii, Arabis, Begonia, Cineraria, Cyclamen, and various ferns and succulents.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with 2 columns: Vegetable name and price. Includes items like Artichokes, Asparagus, Beans, Beet, Broccoli, Carrots, Cauliflowers, Celery, Cucumbers, and various herbs.

FRUIT.—AVERAGE WHOLESALE PRICES. Table with 2 columns: Fruit name and price. Includes Apples, Figs, Gooseberries, Grapes, and Kent Cobs.

SEEDS.

LONDON: April 19.—Although the season is now drawing to a close, there is still an active demand for all kinds of seeds. Stocks of all varieties are exceedingly light, and it seems probable that some articles will be cleared up completely by the time the trade finishes.

CORN.

At Mark Lane on Monday fine English Wheat was fully 1s. dearer than last reported, and foreign sundries a similar advance, but the wheat was rather quiet.

CATTLE.

At Copenhagen Fields on Monday increased supplies and less favourable weather weakened prices in the beast market, sales making but slow progress at a reduction of 2d. per stone.

HAY.

Tuesday's Whitechapel Market reports state that with good supplies and fair demand, prices were steady. Quotations:—Prime Clover, 120s. to 135s.; inferior, 70s. to 95s.

POTATOS.

The Borough and Spitalfields Markets report state that good supplies are to hand, and a steady demand prevails for best qualities. Quotations:—Scottish Champignons, 50s. to 60s.; ditto Regents, 70s. to 80s.;

COALS.

The following are the prices current at market during the past week:—East Wylam, 15s.; Walls End, Hetton, 15s. and 15s. 6d.; Hetton Lyons, 13s. 6d. and 14s.;

Government Stock.—Consols closed on Monday at 103 to 103 1/2 for delivery, and 103 1/2 to 103 1/2 for the account. Tuesday's business closed at Monday's figures for both delivery and account.



This Design was invented by Messrs. SUTTON & SONS, in July, 1881, and is their property.

Messrs. Suttons' Customers are hereby cautioned against imitations.

THE QUEEN'S SEEDSMEN, READING.

SHANKS' PATENT LAWN MOWERS.

The only Lawn Mower fitted with Double-edged Sola-plate, which enables the Cutting Parts to Last Twice as Long as in other Machines.

H A N D M A C H I N E .



Table with 2 columns: Mower size and price. Includes sizes like 10 to 12 inches wide and 12 to 14 inches wide.

"THE YANKEE" LAWN MOWER.

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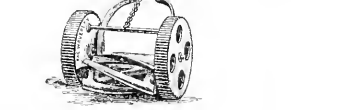
Will Cut either Long or Short Grass.



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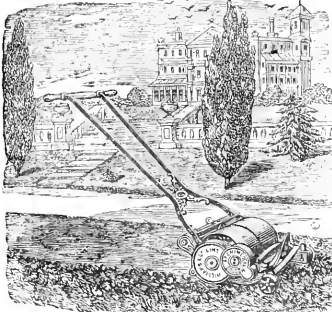
Table with 2 columns: Mower size and price. Includes sizes like 10-inch, 12-inch, and 14-inch.

A New Machine. Very Easily Worked.



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"ARCHIMEDEAN" AMERICAN LAWN MOWERS.



HIGHEST PRIZE

At the PARIS EXHIBITION, 1879; And the Jury, in their Report, say—"The ARCHIMEDEAN" did the BEST WORK of any Lawn Mower exhibited."

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Prices from Twenty-five Shillings.

Delivered Carriage Free to all Railway Stations in Great Britain.

WILLIAMS & CO. (Limited), Manufacturers and Patentees.

SELLING AGENTS:

JOHN G. ROLLINS & CO. (Limited), OLD SWAN WHARF, THAMES ST., LONDON. WALTER CARSON & SONS, LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON; and BACHELOP'S WALK, DUBLIN.

QUEEN PINES.—56 clean healthy Fruiting and Succession Plant to be Disposed of cheap.—J. BAGGY, The Gardens, Embury Court, Thames Ditton.

PRIMUMS.—The best strain in the World, 2s 6d. per dozen, very strong plants, ready for potting. VERBENA and MINULUS, very strong plants, 1s. per doz. LOBELIA, Emperor William, 2s. per dozen.

Free by post. Cash with order. JAMES GILL, Spring Place Nursery, Shearbridge, Hutton Road, Bradford.

Special Offer.—7,000,000

GEE'S superior CARBAGE, KALE, SAVOY, CAULIFLOWER, and other PLANTS; ASPARAGUS and SPINACH. SEEDS, BEDFORDSHIRE-GROWN SEEDS, POTATOES, &c.

GEE is prepared to supply the above in any quantities for each with orders as follows:—

CARBAGE PLANTS, which are this season splendid, strong, healthy, fibrous-rooted stuff, grown from his far-famed selected stocks, comprising Early Behead, Early Nonpareil, Early Dwarf York, Imperial Thousand-Head, and extra large Drumheads, all 3s. per 1000 of 1200s. Very fine plants can also be supplied of above kinds, which are not grown from F. GEE'S own stocks, but which he believes are very good.

CAULIFLOWER PLANTS, splendid transplanted stuff, 5th, 6th, Autumn Giant at 20s. per 1000, 2s. 6d. per 100; Early London and Waltham, 15s. per 1000, 2s. per 100.

ASPARAGUS PLANTS, of the Dark Early, the true French Market sort, insignificant healthy stuff (recommended for making New Beds), 3s. per 1000; 25s. per 1000.

SPINACH, 5s. per 1000, and 12s. per 1000, sown by the 1000. RHUBARB ROOTS, Early Scarlet, Prince Albert, and Victoria, 2s. 3s., and 4s. 5s. per dozen, from 20s. per 100.

SAGE and COMMON THYME roots, at 3s. per 100, 2s. per 1000.

SAISIES, choice sorts, Jaechus' Dark Scarlet, and others, at 4s. 6d. per 100, 20s. per 1000.

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Comprising Names, Characters, and relative Values of about 266 Varieties, with Original Articles on the Cultivation and Improvement of this favourite Flower, in

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SUITABLE FOR ALL CROPS.

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A single 1 cwt. Sample Bag sent, Carriage Paid, to any Railway Station upon receipt of Post-office Order for 5s.

This valuable Manure, prepared from Sewage by the "A. B. C." process, has been extensively used, for several years, by Farmers, Gardeners, and others, whose reports testify to its fertilising properties.

EXTRACTS FROM LATEST SEASONS' REPORTS:—

WILLIAM CRUMM, Gr. to Duke of Marlborough, Blenheim Palace Gardens, December 25, 1881.

"Used for Vines, Peach trees, and other fruit trees, also Potatoes, Carrots, Parsnips, Onions, &c. Results: satisfactory. Fruit trees assumed rich dark green foliage, increased vigour, whilst the fruit swelled up to a very fine size. Potatoes came out in splendid condition; other roots too were benefited by its application. No other manure used with Native Guano. Undoubtedly a valuable fertilising agent, and I shall lose no opportunity of recommending it to gardeners and others."

A. BLAKE, Head Gr. to H. Casanova, Esq., The Lilies, Wotton, January 31, 1882.

"Used for Peas, Potatoes, Onions, Cabbage, Cauliflowers, Celery, Vines, Cucumbers, &c.: Chrysanthemums, Pimulas, Geraniums, Fuchsias, &c. Results: Onions, Cabbage, Cauliflowers, and Peas good; Cucumbers, first-rate; Potatoes, a good crop, and I consider it a good manure for pot plants. I think the Native Guano only requires to be more known to the public to be largely used."

Sixteen Prizes awarded at Birmingham Show, 1881.

The Annual Show of Farm and Garden Produce, grown with Native Guano, will be held at Aylesbury in October next. Schedules and Prizes and all particulars, together with testimonials, &c., may be obtained upon application to

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AURICULAS.—A fine collection of the above, also of many other plants worthy of inspection, may now be seen in flower at Messrs. JAMES DICKSON AND SONS, Newton Nurseries, Chester.

German Aster Seed,

HOOPER AND CO. have still a fine Stock of Seed for offer. Trade prices an application. Covent Garden, London, W. C.

FOUR THOUSAND SHOW PELARGONIUMS just coming into bloom, leading kinds, at 2s and 2s 1/2 per 100, splendid stuff.

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LARGE PALMS for SALE.—Size and price on application to E. COOLING, Derby.

Verbenas—Verbenas.

JOHN SOLOMON offers good strong Spring-stocked Plants of White, Scarlet, Purple, Pink, Crimson, Rose, and other varieties, well rooted, at 6s. per 100, 55s. per dozen, for cash with order. Queen's Road Nursery, Walthamstow.

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BLACK HAMBURGH, &c., best kinds.—Strong Canes still in Stock, 7s. 6d. each. PAUL AND SON, The Old Nurseries, Cheshunt, N.

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Border Carnations, Tree Carnations, Pinks, Tuberous Begonias, New Double and Single Zonal Geraniums for pot culture, Foliage Geraniums, New Ivy-leaf Geraniums, New Fuchsias, Ferns, Bouvardias, Salvias, Abutilons, Coleus, Chrysanthemums, Cyclamen, Gloxinias, Double Petunias, Miscellaneous Stove and Greenhouse Plants, and Bedding Plants in great variety.

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THE BEST GENERAL PURPOSE MACHINE.

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The "AUTOMATONS" have front rollers for general work, and side rollers for cutting long grass, or when it is necessary to roll the grass in front of the cutters. They have the best machine-made gearing, the best self-sharpening knives of steel and iron rolled together, and automatic silent drivers.

R. H. & J. also manufacture "REVERSIBLE" Lawn Mowers for Small Gardens and Borders, and "HORSE-POWER" Lawn Mowers for large Lawns, &c.

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FOR CUTTING LONG GRASS.

The "WORLD" (late "GLOBE") Lawn Mowers are intended for cutting long grass; and, whilst similar to the Lawn Mowers imported from America, have the special advantages of the more accurate fitting and general durability of English manufacture and perfect adjustment.

The "WORLDS" will cut wet, dry, long, or short grass without clogging, and cut off almost all the "bents." They leave the surface smoother than similar machines, and are well adapted for getting over a large amount of work with little labour.

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 3d. per bushel; 100 for 20s.; truck (loose, about 2 tons), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack: 5 sacks, 25s.; sacks, 4d. each.
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COARSE SILVER SAND, 1s. 6d. per bushel; 15s. per half ton, 25s. per ton; in 2 bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
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 Manures, Garden Sticks, Virgin Coco, Tobacco Cloth, Russia Mats, &c. Write for Free PRICE LIST.
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FIBROUS PEAT FOR ORCHIDS, &c.—
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SILVER SAND, Coarse or Fine, 5s. per truck of 4 tons. Red Sandstone **ROCKWORK,** 4s. per truck of 4 tons.
GRAVEL, good colour, 2s. per truck of 6 tons.
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PEAT SOIL—Black Peat, for Rhododendrons and Outdoor Use, 1s. per ton. Truck, 6 tons, 42s. Brown Fibrous Peat for Orchids, Ferns, Stove Plants, &c., 4d. per truck, 4 tons, on rail, Camberley, L. & S.W.R., or Blackwater, S. E.R. Sample bags on rail at Reading Station, 5s. per bag. Cash with order.
JAS. HOLDER AND SON, Crown Nurseries, Reading.

ARTIFICIAL MANURES.
SULPHATE OF AMMONIA .. per bush. 20s. 6d.
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BONE DUST, for Vines, Fruit Trees, &c. .. 12s. 6d.
SPECIAL POTATO MANURE 7s. 6d.
 A single Bag of the above Manures delivered free to any Railway Station in London. Address—
THE SOUTH LONDON MANURE COMPANY,
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LOAM, selected Yellow Fibrous, 15s. 6d. per ton. Good useful brown Peat, 22s. 6d. per ton, free to Bricklayers' Arms, S. E. R. Truckloads only, or 3 tons of each in one truck.—**A. FOULON,** 37, St. Mary Axe, E.C.

Thomson's Vine and Plant Manure.
 Manufactured and Sold by
THE LIVERPOOL HORTICULTURAL COMPANY
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This is the Manure used to produce the splendid Grapes grown at the Tweed Vineyard, Clovenfords.
Full particulars on application. The Trade supplied.
 All Letters to be addressed to **THE MANAGER,** The Vineyard and Nursery, Garston, near Liverpool.

How to Destroy Weeds, Moss, &c., on Gravel Walks.—Use
SMITH'S celebrated WEDD KILLER, the most successful thing of the sort. It is a liquid preparation, which when mixed with cold water, and applied with an ordinary watering-can, grows thoroughly destructive to all vegetable growth. For particulars and a List of first-class Testimonials, address to the manufacturer,
MARK SMITH, Chemist, Louth, Lincolnshire.
 The **WEDD KILLER** is sent carriage paid to any Station in England or Scotland.

HENRY GODFREY, NURSEYMAN, Stourbridge, informs Horticulturists in general he can supply **KIBBLED CHARCOAL** in two sizes, which is so highly recommended for Potting purposes. See *Gardener's Chronicle* of April 1, 1882. In 3 Bushel Bags 9s., free on Rail.

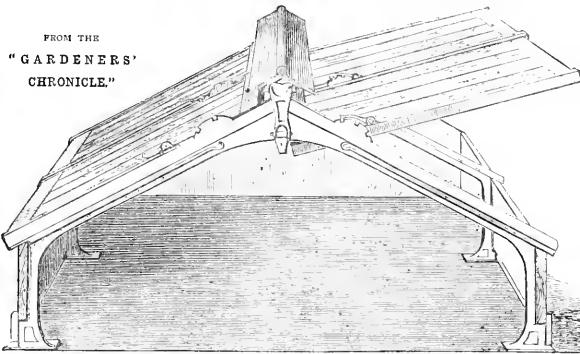
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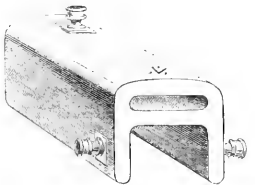
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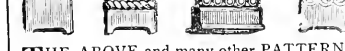
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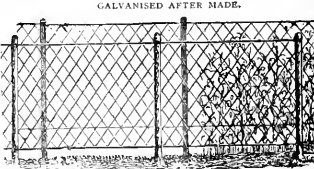
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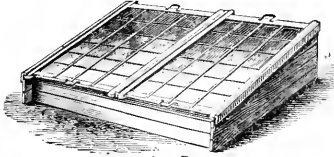
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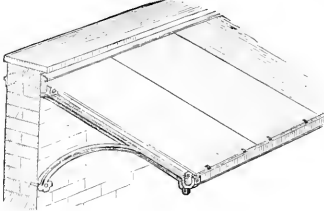
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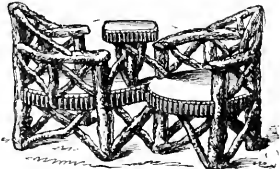
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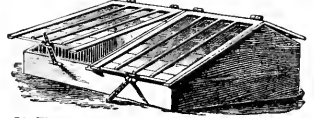


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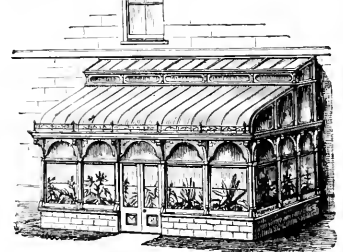
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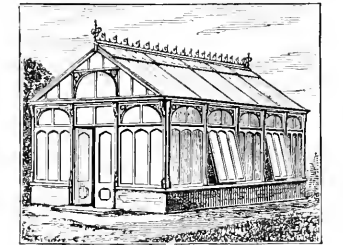
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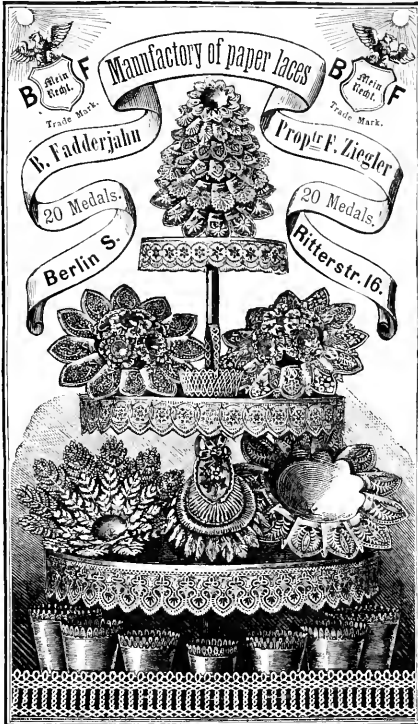


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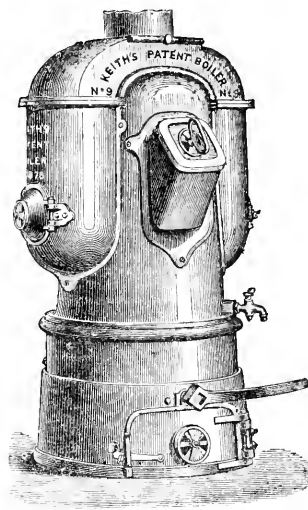
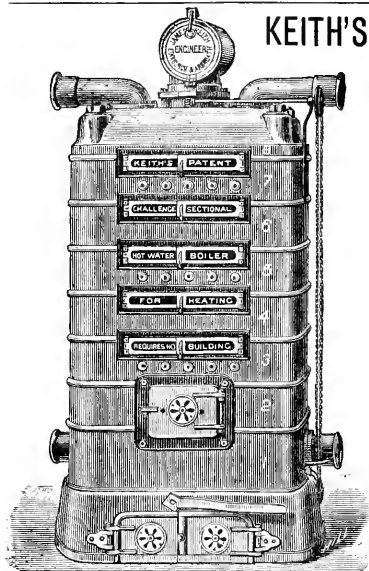
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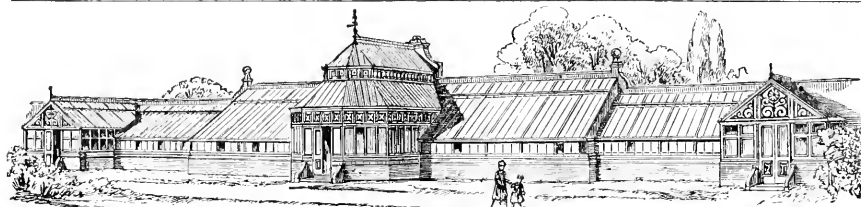
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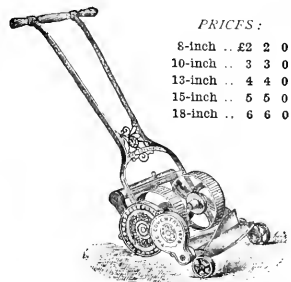
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Established 1841.

No. 435—VOL. XVII. { NEW SERIES. }

SATURDAY, APRIL 29, 1882.

{ Registered at the General Post-office as a Newspaper. } Price 5d. POST-FREE, 5 1/2d.

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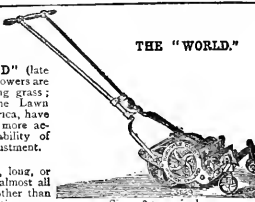
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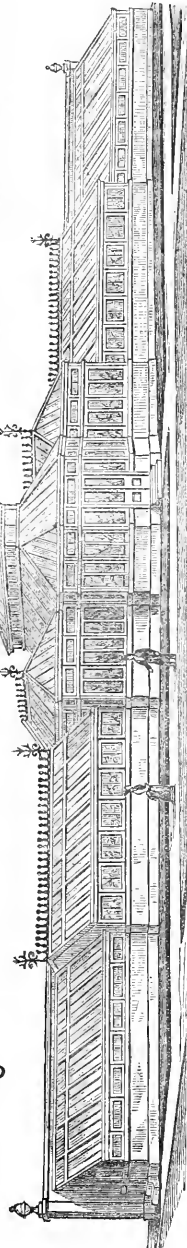
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THE

Gardeners' Chronicle.

SATURDAY, APRIL 29, 1882.

CLAREMONT PARK,

THE home of their Royal Highnesses Prince Leopold (Duke of Albany) and his bride, the Princess Helena of Waldeck—of which, by Her Majesty's permission, we are enabled to give some account—is situated but a short drive from the village of Esher in Surrey, and about 14 miles from London. Esher stands upon rising ground on the Portsmouth road, and enjoys the reputation of having all the characteristics of a model English village. Claremont was a favourite Royal residence when Her Majesty was Princess Victoria, and no later than 1877 Her Majesty presented a drinking fountain of Aberdeen granite to the parish of Esher as a token of royal esteem and regard. The main entrance to the Park is near to Esher on the road to Leatherhead, where there is a handsome lodge at the entrance gates. The Park is about 35 miles in circumference; about 300 acres is enclosed by a ring fence, but the whole demesne, including the additions which have been made to the property, consists of about 1610 acres. Claremont has been known as one of the finest demesnes in Surrey since the time of Queen Anne. In her reign Sir John Vanbrugh, the architect, purchased some land at Esher and erected on it a small brick house for his own dwelling. This house, which occupied a low situation obscured from the many fine prospects which the place affords, was subsequently sold to Thomas Pelham Holles, Earl of Clare, afterwards Duke of Newcastle. He added a magnificent room for the entertainment of large companies when he was in administration, and greatly augmented the estate. He also erected a castellated prospect house in the Park, calling it after his own title, Claremont, which afterwards became the general name of the estate. During his Grace's occupancy the grounds were laid out under the direction of Kent, whose talents as a landscape gardener at that time attracted a good deal of attention. On a tablet is the following:—"Sir John Vanbrugh, Knight, owner of the estate, 1708, a dramatist, and an architect of celebrity. He built the first mansion, of which the gardens were laid out under Kent by order of Holles, Earl of Clare and Duke of Newcastle, Prime Minister to George II. and III., and bestowed on it the name of Claremont." The following lines from a poem by Sir Samuel Garth, a famous physician, will serve to illustrate the status of the great architect at that day:—

"But say, who shall attempt the adventurous part,
Where Nature borrows dress from Vanbrugh's art.
If, by Apollo taught, he touch the lyre,
Stones mount in columns, palaces aspire,
And rocks are animated by his fire.
'Tis he can paint in verse those rising hills,
Their gentle valleys, and their silver rills,
Close groves, and opening glades with verdure spread,
Flowers sighing sweets, and shrubs that balsams bleed.
With gay variety the prospect crown'd,
And all the bright horizon smiling round."

On the decease of the Duke of Newcastle in 1758 the title became extinct, his brother, the

Right Hon. Henry Pelham, of Esher Place, having died without male issue in 1754. This property was afterwards sold by the Duchess of Newcastle to the gallant Lord Clive, whose name is so intimately associated with British power in India. Whilst Claremont remained in his possession the grounds were remodeled, and a new mansion was built under the superintendence of Mr. Lancelot Brown, whose *soubriquet* of "Capability" Brown, is so well known to horticultural readers to this day. Brown is said to have been employed to execute the work without any limitation of expense, and to have performed his work satisfactorily at a cost of £100,000. Lord Clive died in 1774. Edward, his eldest son, afterwards Earl of Powis, was in his minority at the time of his father's death, and Claremont was disposed of to the Earl of Tyrconnell, who in 1807 resold the property to Charles Rose Ellis, Esq., who in 1816 conveyed the whole to the Commissioners of His Majesty's Woods and Forests under an Act of Parliament for providing a suitable residence for Her Royal Highness Princess Charlotte (the only daughter of the Prince Regent, afterwards George IV.), upon her marriage with Prince Leopold of Saxe-Coburg. The Princess died, under painful circumstances, at Claremont, November 6, 1817. The Prince became King of the Belgians in 1831, and left England. During His Majesty's absence Louis Philippe and Marie Amélie, King and Queen of the French, resided at Claremont, from 1846 to 1866, when His Majesty King Leopold died, and Queen Victoria became owner of the estate.

From the carriage drive beautiful views of the Park are obtained, the first attraction after entering the gates upon the Esher side being three large dome-like heights of luxuriant green, dotted with fine trees, which have a rich effect in the landscape. And upon the farm side of the Park stands out conspicuously an obelisk erected by the Duke of Newcastle during his residence here, surmounted by the Pelham crest—a peacock.

On nearing the mansion, leaving the gardens upon the right, the drive branches into two; the main one ascending the hill at the nearest point to the carriage front, while its tributary sweeps away in a southerly direction through a fertile valley for a considerable distance, and curves back to the east front. The mansion, as will be gathered from the foregoing remarks, has a commanding situation about the centre of the Park. It is said to be the only complete mansion that Brown ever built, though he is credited with altering many. It is an oblong building, built of brick, but the windows and dressings are of stone. On the eastern front is a stately portico of the Corinthian style, within the pediment of which is a large sculpture of the arms of Lord Clive. The saloon, or entrance hall, is approached by a flight of twenty-one steps, and ornamented with marble columns, and the walls are enriched by various devices to give relief. Besides the hall, which is of an oval form, and the great staircase, there are eight large rooms *en suite* on this floor. The library opens into the dining-room, in which there is a fine portrait of Queen Victoria by Winterhalter. The gallery is capacious, intended to have been fitted up with damask expressly chosen for it by the late Princess Charlotte. Here also are full-length portraits of Prince Leopold and Princess Charlotte by Dawe. The mansion also contains many other fine paintings.

The great staircase communicating with the apartments on the middle floor is ornamented with columns and pilasters of Sienna marble. On this floor is the suite of rooms occupied by Her Majesty when residing at Claremont. An immense Cedar at the north-east side of the building takes the reflecting mind back many centuries, and indeed several other fine trees in a group are not far behind this aged giant in size, although they do not possess the same

massive appearance at a distance. The remnant of two fine Acacias, still alive but much crippled, are not far distant from the large Cedar, which before the terrible snowstorms of 1880-81 was even more handsome than it is now.

Claremont is a veritable home for fine trees, specimens of which indicate that planting afresh may be undertaken with every prospect of success. Wellingtonias are among the finest in the country, and other coniferous plants grow with amazing vigour, and such colour, too! having that rich glaucous green and charming hues which are indicative of rare health and conditions of soil and climate suitable to the rapid growth and development of choice coniferous trees and shrubs. The deciduous element preponderates at Claremont, and flowering shrubs are comparatively absent, but no doubt these defects will be remedied now that the place is undergoing general repair. Our interest is, however, centred in the horticultural department; and now that the leaves are fallen, and one passes under the large canopies of leafless branches, which are no doubt delightful in summer, and do not lack interest now, still one cannot help almost regretting the absence of choice evergreen trees for winter effects where there is such abundant evidence that they would grow as freely as Willows by the water's edge. The Weeping Beech, and Birch, and Elm, the flowering Chestnut and Thorn, are charming in their season; but what of mid-winter, with its dismal associations, grim, dreary December, when Nature has, so to speak, gone to sleep for a time. It is then our parks and grounds are relieved of that monotony and sameness of appearance by striking a fair balance in the selection, planting, and disposition of ornamental trees and shrubs.

Upon the south front a new tennis lawn (sunk) has recently been made, the outline of which is formality itself, hardly in character with the undulating surfaces, natural or otherwise, by which it is surrounded. The slopes and surfaces, are, however, beautifully executed, and the lawn is in all other respects quite a success. The east side is adorned with one or two fine groups of evergreen shrubs, and a splendid sample of the Cork-tree, of which there is a representative bush upon the opposite side. The Park view from the tennis lawn is magnificent; the ground slopes gently southwards into a sweeping valley, clothed with rich verdure, and rendered further attractive by numerous fine specimens of Oaks, Chestnuts, and Beech, while a splendidly wooded country carries the eye for miles over the finest landscapes of which Surrey can boast. But the configuration of the lawn upon the west front is the most charming of all—the ideal lawn of the grounds, undulating in formation and pleasing to the eye. The walk from the steps in front of the mansion curves northwards, and is lost to view, approaching the extremity of the park upon this side among fine groups of trees and shrubs, and having the "Mount" previously alluded to as a south-western boundary. Access to the Mount is from the south-west angle of the mansion. It rises to a high elevation, and is surmounted, as before stated, by a castellated tower, called the Observatory. It is constructed with brick, in three storeys, with stone dressings. The Mount is literally embowered in trees and shrubs, and laced round by a pleasant path which affords refreshing shade in summer. It was on the slope of this Mount, under the shade of an aged Cork-tree, that Her Majesty and the late Prince Consort were accustomed to breakfast when at Claremont, while the younger members of the royal family disported themselves upon the greensward in front. From the top of the Observatory a commanding view of the surrounding country is obtained in the direction of Box Hill, near Dorking, near to which there are fine hills and woods; also to

Cobham, Walton, Weybridge, and the Crystal Palace. The grand stand at Epsom is quite visible to the naked eye from the carriage front, in which direction the Park presents a particularly interesting and varied appearance. But to proceed to the most delightful portion of the grounds, the route is taken by a long grass-walk from the Mount, going in a westerly direction. The walk is planted and overhung with fine Beech and other trees, and is margined by irregular spreading groups of the common ponticum *Rhododendron*: and this, we may say, is a very handsome and conspicuous feature over the entire grounds, or rather that portion of them representing woodland hills and dales intersected by walks, from which the green underwood has a cheerful appearance.

Mr. Grimm, the estate agent and manager, has lately effected great improvements by cutting down Laurels, *Rhododendrons*, &c., which have broken regularly into fresh growth, so that the woods are beginning to have an animated appearance, different from the smothered, crowded condition in which they must have been previously. Here are vacant spaces in plenty where choice Conifers would give a grand effect, and from the present wealth and variety of flowering shrubs what charming margins could be made to shrubberies, and groups introduced at certain points, which would transform the scene into a living fairyland. The eye grows weary of so much common Laurel, which is unsuited to a place which Nature has so bountifully enriched. Not a Snowdrop is to be seen in the woods, nor the sign of a hardy living flower; not a hardy Cyclamen, *Dafnoidil*, *Scilla*, *Crocus*, or anything in the shape of a hardy flower is there perceptible outside the garden walls. But the foundation is already laid for their reception; the ground is cleared of all worthless matter, and is clean, tidy, and generally in capital order.

A short distance from the Mount the Camellia-house is situated, at a fine elevation overlooking the lake—a charming sheet of clear water, over 5 acres in extent, and a valley richly diversified by trees and shrubs. Upon the opposite side of the lake is a fine group of trees, commonly known as the "Horse-shoe Clump." The lake is also bordered at certain points by healthy *Rhododendrons* which overhang its brink, and is further beautified by a collection of choice foreign birds.

The Camellia-house is a large, oblong, span-roofed structure in three divisions, the centre division being used for pot plants, and the walls are draped with creepers. The Camellias are planted out in pits, and most of them are very large healthy specimens, but somewhat behind the day in variety with one or two exceptions. Large amphitheatres of trees, woodland walks and valleys planted with common Laurels, are the chief attractions between the terrace in front of the Camellia-house and the Mausoleum at the north-western extremity of the grounds. This latter structure was originally designed by the Princess Charlotte for an alcove or open seat, but was converted by Prince Leopold at great expense into a mausoleum to her memory after her death. Descending the slope to the lake, and returning towards the house, several notable specimens of Beech, Chestnut, and other trees are observed, and not the least delightful part of the journey is that through which the visitor strolls—through narrow grass walks bordered by fine hedges of hybrid *Rhododendrons*, which luxuriate at Claremont, especially in the low-lying portion of the ground. A green plot is here and there visible with fine coniferous specimens in its centre, of *Taxodium* or Cedar, some of the former over 60 feet high. Standard Yews are also very fine, also *Abies canadensis* Wellingtonias, and others.

The entrance to the walled-in garden is upon the north-east side from Esher. The garden is divided into three divisions by two cross walls.

The first division is again divided by a wall covered with glass, nearly running diagonally, which leaves a triangle in grass in which shrubby beds are laid out and partly filled with American shrubs, such as Rhododendrons, Ghent Azaleas, &c. The other portion is cut up into grass plots with two ranges of glass about its centre, facing south-east. The houses are old, and as old-fashioned as they are old, and heated with flues. Vines are still grown, and bedding plants in sufficient numbers to

for another department. The third division is practically a flower garden, and a quarter for plant-houses only divided from the former by a brick wall covered with creepers. The flower garden contains a fountain surrounded with vases, and is further ornamented with a Rose trellis which is said to be very handsome in summer. *Benthamia fragifera* is conspicuous upon the walls; and altogether the future of Clarendon as a horticultural establishment may be looked forward to with hope and even con-

New Garden Plants.

EUADENIA EMINENS.

THIS very remarkable and beautiful Capparidaceous shrub was introduced from Western Tropical Africa by Mr. Bull, to whom we are indebted for the illustration (fig. 86). Sir Joseph Hooker, writing of it in the *Botanical Magazine*, t. 6578, comments upon its singularly handsome inflorescence, which resembles a candelabrum in its ramification, the yellow petals looking like pairs of gas-jets on each branch. It is a near ally of the common Caper bush, but is shrubby, with trifoliate leaves, the leaflets glabrous, dark green, oblong, lanceolate. The flowers are borne in loose terminal racemes, and are remarkable for their four very long, pale, sulphur-yellow petals, of which the two upper are very much larger than the other two, which by comparison are inconspicuous. Though so different, these petals remind one of the large coloured calyx-leaves of some of the *Mussaendas*. The figure here given, to the accuracy of which we can vouch, relieves us from the necessity of saying more of one of the most remarkable stove plants yet introduced. *M. T. M.*

CATLEYA WALLISII, Linden.

Reader asks: "You write on *Cattleya Wallisii*, are you sure you know it?" I say with emphasis, Yes, I am; I have the types kept in my herbarium, I nearly was its godfather, and I can tell the whole development of the appearance.

In the years between 1860-69 it was dangerous to come near Director Linden. After the usual introduction of conversation it was quite unavoidable to see him taking out of his coat the last Wallisian letter covered with a mosaic of partly abominable sketches, and Monsieur began a chat about the deciphering those hieroglyphs. At that time it was I who accused Wallis, whose neglect in sending good dried specimens I incriminated, when Mr. Linden defended his *royaume*. Later we exchanged our positions, but after all I said in Wallis' lifetime, that he might have been the most effectual contributor to Orchidology if he had liked to be.

Well, one of those days Director Linden showed me a certain sketch. It might represent a *Sobralia*, a *Cattleya*, a *Laelia*. "*Les fleurs est blanche!*" said Director Linden. "I do not know how it was the plant made its *ditto!*" as a *Laelia-Laelia Wallisii*.

Finally it flowered in 1869. The Lindenian monopoly proved to be a *Cattleya*, a fine thing of the section with the minute column *fièvre germain* of Eldorado. The first flowers are at my side this moment; fine white, with a transverse yellow rhombic dash on the lip.

I remember that one of the best and most celebrated English orchidists, a leading man, showed me a good plant of it, praising Mr. Linden for having sent the genuine treasure, tip-top. He knew the character, and he directed my attention to numerous mauve-purple blotches on the leaves.

Those blotches we know in many cases, alas! but if all were *Cattleya Wallisii* that show spots, now-a-days regarded a good testimony of the presence of thrips, there would be no lack of the plant.

Mr. F. Sandor has sent me several flowers of the plant, which are quite the same as the original, and I have written "Wallisii" and my name on the petal of a flower to give full evidence for the absolute identity of the two. The flowers are sent by one of the numerous Sanderian travellers. *H. G. Rehb. f.*

THIRIXSPERNUM BERKELEYI, n. sp.*

Leaves on a short stem, cuneate ligulate with two unequal teeth at the apex, the one, usually blunt, fine green, about 9 inches long. The raceme is pendulous, has a two-edged thachis and triangular very short and broad bracts. The flowers stand in three rows and are very conspicuous, neatly as much so as those of an

Thirixspernum Berkeleyi, n. sp.—*Caulescens dependens*: foliis cuneatis ligulatis apice bidentatis, dente altero nunc obtusato; nulli rescentia elongata polyantha pendula triseriali, thachis triquetra; bracteis triangularibus viscosis; bracteis speciosis, sepalo impari ovato acuto, sepalis lateralibus in pede columnae elongato oblongis apiculatis; tepalis oblongis apiculatis; labello limbo tridido, laciniis lateralibus linearibus apice cuneatis porrectis, lacina mediana carosa tridentata, dente medio prominente, dentibus lateralibus obscuris nunc oblitteratis, calcaris cylindraceo obtuso amplo anticeo curvato. Lind. ex E. Berkeley. (*Sarcophilus Berkeleyi*) *H. G. Rehb. f.*



FIG. 86.—EUADENIA EMINENS.

keep certain portions of the place gay in summer—a few flower borders and the flower garden proper. In this division there are fine Mulberry trees and a *Wellingtonia gigantea* having a spread of branches 23 yards in circumference, and a *Salisburia adiantifolia* over 50 feet high. Also an immense tree of *Pterocarya caucasica* with twelve or fourteen main limbs, any of which would make an ordinary sized specimen. The second division is simply cut in two by a main walk having borders planted with Conifers, which have long since overgrown the situation and are more suitable

confidence, for where such examples of trees and plants are to be found without the aid of a high-class professional there can be little doubt of what results will be under a modern system of cultivation.

GENISEA BRILCOX.—What Mr. Barron has growing on the rockwork at Chiswick under this name represents a very early-flowering hybrid Broom, raised by the late Mr. Wheeler, of Warminster, forming a compact bush, and densely covered with sulphur blossoms. It is a most conspicuous feature, and the eye fastens on it at a long distance. It is an object of great beauty, and its position elevated on the rockwork appears to suit it well.

Acerides falcatum (Larpenz) though the lip is shorter. The sepals and petals are very unequal, the lateral sepals the greatest, oblong apiculate. The lip has two linear side lacinia; curved at the apex, and a small three-toothed middle lacinia standing inferior. The lip goes out in a long cylindrical, blunt, somewhat antorse spur, nearly as long as the stalked ovary. The flower is of a fine white, called by some "Chinese white," and there are amethyst colour spots on the lacinia of the lip.

Taste is neither to be judged, nor to be directed. One should not try to have an influence on it. As to me, I love this chaste beauty, and he who likes an *Acerides* must become attached to this plant. It is quite new, as no one of the known *Thrixsperrum* (*Sarcophilus*) has such a rich inflorescence and such large flowers of such distinct colour. It was discovered lately by Colonel E. G. Berkeley during one of his trips made in the time of his holidays, and is devoted to this gallant orchidist with great attachment. *H. G. Kebb. f.*

*ANGRÆCUM DESCENDENS, n. sp.**

A curious fine *Angræcum*, much in the way of *Angræcum Ellisii* and *articulatum*. *Angræcum articulatum* is very easily distinguishable by its singular plump antorse spur and longer sepals and petals, and leaves which are much broader at the top. *Angræcum Ellisii* is much nearer. I believe, however, that the *A. descendens* is distinct in its stronger spur, less nerved petals, cuneate ovate acuminate lip, and in its much shorter hairy (?) column. My position is, however, a very weak one. Mr. Stuart Low, candid and open-minded as he is, sent me two further inflorescences, and they are so widely distinct one from another that one might hesitate when seeing them both aside. This one loses that confidence in the true development of the species. I have also to thank Mr. Low for a very fine plant, that gives me the impression as if it were shorter in growth and plumper than *A. Ellisii*. From a memorandum made of the Dayan type specimen, I see that the leaves of *A. Ellisii* have two strong blunt lobes at the apex. The *Angræcum descendens* has leaves with obtuse top lobes.

If our plant is genuine—all right. If it proves a sport, I have little doubt it is a larval state of *Angræcum Ellisii*, which lost its temper from travelling, or who knows what other cause. Hence, my view is that orchidists, if they have been deceived, are so for the better. *H. G. Kebb. f.*

ODONTOGLOSSUM LIGULARE, n. hybr. (?)

This is an unusually fine thing which I name with great reluctance, as is usually the case in those supposed *Orchid* hybrids, which may at least in some cases finally turn out merely aberrant varieties. One is never sure of disagreeable coming surprises. *Post equitem scilicet astra cava.*

I have at hand a herbarium packet, three times as high as my thumb's latitude, containing perhaps a thousand (!) flowers of twenty-five forms believed to be males arranged in eight groups. How could I have named this one for Mr. Veitch? Had I said "Coradinei" Mr. Harry would have reproached me, and he might have been right, though he is particular as to Coradinei. To begin with, the sepals and petals are nearly orange, each with two or three great brown blotches. The lip is unusually broad. It has an orange unguis and a great hastate ligulate blunt blade, with numerous small denticulations on the border. This blade is lighter yellow than its stalk, and nearly the whole of its disc is covered by a large dark brown blotch, and there is one small brown blotch over it on each side. The two keels are small, rhomboid, two-toothed. A few small antorse subulate short keels stand in one transverse row before the beginning of the stalk at the base of the blade. The column is whitish, with short rhomboid terminal wings, which are totally distinct from any of the very numerous, sometimes much varying, Coradinei I had. The lip is quite free.

I obtained this fine thing, first a fresh flower, then the inflorescence (of the entire plant I know nothing), from the collection of Sir N. M. de Rothschild, Bart., Tring Park. *H. G. Kebb. f.*

PHAIUS BLUMEI (Lindl.) ASSAMICUS, n. var.

I possess the *Phaius Blumei*, Lindl., founded on *Blumei* the *Lindodorum Incartvillei*, Bl., from Blume

Angræcum descendens, n. sp.—Caulis: foliis oblongo-linearibus, mucro-nibus, lobis, supra siphonibus: racemo elongato, plumb. rot. annulato ovario pedicellato bractea multiformi superius: sepalis triangularibus: petalis sub angustibus, illis

himself, and the representation given by Dr. Vriese quite coincides with what I have. The drawings published later by Blume in the last work are distinct in their shorter spur, and are nearly identical with *Phaius Blumei Bernaysii*, Rehb. f., excepting in colour. What I saw from Java were usually triandrous, sometimes diandrous, or nearly pentandrous, never monandrous.

There is a plant from Assam (Griffith! Staur!) and Birmah (Griffith! Rev. C. S. P. Parish!), that I cannot distinguish from this, but which is always monandrous. I propose to call it *assamicus*. Philosphers may teach us whether this be the type or the Javanese one. To me this is wholly indifferent, as there are numerous cases where such developments ascend, and others when they descend to the original state. This *Phaius Blumei assamicus* is one of the most variable *Orchids* as to colours I know of, though apparently not comparable to the unlucky *Odontoglossum crispum*.

Phaius Blumei assamicus luteo-albus (fourteen syllables! *ca commence!*) has yellowish flowers, with a light yellow lip bordered with white. It is the cousin of *Phaius Blumei Bernaysii*. It flowered in April, 1879, with Mr. W. Bull, and is now at hand from Mr. Veitch from Birmah, and Mr. Bull received it from Assam.

Another, *purpuratus*, flowered July, 1875, with Messrs. Veitch (November 29). It is a very fine thing, flowers deep rich yellow, lip orange bordered with good purple, petals brown with yellow middle lines, sepals brown inside.

The third, *picturatus*, flowered May, 1879, with Mr. Bull. It is quite striking. Flowers pale yellow; base of the side lacinia of the lip mauve with purple stripes; edges light purple with dark purple stripes; remainder of the lip fine yellow.

Finally, *oculatus* has sepals and petals brown inside. The lip is yellow, and each lateral lobe has a purple blotch on its disc. It was sent, March, 1881, by Herr Ritter. All those specimens and numerous complete sketches in colours at hand. *H. G. Kebb. f.*

CHARLES DARWIN.

PLEASE permit a practical gardener to lay a wreath on the bier of our great teacher. It is impossible for me to express my full indebtedness to him. I had hoped to discharge some of the debt in a paper on *Pangensis* but I had intended to read some years ago at Nottingham; but now he is gone one can hardly keep silence, though I have little or nothing to add to what you so well said last week on the character of the man, his mode of working, the extent of his researches, and the extreme value of his labours; but you cannot so well estimate what mental quickening and pleasure Darwin brought to hundreds—probably thousands—of all but unknown practical horticulturists. His facts, so carefully collated, so powerfully marshalled, brought new light, fresh inspirations, a higher intellectual life to myriads of plodding workers in the field of horticulture. Often because of the hardness of the labour, work and thought have been too much divorced. Darwin, as it were, thought on our behalf, and placed his thoughts before us buttressed up with such an array of clear concrete facts that we could not fail to appreciate his thoughts through his facts; or, if we did so fail, yet were we all the richer by the number and value of his facts.

It is astonishing how much one hears in general society of Darwin's theories and how little of his facts. I do not know how it may have struck other students of his works, but I have been amazed at his reverent timidity in heaping up fact upon fact until they seemed piled to a mountain height, and all pointing to one conclusion; and then, instead of anything like dogmatic conclusions or assumptions, merely a mild supposition, or "may be so." Would that we could imitate our great teacher in the strength of our facts and the timidity of our conclusions therefrom. The facts brought together in the two volumes, *The Variation of Plants and Animals Under Domestication*, and his wonderful work on the *Fertilisation of Orchids*, may be looked upon as an encyclopaedia for practical horticulturists, and they are collected from all sources, and appear to have been also retested by personal experiment before receiving currency from Mr. Darwin. No one who has not read these works carefully, as well as the *Origin of Species* and the

apicem versus extus carinatis apicibus apiculatis, labello oblongo acuto, calcaribus ovario pedicellato ultra quater longiore, anthe novo Emato: columnae brevioris crassa velum, anthera apiculata. *H. G. Kebb. f.*

other works and papers of the author, can form any idea of the immensity of the labour that they involved. Of the results of his labours to practical horticulture it is almost as yet too early to write. You appear to me to form a very moderate estimate of their practical value, and it will not be until the major portion of Darwin's facts are known and thoroughly understood, and their far-reaching results grasped by practical horticulturists, that the richer fruits of his labours will begin to appear.

For not only are Darwin's facts valuable in themselves, but most of them are like living seeds and will originate species, genera, varieties of similar or correlative facts; and this horticultural knowledge will root deeper, spread wider and rise higher, and its practice also be improved through all coming ages by the labour and example of Charles Darwin, for not only the work done but the manner of doing it are invaluable.

One trait in his character that endeared him to many of us must not go unnoticed. No practical man, however humble his station, that had a fact to record was considered unworthy of his notice or a note of thanks. He also seemed to have scanned our horticultural literature with an eagle eye, and to have gleaned from thence all the facts that served to illustrate his point or bore upon his purpose, verifying his extracts with references.

In losing Darwin few among us but feel we have lost a friend as well as a great teacher. No man has done more to raise horticulture than he who has laid in his right place in the Great Abbey. His friends may be assured that he lives in the hearts of many among us, and being dead he will yet speak to us through his marvellous works, which have done so much and will yet do more to raise the science and practice of horticulture, as well as botany, to a higher, broader, nobler level than either of them has ever reached heretofore. *D. T. Fish.*

RHODODENDRONS NEAR SWANSEA.

MAY and June are usually reckoned the blooming months of the hardy *Rhododendron*, and inasmuch as the bloom cannot be extended beyond the beginning of July I wish to draw attention to the comparative hardness of some of the species and so-called species, from the Sikkim Himalayas, which, blooming in February, March, and April, help us to claim five months during which the lovers of this noble genus can enjoy its varied magnificence. It must be borne in mind I am now speaking of plants wholly unprotected save by Nature. The restriction of success appears to exist not so much in the climate as in the soil; the presence of lime or chalk seems to be fatal, and beds in such a geological formation, even though carefully prepared and periodically replenished, are an expensive substitute for what in congenial soils requires little attention and care. Peat is here unnecessary; they thrive in any loam, so long as the poisonous lime is absent; and they require no special care beyond a watch to see that the stocks on which most bought specimens are worked are not sending up robbers or suckers from the root, while should the plants be seedlings or layers even this is not necessary.

If the plants thrive in a congenial soil, so as really to ripen their wood before the autumn, it does not appear that a few degrees more or less of frost in the succeeding winter will injure them. The frosts of 1879-80 and of 1880-81 were very intense, the thermometer going down nearly to zero, and the frost being on one occasion accompanied by a howling easterly gale which will be remembered by most: yet the plants I shall enumerate have withstood them as thoroughly, and have bloomed since as well, as the ponticum and *Catawbiense* in this part of South Wales, where a moist cold has often injured plants which have stood the drier cold of other parts of England.

No doubt a spring frost—such as we are always liable to in February, March, and April, and even sometimes in May—may cut away the early blooms, but others succeed, and the leaf shoots will here push on with all the greater vigour to produce a next year's flower-bud. I have often admired the way in which Nature seems to accommodate herself to circumstances in taking advantage of the finer spells of weather in the spring, hanging back and refusing to expand her trusses of early *Rhododendrons* before impending periods of chill.

The first to appear is arborcum and some of its hybrids, such as Nobleanum, blooming at Christmas and in January, and which in such open seasons as we have experienced this past winter are very well worth having. The trees seem uninjured by frost, but it is only in exceptionally open years like this that much satisfaction can be obtained from their bloom.

Commencing then in February and through March comes *R. barbatum*, figured in Sir Joseph Hooker's work on *The Rhododendrons of Sikkim Himalaya*, a species not sufficiently credited with hardiness, but which is without doubt a truly hardy and satisfactory species here. The plant may at any time be recognised by the peculiar bristles which adorn the petiole of each leaf, which is lanceolate, and not adorned with that distinct colour on its under-side which renders several other species so attractive, whether in or out of bloom. The bark is smooth and polished, and of a bright purplish tint. The trusses consist of a number of blood-red bells, and are freely produced on trees of a certain age, and as at Singleton Abbey there are some twenty or twenty-five plants, which annually bloom with great freedom, it has undergone a very satisfactory apprenticeship down here.

Following this comes *Rhododendron Thomsoni*, resembling *barbatum* in tone of colour, with a looser truss, and larger individual blossoms, following *barbatum* in point of time, and quite distinct in its neat cordate foliage. This species sheds its foliage annually in October, the old leaves turning golden before being shed; but as the young fronds have already set, it retains its evergreen character. It is a free-flowering species, and an especial favourite of mine, the black spots in the interior of the corolla setting off each of the fine waxy blood-red bells, with their peculiar neat little settling of leaves, in a very fascinating manner. A plant at Singleton has this year produced about 500 trusses.

At this same time, too, comes *R. ciliatum*, dwarfier, and very floriferous, whitish, tinted with lilac, and sweet-scented. The smallest plants seem prone and even anxious to bloom, and from its neat compact habit it is invaluable as a foreground plant.

R. campanulatum also blooms in March and April, though the species is at any time worth growing for its strikingly beautiful foliage; dark green above, it is beneath of a rich brick-red hue, which contrasts strongly, and is a very welcome addition to the few points of interest found throughout the winter. The figures of this species in the *Botanical Magazine*, No. 3759, and of *Wallichii*, show that it is variable, but it is none the less useful, and I strongly recommend it. This campanulate is the evident progenitor of some remarkable hybrids at Singleton, which must be seen to be appreciated; but I am constrained to attempt a description of one which, alas I was broken in last October's disastrous gale, but of which I possess a photograph. The bloom-truss combines three essential qualifications:—1. The truss is well and conically set up. 2. Each pip is of a well-shaped campanulate bell. 3. Each pip is of a pure white, very richly spotted with a dark purple blotch, and constitutes, in my humble judgment, the finest and one of the most constant hardy hybrids I have ever seen. The bloom time is Easter, and as it continues for some weeks at Easter an abundance of trusses can be cut for church decoration; and need I say that it has year after year been laid under heavy contribution at a time when such flowers are in such special request. Being informed that as many as 200 trusses had been cut off for Easter Sunday from this one plant without their being missed, I made it my business last year to test this statement by attempting to reckon the total number of them, and I found upwards of 1100. Strict accuracy was out of the question, but I think there were fully 1200, the height of the plant being about 20 feet, well furnished and bloomed.

But, to go back to the species, it is not alone for their bloom the species of *Rhododendrons* are worth growing. The foliage of some is most striking and grand, and cannot fail to attract the attention and admiration of the beholder.

Here at Singleton *Rhododendron Falconeri* grows to a height of 18 feet, and is nearly as much through; the individual leaves are 18 inches in length by 7 inches wide; dark glaucous green above, and thickly coated beneath with a soft ferruginous woolly tomentum, which adds marvellously to their peculiar and striking beauty. The bloom is a straggling and somewhat awkward loose collection of white, bell-shaped blossoms, and has been hitherto sparingly

produced; but the great attraction of this noble species lies in its leaves, which undoubtedly constitutes it the finest outdoor hardy foliage plant I have seen in Great Britain.

Next to *R. Falconeri*, in its striking foliage and with a finer inflorescence, comes what is supposed to be *R. eximium*, a species not figured in Hooker's *Rhododendrons of the Sikkim Himalaya* or in the *Botanical Magazine*. The plants at Singleton are 18 to 20 feet high, well furnished throughout. Two are now blooming, one having fourteen trusses, and the other six, which are individually of commanding size and appearance, consisting as they do of forty or more pips, each 2 inches at least in diameter. The shape of the flower is an open bell and the colour a pale purple, opening much darker, and dying off very much paler than the typical colour at mid-season. The individual leaves are not quite so large as those of *R. Falconeri*, and differ from them chiefly in the tomentum on the inferior side of the leaves being less richly coloured; yet some of the leaves, out of reach of measurement—some 20 feet from the ground, where the plant seems to have luxuriated in the fostering shelter of a large overspreading *Pinus excelsa*—cannot be much smaller than those on the adjacent *Falconeri*.

What is *R. eximium*? I have small plants from Van Houtte under this name, and they agree with the old plants at Singleton in foliage, and it is under this name the plants I have described are grown. The bloom is like the *R. Hodgsoni* of Hooker's book, but then the foliage disagrees; and besides this there is another plant, as yet unbloomed, whose foliage resembles the *Hodgsoni* plate and description, and is quite distinct apparently from *eximium*.

Another distinct species with peculiar leaf and purple bloom is *R. niveum*, also an April bloomer.

An old plant of *R. arborcum* album, *Bot. Mag.*, 3299, relieved from a surrounding tangle of common ponicum, has gratefully rewarded me with its nearly pure white handsome trusses this April; and *R. cinamomeum* and *R. ochraceum*—both varieties, I think, of *arborcum*—the former pale pink, the latter white, have bloomed at the same time.

R. fulgens is another of the dark reds. I have not seen it as fine as *R. Thomsoni*, but it seems quite hardy.

R. nilagiricum has not bloomed, though the tree is an old one.

In addition to these some small plants of Campbelli and of Massangei have stood the frosts satisfactorily, and will, I hope, prove quite hardy.

R. argenteum has been injured but not killed, and I hope will recover.

R. glaucum is a pretty dwarf little species with a peculiar aromatic smell, very floriferous, quite hardy, and useful as a foreground plant.

R. ferrugineum (the *Rose des Alpes*) and its hybrids is subject to the attacks of rabbits—unlike in this respect to other species, as well as *Azaleas*, which rabbits do not touch.

R. Edgeworthii and *R. Sestierianum* were grown out-of-doors and bloomed with some freedom at Singleton for some years, but the winter appeared to injure them and the plants were therefore brought into the conservatory, where they now flourish.

R. Dalhousie, too, grew out-of-doors, but the bitter winter of 1879-80 killed it, and it was this loss that induced the watchful eye of Mr. Harris, the careful and clever head gardener in charge of these lovely gardens, to move the above-named *R. Edgeworthii* and *R. Sestierianum* into the protected quarters, where they are now (April 22) in full luxuriance of their bloom.

R. Macnabi, however—which is, I believe, a hybrid of *R. Edgeworthii*—is flourishing, and blooming freely by the side of *R. Falconeri* in the open ground. These plants were raised from seed given to Mrs. Vivian by Lord Dalhousie and Mr. Edgeworth (after whom two of the noblest species are respectively named) and Col. Sykes, about the year 1846, on the occasion of a visit paid by them to Singleton. What other species may have been reared from this seed and succumbed to the severities of the winters since then I do not know. I only know that those plants now growing are the very picture of robust and luxuriant health, and having withstood two winters of intense severity without injury, are practically safe; and as years advance the trees have become more and more injured to our uncertain climate, and have borne seed, some of which, by Mrs. Vivian's kindness, I am rearing, and which ought to produce

a race at least equal to their parents (more I cannot expect) in hardiness.

There is one point I must name to deprecate—that is, the naming of hybrids with a *quasi* specific appellation. Thomson I know, and Hodgson I know, but who is Jackson? I should have looked for a congener worthy of such a fraternity, but lo! a hybrid. It is a misuse of a botanical privilege to latinise a trivial name into a botanical name—mistaking and mischievous. I do not see the least object to hybridisation itself: who that has seen the brilliant results obtained by those exhibitors who will shortly be delighting the public with their May and June flowering sorts can do so? I only ask for a prolongation of the season, and I have been struck by the apparent absence of the blood of my favourite Thomson, which I should have expected to have proved a most useful ally. Ascot Brilliant is the only one I can now recall which seems undoubtedly to show their parentage.

I cannot close this without a word of recognition of the pride and care with which the plants are tended by Mr. Harris, the intelligent and able gardener who has charge of them, and of the interest taken in them by the venerable lady to whom they belong; and I can only wish they may both live long to continue the enjoyment of plants which, alas! are as scarce as they are beautiful.

A writer in the *Garden*, of last autumn, tells us of species he finds hardy in Southern Ireland, beyond those plants of which I now write. I know few in South Wales, but surely in Ireland or Devonshire, or Cornwall, an experience has been gained of some of these species which would be very acceptable in your columns. *John T. D. Llewellyn, Penllergare, Swansea.*

NOTES ON PERENNIALS.

The following perennials were sown in a frame on a slight hot-bed on March 9, 1881, and bloomed the first season—i.e., during the summer of 1881:—

Cedronella cana.—Pretty, and very fragrant; useful for putting into claret-cup.

Coreopsis grandiflora.

Corethrogyne spathulata.—Free-blooming, and flowered pretty early, but not very showy. Daisy-like flowers, white, tinted with lilac.

Dahlia variabilis and *D. gracilis*.—Single varieties. Made a fine show in the autumn.

Delphinium nudicaule and *D. sinense*.

Erythronium ranunculifolium.—A neat Violet-like plant.

Fragaria indica.—A Strawberry with yellow flowers.

Grindelia hirsutula.—A rather showy yellow Composite.

Helianthemum grandiflorum.—A very effective plant, the yellow rays being set off by the black disc.

Heris glaberrima hybrida.—Very good. Flowers almost as large as the type, and habit much better. White, tinted with lilac.

Linaria trioranthophora.—Variable in colour. Flowers rather large, and produced abundantly.

Linum flavum (?).—Very showy. I question whether this is not *L. arborcum*.

Lychnis Hargreavei, *hybr.*, and *L. Seano*.—Both very pretty, and came early into flower.

Nicotiana glauca.—Very neat.

Papaver alpinum.—This is a charming yellow Poppy; but wherein does it differ from *croceum* or *nudicaule*?

Pentstemon centralifolius.—Bright scarlet, rather small, and partially closed flowers. Habit of *P. Murrayanus*, i.e., rather leggy.

Pentstemon pubescens, or (?) *lotus*.—Neat habit and free blooming, with rather pretty lilac-blue and white flowers. One of the hardiest of the genus.

Pyrola rotundifolia var.

Ranabackia fulgidula.—Flowers rather small for the genus; in the rays petals want length.

Saxifraga Beckeri.—Not very showy.

Sibthorpia purpurea.—This bloomed freely, but it is more curious than pretty. The flowers are dull in colour, and ragged in form.

In all, out of fifty-seven species of reputed perennials raised from seed, thirty-one bloomed the first summer. Many of these have perished even in the past mild winter, when the lowest temperature has been 29° 5, so that the advantage of sowing early and seeing at once what the plants are like (in the case of species new to the grower) is apparent. On the other hand, it is probable that plants that flower the first summer are less able to stand the winter than those that have not done so. *Alfred O. Walker, Chester.*

THE HISTORY OF THE AURICULA.

ON the occasion of the exhibition of the National Auricula Society at South Kensington, April 25, a lecture on the "Early History of the Auricula" was given by Mr. Shirley Hibberd, of which the following is an abstract:—

In this eventful history the endeavour to begin at the beginning is likely to be frustrated by the meagreness and vagueness of the facts. Many observant florists have speculated on the origin of the Auricula, and have scarcely as yet arrived at satisfactory conclusions. In the delightful discourse by the Rev. F. D. Horner in this place, on April 19 last year, several species of Primula were named as likely progenitors of this remarkable flower, but I must confess I have not been able to satisfy my mind in respect to more than two or three of them. Those that appear to have the largest claims are *Primula auricula*, *P. hortensis*, and *P. ciliata*. Possibly *P. amena* may have some claim, and it would be convenient to regard it so because of its purple colour. But although we thus obtain four names we have in reality only two species, for *hortensis* and *ciliata* are but varieties of *Auricula*, and *amena* comes too near to the common Primrose to be classed with the ancestry of our exhibition favourite. Mr. Darwin, in his *Forms of Flowers* (p. 43), declares, on the authority of Kerner, that "the garden Auriculas are descended from *P. pubescens* (Jacq.), which is a hybrid between the true *P. auricula* and *P. hirsuta*. This hybrid," he continues, "has now been propagated for about 300 years, and produces, when legitimately fertilised, a large number of seeds." [See *Gard. Chron.* 1875, vol. iv., p. 806.] But in this supposed pedigree we have the making, at the utmost, of an alpine Auricula, and in *Primula villosa*, which I take to be the same as *pubescens*, we seem often to have the alpine Auricula ready made, as, for example, in the plant figured in the *Botanical Magazine*, t. 14. The Hon. W. Herbert, in *Horticultural Transactions*, iv., 20, gives reasons for regarding *P. auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* as varieties of the same species. One of his reasons is that he raised a powdered Auricula and a *P. helvetica* from the seed of *P. nivalis*. But a powdered Auricula is not enough for our purpose; we want an edged Auricula. However, the raising of an Auricula of any kind from the species named is a fact of great importance, and suggests a more Darwinian view of the case than the one Mr. Darwin himself adopted. It certainly takes us, on the basis of experiment, back to the variable *P. auricula*, and for other blood we seem to search in vain. Therefore, if we are bound to begin with a plain-able beginning, we must take the wild Auricula as the sole basis of this department of floriculture, and pronounce the current opinion to have many claims on our acceptance as at once philosophical and historical. The wild Auricula is very widely distributed on the Carpathians, the lower ranges of the Alps, the higher ranges of the Black Forest, and on the northern slopes of the Caucasian range. In places where a scattering of fertile soil on stony declivities favours its growth it is met with in thousands; it is, in fact, more abundant in certain localities than is the common Primrose in some of our own western valleys. The interest of the inquiry all turns upon the apparent impossibility of deriving from this humble flower of a pale yellow colour the variety and the exceeding beauty of the flowers that are cherished by the florists for their sharply-defined edges, their rich body colours, their pure paste, and brilliant centres that are like perforated nuggets of the purest gold. But I shall ask you to believe that the flowers we find especial delight in to-day are the true descendants of *Primula auricula*, without admixture of blood from any other source whatever. Our common Primrose is a sportive beauty that is now yellow, now white, and anon purple, crimson, and amethyst, and in form single, double, and hose-in-hose. And it happens too that the wild Auricula sports without man's aid into red and purple, and thus provides us with some of the colours ready made for working up into the glorious edged flowers that now afford us so much pleasure, mingled with surprise. But although the plant ranges far and varies much, and is often so abundant as to pave with a solid floor of its own lovely herbage the meadow levels and sunny slopes of the mountain ranges of central Europe, there is no

record of the faintest hint of an edged flower having been discovered in any of the wild forms. And thus the Auricula of the florist comes before us as peculiarly and pre-eminently the production of the florist; he has discovered how to develop its capabilities of varying in colour, and more especially how to augment and redistribute the fauna or meal which Nature has provided for the defence of the plant in the oftentimes trying circumstances of its wild life on the mountains. The richness and precision of the body colour, whatever it may be, has less interest from a scientific point of view than the distribution of the meal, which in the wild plant is only found sparingly on the leaves and in the centre of the flower, whereas in some of the florists' varieties the leaves are as white as wool, and the paste in the flower is as dense as the ice on a bride-cake, though infinitely purer in quality.

This change, so marvellously distinct, and so full of fine floral character, has been accomplished in so short a space of time that the truth is hard to believe. The Auricula is literally a flower of yesterday, and there is nothing worth searching for in the old books to throw light on its history. The grower of Carnations and Tulips may find a feast prepared for him in the books that take us far back in the annals of floriculture, but although on the mountains the Auricula has been blooming beautifully since the third day of the creation, it makes but little show on the heights of horticultural literature. We may assume it was not known at Antwerp or Leyden in the middle of the sixteenth century, for had it been it must have obtained the notice of Kembert Dodocens, who commenced publishing in 1552, and in none of his works has he mentioned it. In his *History of Plants* he describes a few "Petie mulleyns" or "Pisme Roses," including the common Primrose, the Oxlip, and the Cowslip, and speaks of divers kinds "single and double," but there is no hint of the flower before us. We have, however, the important information that in his time the Primroses, and Oxslips, and Cowslips were "used daily amongst other pot herbs," a statement suggestive of extreme poverty in the kitchen garden.

Gerard and Parkinson are necessarily quoted by writers on this subject, but they give us far less help than they have had credit for; however, one must excuse them if they do not describe a flower that in their day had no existence. Gerard appears to have had two or three Auriculas of the class now known to us as alpinas, with yellow, red, and purple flowers. He indeed in the *Herbal* in 1597 describes, at p. 640, eight sorts of mountain Cowslips, or Bear's-ears, as they were then called, but three at least of the number are not Auriculas, and of the remaining five one is doubtful. In Johnson's edition of Gerard, published in 1633, the story and the picture differ but little from the original work, but a note is added at p. 785 to the following effect:—"There are divers varieties of these flowers, and the chief differences arise, either from the leaves or flowers, which are either smooth or greene, or else grey and hoary, againe they are smooth about the edges, or snipt more or lesse. The flowers some are fairer then othersome, and their colours are so various that it is hard to finde words to express them, but they may be refer'd to whites, reds, yellowes, and purples; for of all the varieties and mixtures of these they chiefly consist. The gardens of Mr. Tralescant and Mr. Tuggie are at this present furnished with great varieties of these flowers." The great John Parkinson, of blessed memory, publishing in the year 1629, which for our present purpose may be regarded as strictly synchronous with Johnson, describes twenty-one sorts of Auricula ursi, or "Beares-Ears," and we seem to be getting warm when in a receptive state of mind we turn over pp. 235-246. But criticism founded on knowledge will quickly reduce the twenty-one to a smaller number, and at the very best there is not an edged flower, and perhaps not a proper self, amongst them. Of the eight varieties figured by Parkinson on p. 237 two are not Auriculas, and the remaining four differ but little in their characters, and we really cannot say that the history of the flower begins there.

In Mr. Horner's lecture mention is made of the Flemish weavers who settled in Norwich, Ipswich, Rochdale, and Middleton, about the year 1570, and who brought with them Tulips and Auriculas from their cherished gardens of the Netherlands. But the Auriculas of that time did in no way represent the Auriculas of this time; for in 1570, and for

many years thereafter, the edged Auricula was a thing unknown.

In the second edition of Philip Miller's renowned Dictionary, published in 1733, we are told that "to enumerate the diversities of this plant would be almost endless and impossible, for every year produces vast quantities of new flowers, differing in shape, size, or colour." And he proceeds to give a table of characters, five in number, from which we may infer that at that date the edged flower was unknown, and from which we may learn that if known, it was certainly not regarded as of any special value. The characters as given by Miller may be thus summed up: "The flowers must be borne on a strong stem; they must be in a regular and close umbel; the neck of each flower should be short, and the face flat and not inclined to cup; the colours bright and well mixed; eye large, round, of a good white or yellow." In the sixth edition, published in 1771, these characters are repeated. I turn from Miller's Dictionary to the *Eden* of Dr. John Hill, a handsome folio, published in 1757, and therein we hear of yellow and purple Auriculas, but not of edged flowers and not of named flowers of any kind whatever. The Rev. William Hanbury's *Body of Gardening*, in two fine folio volumes, 1770, tells of varieties "almost infinite in number" of this "luscious flower," but there is no hint even here of a proper Auricula; we are still rioting amongst alpinas and border flowers, double and single, but the tone of the writer does suggest that in 1770 it had long since passed into the hands of the florists for weal or woe. We learn from Hanbury that the florists rejected the double flowers and made a broad distinction between the self-coloured and the variegated, and at that point Mr. Hanbury leaves us to our own conjectures.

Thus we began with the third day of creation, and we have nearly reached the close of the eighteenth century, and we have not heard of any such Auriculas as have brought us together to-day. It will be seen, however, that Hanbury affords a clue to the time of their first appearance, which was doubtless about the middle of the eighteenth century; and we may reasonably conclude that for some time after the flower acquired the characters for which it is now valued writers on horticulture were in some instances unaware of its existence and in others were prejudiced against it. Indeed, Mr. Hanbury was evidently familiar with the characteristics of the Auricula "fancy," and seems to have set up his back at it because of his confessed partiality for double flowers.

We have, however, a somewhat remarkable proof of the comparative lateness of the formation and acceptance of edged flowers in a paper published in the *Florist* in the year 1849. This professes to be a copy of a manuscript dated 1732, and bears all the needful evidences of genuineness. In this document we have a table of properties, twelve in number, from which we gather that the tips should be round and flat, the body colour solid, flaked, or striped; the bottom circular and without powder, and the eye showing a full thrum. Whatever may be the exact meaning of the terms employed in this code—and we should probably have but little trouble to master it in every detail—it seems to demonstrate that whoever drew it up was a thorough florist, but had never seen, or at all events had never recognised as proper, an edged flower of the modern type.

However, Mr. John Slater, in the *Amateur Florist's Guide*, published at Manchester some ten years since, gives a list of edged flowers that were in cultivation in 1776, some of which no doubt were known in 1750, which, for present purposes, I will assume to be the year in which the Auricula first acquired its proper form as a florist's flower. Mr. Slater has searched the records of the cultivators of Middleton and Rochdale, and other of the ancient homes of floriculture, and he makes a distinct declaration at p. 18 of his book that the oldest known varieties were Rule Arbitr, with a green-edge, and Hortaine, with a white-edge, and these, he says, can be traced as far back as 1757. Potts' Eclipse, a green-edge, he traces to the year 1707. About the year 1785 several sorts that are now known were introduced, such as Grimes' Privater, grey-edge; Popplewell's Conqueror, white-edge; Gorton's Champion, green-edge; and Wrigley's Northern Hero, green-edge. Thus the negative evidence derived from our exploration of the old books agrees with the positive evidence derived from the modern books, and we may safely regard the Auricula as dating from 1750, and it is therefore as a florist's flower a quite modern achievement. The first

table of properties appears to have been published by James Thompson, a florist of Newcastle, in the year 1757. Maddock published his table of properties in the *Florists' Directory* in the year 1792, and Emmer-ton improved thereon in his *Treatise on the Auricula*, published in 1815. Hence in Martin's edition of Miller, published in 1807, the edged flowers are recog-

the present time possesses or desires so many; for the annual exhibitions tend to the weeding out of the inferior kinds, and the maintenance of a high standard of merit. And this standard of merit, usually described as arbitrary, is in the main in strict accordance with the laws of Nature. The stout smooth pip, the pure colours, the rich bold thrum-eye, the ample

special attention to this flower, the origin of which dates back only 130 years. It may be properly described as the creation of the florist, and it suggests a very interesting consideration as to the future of life on this planet. It cannot be doubted that Nature employs man as a species-maker, and he is ever busy in modelling new types,



FIG. 87.—MEDINILLA AMABILIS. (SEE P. 572.)

nised, and their properties stated on the authority of Maddock, and agree pretty nearly with the properties required in the present day.

Thus we arrive at a distinct epoch in the history of the flower, and the early history is completed. I shall scarcely err in saying that it is at this time in high favour, well understood, and its quality justifies the century and a half of labour that has been bestowed upon it. We may hear of collections numbering 400 to 500 varieties, but probably no one at

healthy leafage, are several signs of vigour and power of reproduction, and claim a forward place for the plant in the "struggle for life," which tends ever to the "survival of the fittest." It is interesting to see the evolutionist and the florist walking side by side, the one speculating on what Nature might accomplish under certain circumstances, the other demonstrating her capabilities by the exercise of his taste and the work of his hands.

The evolutionists may be invited to give some

for his own delight as he thinks, but really and inevitably for the determination of the forms of future life on this planet. He has already made the world in a great degree conformable to his own idea; in other words, he has modified the face of Nature for the gratification of his tastes and appetites, and he will continue with ever-augmenting power to extinguish races and create races, and in various other ways comply with the destiny declared for him in the 28th verse of the first book of Moses, called Genesis:

"And God blessed them, and God said unto them, Be fruitful and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth."

Orchid Notes and Gleanings.

MR. BOCKETT'S ORCHIDS.—Results in the cultivation of Orchids are almost invariably somewhat different to that which occurs with other plants. Wherever a large collection of Orchids is brought together it usually happens that, even with skilful treatment and due attention to all, some divisions of the family will stand out markedly in the way they thrive. Here there are two sections that exhibit more than ordinary strength and vigour, the *Phalenopsis* and *Odontoglossa*, the latter holding deservedly the post of honour amongst cool species, whilst the former, taking all their properties into account, including form, colour, and habit of plant, stand equally at the head of the warm division. The long lean-to house at Mr. Bockett's with a north aspect contains some 1400 plants of *Odontoglossums*, which for size and strength individually and collectively, combined with the quantity and vigour of the flower-spikes they are pushing up, it would be difficult to match. By what we see here it would seem that the size and number of spikes with the quantity of flowers which the *O. crispum* group will produce when the plants have attained their maximum strength and size, is only beginning to be realised. Nothing in their way could well be finer than this extensive collection of this lovely Orchid, combined with all the best forms of other species of the genus. The large number of *Phalenopsis* still keep on forming bigger leaves of the right character, thick and broad, having an unmistakably hard robust appearance, indicative of their ability to endure long. All the species seem to do equally well.

ANACTOCHILUS.—Of these pearls amongst variegated plants, the cultivation of which used to be attempted by most people who formed collections of Orchids, but with whom success in the matter of these exquisitely beautiful of Nature's vegetable productions was by no means in all cases such as might have been desired, they having a disagreeable lack of thriving for a time, and then refusing to grow, in all probability through too much shade, heat, and insufficient rest, there is in the Clapton Nursery a large healthy stock, comprising most of the best of the old, and some new kinds. Amongst them are fine examples of *A. Lowii* and *A. Lowii virens*, the latter possessing an indescribably beautiful shade of green tawny the exquisite tracery of network with which the face of the leaves are covered; *A. setaceus*, *A. Boylei* not unlike *A. intermedia*, *A. Rollissoni*, *A. Dawsoni*, *A. petala*, *A. intermedia*, and others, forming together a very complete collection.

ZYGOPETALUM MANILLAE at CLAPTON.—Blue is the scarcest colour in Orchids, being confined to a very few species. This *Zygopetalum* has long been known to Orchid growers, but has never been plentiful nor held so much in estimation as it deserves. Yet now admirers of the plant seem to be awakening to its merits, which is not to be wondered at, taking into account the little room it occupies, and the quaint beauty of its flowers, which, though smaller, are equally beautiful with the best of the *Bollean*s, the blue kinds of which it resembles in colour. Amongst a number of unusually large and healthy masses, many flowering freely, there are some charming forms, remarkable for the size of the blooms and the depth of shade in the colour.

PONTHIEVA MACULATA, Lindl. ! (*Schoneibniana benigna*, Klotsch).—I quite agree with my lynx-eyed friend, Mr. N. E. Brown, that *Ponthieva maculata* is "exceedingly pretty and interesting" for people of refined love of Nature. Ah, it has no crimson flowers to beat those of *Papaver orientale* or *Tulipa Greigii* ! I also share Mr. N. E. Brown's pleasure as to those cylindrical blunt cellules, which are bent under at an acute angle over the surrounding green cellules, forming a kind of cone (or hill) around their bases. They have such a firm protoplasmic content as to break up the light, as if they were nearly diamonds, no

doubt for attracting the insects. The plant is one of the very numerous discoveries of Director Linden, who found it in 1842 on the Tilla of Caracas, in the colony of Tovar and province of Merida (see *O. Lindl.*, p. 26). Lucky times when such discoveries could be made. Director Linden compares the leaves with those of *Arnica montana*; but leaving far around other grander things, he did at last not express his opinion more strongly than by calling it "a singular plant." Whether it has not flowered before in the United Kingdom I cannot say. There is, however, a certain quotation of a no doubt English representation in *Fritzel, Leon. Index*, zweiter theil, p. 227; *Moore Mag.* 1850, p. 248, whose investigation might be recommended to Mr. N. E. Brown. On the Continent the plant has been in cultivation for a long time, having been introduced by Director Linden; it flowered with M. Pescatore! of St. Cloud, near Paris, under M. Luddemann's excellent management (see printed *Catalogue de la Collection d'Orchides*, de Pescatore, 1849, p. 321). Of course M. Linden had kept for himself *sa part*, and may have flowered it at Luxemburg. Later it was introduced by Director Linden! who had it in very fine bloom at Brussels; it also flowered with Herr L. Reichenheim! (see his printed *Verzeichniss*, 1859, p. 17); at Berlin, with Herr Kerferstein! Krollwitz bis Illale; grown by Herr Bötger, Consul Schiller (see his last printed catalogue, 1857, p. 61); grown by Herr Hange, with Herr Serron Jenisch!; grown by Herr Kramer (see his printed catalogue, p. 42). Specimens from all those places are at hand. My wild specimens came from Linden, 140! Moritz, 208! an unknown collector (viz., not named to me) of Mr. Low, 188! Schlim, 1020! Funck and Schlim, 486! 1888! Engel, 205! Patin! Otto! Arnold! It comes from Caracas and Merida, as well as from Ocaña and Medellin. A fresh importation was lately made by Mr. Sander, of St. Alban's, who would appear to believe we have not enough Orchid culture. *H. G. Rihb. f.*

Natural History.

"THE NIGHTINGALE for fifteen days and nights never giveth over, but chaunteth continually, at that time, as the trees begin to put out their leaves thicke. And surely, this bird is not to be set in the last place of those that deserve admiration; for is it not a wonder that so loud and cleere a voice should come from so little a bodie? is it not as strange that shee should hold her wind so long, and continue with it as shee dooth? Moreover, shee alone in her song keepeth time and measure truly; shee riseth and falleth in her note just with the rules of musicke and perfect harmonie; for one, while in one entire breath shee draweth out her time at length treatable; another, while shee quavereth and goeth away as fast in her running points; sometimes shee maketh stops and short cuts in her notes. Another time shee gathereth in her wind and singeth descent between the plaine song, she fetcheth her breath againe, and then you shall have her catches and divisions; anon, all of a sodaine, before a man could thinke it, shee draweth her voice, that one can scarce heare her; now and then she seemeth to record to herselfe, and then shee breaketh out to sing volutarie. In somme, shee varieth and altereth her voice to all keyes, one while full of her larynx, long, briefe, semi-briefe, and minims; another, while in her crotchets, quavers, semi-quavers, and double semi-quavers; for, at one time, you shall heare her voice full and lowd, another time as low; and, anon, shrill and on high, thicke and short when shee list, drawne out at leisure againe when shee is disposed, and then (if shee be so pleased) shee riseth and mounteth up aloft as with a wind-organ. Thus shee altereth from one to the other, and singeth all parts—the treble, the meane, and the base. To conclude, there is not a pipe or instrument againe in the world (devised with all the art and cunning of men so exquisitely as possibly might be) that can affoord more musicke than this prettie bird dooth out of that little throat of hers." *Holland's Translation of "Pliny's Natural History,"* 1601, book x., cap. 29.

MARÉCHAL NIEL ROSE.—In March, 1880, I planted a *Maréchal Niel* about 2 feet high against the wall in my conservatory; last summer it had covered the whole of the roof, and I gathered 169 perfect blooms. This year the first bloom was picked on February 12, and up to this date I have gathered 525 perfect blooms, and there are a few blooms yet. All the flowers were of a perfect shape and colour, and the colour and strength of the foliage was remarkable. The conservatory is a lean-to 11 feet high and 27 feet by 15 feet. *H. E.*



The Apiary.

THE death of the great naturalist, Darwin, naturally recalls to all who have been even in the most superficial manner familiar with his writings how deeply he had studied the ways and operations of insects, and how much he has told us of the vast services they perform in Nature. There are no insects—not even the familiar worm, if I may put them into the insect category—that have so much of interest for us as the bees have, not only because they are to us of insects the most familiar, but also because they are almost domesticated and so useful. Many who have rarely given a thought to insect life have found their minds inspired to thought and enquiry through watching the habits of their bees as they have gone too and fro in their ordinary avocations or have developed their annual migratory instincts. To those who are burdened with unempowered hours bees present occasions for work or pleasant contemplation that are eminently profitable, and when days, weeks, nay, months have been spent in watching their movements the thoughtful man still remains in doubt whether to class them as intelligent or as leading existences that are purely mechanical. I have sometimes thought that the so-called instinct shown by bees often bordered upon intelligence, and at other times that they were but little blockheads. Not long since I stood a frame light on the eastern side of a hive, because the wind came from that direction strong and cold. A day or two after, owing to a change of wind, I shifted the shelter to the west side, and then noticed that the insects returning home all came to the west side of the light instead of going to the east, although the hive remained as before. Again, in the night I removed a hive 3 feet directly forward, and as a result next day the bees for a long time hovered about just where the hive had stood. In another case, some bees, where the hive had become too densely populated, had hung out all the night, and heavy rain coming next morning and during the day left them in a nearly dormant condition. I got them into a box, put a pane of glass over it, and set them by the fire to get warm and dry. This was late in the evening, and after the insects had been outside the hive quite thirty-six hours, and yet when taken out into the garden and liberated each bee flew straight to its particular hive, although three others were close by. But what is much more remarkable is the peculiar way in which the insects make a direct line for home when, although perhaps half a mile or more distant, they have obtained the needful load of honey.

This extraordinary power is certainly not more remarkable in the bee than it is in the carrier pigeon, especially when the latter is taken 100 miles by rail in a box to a totally strange district, and then liberated. No one would hold that when the liberated bird had made its lofty gyrations that it could see its far-distant home, and how so assuredly it should thus strike the desired spot and make at once for it is so marvellous that neither such commonplace terms as instinct or intelligence serve to satisfy thoughtful inquiry. The bee in its journeyings is placed in no such difficulty. It can at least take note of the various landmarks on its outward journey, and thus trace its course accurately home, but whether it does so, or whether, like the pigeon, it is guided by what is commonly termed "uncerring instinct," we do not know. A simple experiment, however, would be to catch half a dozen of bees from a particular hive, mark their bodies with some distinctive colour, feed them that they may not be induced to loiter, and then to liberate them at various distances from home. A careful watcher at the hive could soon detect whether they arrived, and at exactly what moment. The conformation of an ordinary straw hive is not favourable to good sanitary conditions, and therefore when the hive is densely populated a change of air to promote health and lower the temperature becomes needful. This is performed by some three or four of the bees standing at the mouth of the hive, whose tiny wings vibrating with astonishing rapidity, serve, curiously enough, not to force air into the hive, but to draw the internal air out. At least, after careful experiment, such is the result I have found, the current always being going outwards. *A. D.*

The Kitchen Garden.

TOMATO PLANTING.—Preparations should be made next week for getting the earliest batch of plants, which were raised for this purpose at the end of February, planted out. The first step to be taken in this direction is to get the necessary number of holes opened between the fruit trees under a south or west wall, and to put into each hole half a barrowload of compost, consisting of three parts good loam and one of well-decomposed stable-dung. The plants, which should be thoroughly moist at the roots before being turned out of the pots, and previously hardened off in cold pits, should then be planted (one plant in each hole), and in doing so the soil should be pressed firmly about the plants, which should then be made secure to the wall by shreds and nails, leaving room in doing so for the development of the shoots. This done, a Spruce bough should be stuck firmly in the ground in front of each plant for protection from late frosts (should we unfortunately get any) and cutting winds.

CELERY PLANTING.—Amongst the various modes in practice of carrying out this operation the most preferable, and the one which we shall here recommend, and which is as simple as it is effective, is the following:—The trenches, which should run north and south, should be a spit deep, 16 inches wide, and 4 feet from centre to centre, should be got ready at once for an early planting; and the ridges, which are between, and formed by the soil taken from the trenches, should have a good slope, in order to catch and lay the trench well open to the rain. Six or eight inches thick of the best dung that is to be had on the place should be dug into each trench, and the soil broken fine as the digging proceeds; then assuming that the plants have been properly hardened off, take them up carefully with a ball of earth and manure adhering to the roots, and in the event of there being any suckers attached to the plants remove them, and plant one row in each trench at 9 inches from plant to plant in the row, taking care in doing so that the plants are not buried deeper in the soil than they were before, and that the soil is made moderately firm about their roots, which should then be watered through a long-spouted watering-pot and a rose, to settle the soil around the roots. In the meantime, and before the Celery plants are planted, each ridge can be planted with two rows of Lettuce 9 inches apart (measuring $4\frac{1}{2}$ inches on either side from the centre of the ridge), and 12 inches from plant to plant in the row, the plants in the second row being planted anglewise to those in the first, which will afford them more room to grow than if planted opposite. The planting should be done from the trench, and before the dung has been put or dug into the latter.

EDGE CUCUMBERS.—For these make a trench 4 or 5 feet wide, 16 or 18 inches deep, and in length according to the number of plants to be grown, and fill it with long stable-dung and leaves, chiefly the latter, and raise it about 2 feet higher than the surface. The whole should then be well trodden, and subsequently covered with the ordinary garden soil, after which mounds should be formed of prepared soil (three parts of light loam and one of well-trodden dung and leaf-mould) at 5 feet from centre to centre along the middle of ridge, on which handlights, which should have been previously washed, should be placed, and the Cucumber plants planted in them, watered, and shaded for a few days from bright sunshine until they have established themselves: cover up at night with mats.

SEED SOWING.—A good sowing of Peas of such varieties as the following should now be made, viz., Ne Plus Ultra, Champion of England, Telephone, &c., from which sowings Peas will be fit for gathering early in August. Broad and French Beans (Seville Longpod and Canadian Wonder) should also be sown at intervals of a couple of weeks to supplement the supplies which previous sowings will yield. And with the same object in view, sowings of Turnips, Lettuce, Radishes, Mustard and Cress, and Spinach, should be made and duly protected from the ravages of birds; and also a small sowing of Basil (bush and sweet) and summer Savory, and plant out those raised in heat and only hardened off for that purpose with

the soil adhering to the roots in rows from 12 to 15 inches apart and the same distance from plant to plant in the rows.

GENERAL WORK.—This will include the thinning and weeding of Turnips, Carrots, Parsnips, Spinach, &c. The plants should be left at from 6 to 9 inches apart in the rows. The earthing-up and sticking of advancing crops of Peas, Cauliflowers, &c., together with the weeding and rolling of all gravel walks in connection with this department, will, in the ordinary course of routine work, receive due attention. Asparagus-beds will also require attention in regularly cutting the shoots as they become fit, taking care in doing so not to injure the crowns of the plants, nor the shoots below the surface, with the knife. Prick out young Celery plants in 2 inches of finely sifted soil, which has been placed over 2 inches of strong dung on a hard surface out-of-doors in rows 4 or 5 inches apart, and the same distance from plant to plant in the rows, and water and shade the plants for a few days until they have established themselves, and see that the plants have plenty of water afterwards.

FORCING DEPARTMENT.—French Beans, which should now be grown in pits, will require attention in the way of watering and syringing, and Capsicums which are intended to be fruited in pots should now be shifted into larger ones, as they require more room at the roots, and those which are intended for planting out-of-doors later on should be gradually hardened off for that purpose. Tomatos swelling their fruit should, if not already done, be top-dressed with a mixture of loam and horse-droppings, about three parts of the former to one of the latter, and in addition to this, let them have frequent supplies of diluted liquid manure to the roots, and the shoots and leaves of the plants must be kept well pinched, and the fruit fully exposed to the sun. *H. W. Ward, Longford Castle Gardens, Wilt.*

Plants and their Culture.

STOVES.—Alcascas that have pushed up any flowering spathes should be looked to and have the same removed carefully, so as not to injure the bulbs: A. metallica and Lowii are rather persistent in this respect at this season of the year, oftentimes retarding the proper development of the young leaves. Ours have now started into fresh growth, and the young rootlets are actively laying hold of the fresh top-dressings of sphagnum moss and rough peat. A. Thibautiana is a vigorous grower; see, therefore, that young plants are shifted on before becoming pot-bound. With liberal treatment it will perfect splendid foliage of an enduring character. These remarks should also apply to the fine-leaved variety of Anthurium, than which scarcely any more handsome stove foliage plants can be grown, where there is plenty of room for their culture. Plants of Caladium aryanites that are now in free growth may with advantage receive a shift of most of ours that were started in 00's are now being transferred into 4's and small 32's, using a light open soil with a preponderance of leaf-mould.

Where it is desirable to induce an early growth in any Cycads which may have been in a temperate-house during the winter, it is a good plan to remove them into a warm stove. The increased heat and moisture in most cases induces them to push up a fresh crop of leaves, that will become perfected and matured sufficiently early to be used in cool houses or conservatories during the summer months. From a large specimen of Cycas revoluta, that is now throwing up a strong young growth, we have removed several offsets that have been potted up. At the time our object was to strengthen the central crown; the small offsets were at first cast aside, but finding them to retain their vitality they have been potted, and are now commencing to grow. Where any cycadaceous plants require potting the present is a good time to do it, using a soil with plenty of texture—good turfy loam and the best of peat, two-thirds of the former to one of the latter, with a slight sprinkling of half-inch bones and some charcoal, also silver sand. Remove any of the old ball that is not occupied with roots, and in repotting see that the new soil is pressed around the old, and that quite firmly.

Water sparingly till fresh root-action commences with a corresponding top growth.

FERNS.—These will want close attention where they are now in active growth. Some sorts require more shading than others. The most susceptible in this respect are the larger forms of Maidenhair, such as A. cardiochloena, A. trapeziforme, and A. Sancte-Catherine, which are soon disfigured if exposed to bright sunshine. A. Farleyense will do with rather less shade, so also will those kinds of which A. cuneatum may be taken as an example; while others, such as A. tinctum, A. Veitchii and A. concinnum latum, are only to be seen in their beauty when the least possible amount of shading is applied. These latter kinds will then throw up young growths of a beautiful rose-red colour, rendering them very attractive against the deep green hue of the older fronds. Such Ferns as the Cheilanthes and Gymnogrammas should have a drier position afforded them, where they are not liable to receive the contents of the syringe. Where any sign of damp is seen remove the decaying portions, also all of the oldest fronds a few at a time. In the cultivation of these Ferns it should be borne in mind that, though thriving in a dry atmosphere, they require an abundance of water at the root, of which they are at all times very impatient. These latter remarks also especially refer to Pteris scaberula, and most of the Gleichenias. All Ferns intended for the summer decoration of the conservatory should receive attention now; encourage fresh growth, so that the plants may the more readily withstand rough treatment. This they will be the more likely to do when an early growth is secured. The replenishing of Ferns in Ferneries where grown *au naturel* should be seen to if not already done. Some will often be found to be outgrowing other kinds; such should be reduced or removed to more roomy quarters. Good associates in Ferneries are to be had in ornamental foliage Begonias, Vinca elegantissima and Ligularia Kaempferi argentea. The dwarf growing Selaginellas are also useful as a carpet or undergrowth. Tradescantias and Panicum variegatum must not be overlooked, neither should Saxifraga sarmentosa. All these aids will produce excellent effect when judiciously used. While the operations of replanting and renovating are going on add as much fresh soil as can be used.

COOL GREENHOUSE.—Pelargoniums of the show and fancy kinds will now be rapidly advancing into flower. Supply them liberally with water, and use stimulants frequently. Watch very closely for aphid, and give the whole collection a thorough fumigation before any blossoms are expanded. If the various Calceolarias must also be sharply looked after. Do not let them be too freely exposed to the sun when in full bloom. The present will be a good time to make a sowing of Primulas for next winter's bloom, if not already done. Cinerarias may be left a little later; retarded plants of these are now coming in most serviceably. The latest batch of Hoteia japonica may now be safely trusted in the open air. Chrysanthemums should have a favourable situation given them outside, reporting as may be necessary, the better to preserve the lower leaves. Another batch of cuttings from the pompons will give a handy lot of plants of a medium height. *James Hudson, Gimmersbury House, April 25.*

Peaches and Nectarines.

The stoning process in the early house will very soon be complete, and when such is the case, and the fruits have commenced their last swelling, they may, if required, be pushed on a little faster than they have hitherto been, which cannot be done more efficiently than by closing early on bright sunny days, allowing the temperature to run up to 80° or 85°, at the same time keeping a steady night temperature, as advised in last Calendar. Keep the roots well supplied with tepid manure-water, which may now be given a little stronger. Get the fruit well up above the foliage by placing short pieces of ceiling-lath from wire to wire. I have adopted this plan for some years, and have always found the fruit better flavoured when kept well above the foliage, and of course a much better colour, which well repays you for the little extra trouble. Second houses this season are nearly as far advanced as early ones, and require the same treatment. Succession houses will have commenced stoning, and may be allowed to grow away freely for a time, just stopping and tying in the strongest shoots. Late houses will now require disbudbing. Heel down young shoots; thin fruit, leaving plenty to allow for dropping; keep the roots well supplied with water, and ply the syringe freely. *J. Wallis, Kete Gardens, April 25.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY	May 1	Sale of Imported and Established Orchids, at Stevens' Rooms
WEDNESDAY	May 3	Sale of Imported Orchids, at Stevens' Rooms
THURSDAY	May 4	Meeting of Linnæan Society, at 8 P.M. Sale of Imported and Established Orchids, at Stevens' Rooms.

WITH every mark of honour and respect, and in the presence of a very large gathering of representative men of all classes—nobles, clergy, statesmen, judges, men of science—the remains of CHARLES DARWIN have been worthily laid in the only place fitting for the reception of such a man—Westminster Abbey. The sight was, indeed, a most imposing one. The memories attaching to the place, the last resting-place of so many of the great and good, were striking enough; but the gathering of living men was, if possible, even more noteworthy. The State, the Parliament, the great Universities, the Scientific Societies, the Church, Foreign Nations—all sent their representatives to mourn the loss of a simple country gentleman, plain CHARLES DARWIN. A plain country gentleman indeed, but one who has conferred honour on the nation, contributed directly so much to the stock of knowledge, moulded so powerfully the current of ideas, and set in action the springs of research in so many branches of thought and work. His genius and his labours have been cordially recognised on all sides, the Press of all shades of opinion has borne testimony to the greatness of the man. Foreign nations have vied with ourselves in paying honourable tribute to the memory of the great philosopher. There is, therefore, no need now to point out what it is he has done—its value is recognised, the future will but enhance his reputation.

What we would prefer now to advert to, is the character of the man and his method of working. Such a man is not likely to appear again in our times, but we may learn much from his inspiration and his method of work. Foremost amongst his characteristics we place his absolute love of truth. No one strove more jealously to be accurate in all that he did and said. To get at the truth was the object of all his work, of all his speculations. It was impossible for such a man to stifle his imagination, his constant daily work of necessity suggested free speculation, but that speculation was always curbed and restrained, so that it never outran the basis of the facts that he accumulated with such patient zeal. Whenever tempted to indulge in speculation, it was always so safe-guarded that the reader never was left in doubt as to what was fact and what was inference. In a letter before us relating to some point on the subject of the fertilisation of flowers occurs this passage, "But then I wish this, and how hard it is to prevent one's wish biasing one's judgment." Surely no one more honestly and candidly strove against this bias—surely no one more thoroughly succeeded in overcoming it. The candour and faithfulness with which he pointed out the weak places in his own arguments, the full consideration he gave to the opinions of his opponents, his perfect courtesy to others who thought differently from himself, were all dependent on his absolute love of truth.

Another most striking feature of his character was his modesty, amounting even to diffidence. If others thought him great, no such impression actuated him. In corresponding or conversing with him, one was never made to feel that he was a great master and his correspondent a tyro. In communicating facts or observations the answer one received was couched in such terms as these, "You cannot do me a greater service than by pointing out errors;" or, again, "If at any time anything should occur to you illustrating or opposing my notions and you have leisure to inform me, I should be truly

grateful," and this from a master to a mere tyro.

These are no solitary instances; no one who approached him but was treated in the same manner. The encouragement thus held out to vast numbers of people is one secret of the gratitude and respect now shown for his memory, and this considerateness was coupled with an entire freedom from aggressiveness. When he was attacked with rancorous ignorance or shallow ridicule, as was the case at first, he made no retort or reply. Fair argument he was open to consider and give due weight to. Retaliation and pugnacity such as have characterised some of his disciples had no place in the mind of CHARLES DARWIN, or if they had they were so thoroughly under control that they were never made apparent.

As to his method of work it is transparency itself—simply the accumulation and ordination of facts, the search after evidence, the weighing and computing that evidence, and then the well digested inference as the legitimate outcome of all. Other men perhaps have been as diligent in accumulating evidence, but where shall we find one who arranged that evidence in such logical sequence, where one who so carefully separated the weak from the strong?

In reading his books one is led on insensibly from point to point, the foot made sure at each step, till, warned by the author himself of the pitfalls and doubtful places on the way, the reader is irresistibly led to the same conclusions as those the author himself arrived at. He does not so much impose his opinions on the reader as make him evolve them for himself. It is not this detail or this inference—the one may be fallacious the other may be wrong, but the whole body of evidence compels assent. And it must be remembered that it was not as a mere accumulator and digester of facts observed by other people that DARWIN is so remarkable. In his quiet home and garden at Down he worked out for himself the solution of many of the problems that occurred to him. Patient experiment and laborious personal investigation were added to careful study of what had been done by others. This and thus only has DARWIN done his work.

In some sense circumstances were propitious to him—in Darwinian phrase, the "environment" was favourable. The possession of ample means, the opportunity for travel in his youth, of which he availed himself to such good purport; freedom from the trammels of official duties of any kind, or from the necessity of working for his living, with no inclination to enter into what is called society, DARWIN had leisure to follow the bent of his mind. Surrounded by his sympathetic friends, with adequate means of study at hand, in a remote and pictorial country village, but within reach of the resources of the metropolis, the conditions, for a man endowed with such a temperament, would seem to have been exceptionally favourable but for one flaw—that of ill health. How any man with such weak health (enfeebled if not set up by his five years' travel in the *Beagle*) can have got through such an amount of mental, ay, and physical labour, is one of the marvels that pertain to this great and good man.

He has gone to his rest, and the lesson of his life is one of encouragement. It may be long ere such a genius again arises; but his method of working, as we have seen, was not mysterious—in its degree, it may be followed by all of us. We may follow in our halting fashion his method—we may strive to imitate his candour, his modesty, his love of truth, and in proportion as we do so, we, too, may advance that knowledge, the progress of which it was DARWIN'S life-long aim to urge forward.

—EVOLUTION AND GARDENERS.—It was an undesigned but not the less striking coincidence that so much of the time of the committees of the Royal Horticultural Society at their last meeting was taken up with the history of the Auricula and the hybridisation of the Rhododendron. Mr. HIBBERD was able to show how the history of the Auricula is in itself a history of evolution. DARWIN (as he himself stated) in some degree borrowed the ideas of the florists, and personally followed to a considerable extent their method. The divergence between the florists and the physiologists—a divergence to which Mr. HIBBERD alluded—begins when the florist lays down for himself, for his own purposes, for the indulgence of his own fancy, a more or less artificial standard of beauty, while the physiologist on his side seeks to ascertain how Nature works her own ends untrammelled by the subjective fancies of the florist. The question is, whether, from a florist's point of view—that of beauty—it would not be better to work upon the lines laid down by Nature in each kind of flower respectively, and by following her indications to develop their beauty in a strictly natural manner, rather than by imposing an arbitrary standard based upon personal authority and taste. But it is useless to argue on questions of taste; the important fact is that, largely by the undesigned co-operation of "raisers" and physiologists, a great principle of science has been established; and if this has happened undesignedly what might we not expect were the labours of the gardener and improver conducted wholly, systematically, and regularly on the same lines as the physiologist works upon? It is an error to suppose that the scientist of the present looks down, as perhaps his Linnæan forefather did, on the results of what has been done by the florist. The law of evolution, the gradual development and progress by selection of some sort, and under favourable conditions, is the law laid down so prominently by DARWIN. The florists and raisers of new varieties, whether they know it or not, have in their way all along been working out, in their own fashion, and subject to their own self-imposed restrictions, according to the law of evolution. Like M. JOURDAIN, who talked prose before he was aware of it, the raisers of improved forms have been practical Darwinians before DARWIN existed! The case of the Rhododendron is, in its way, quite analogous—man does in one way what is done in Nature by the agency of insects or otherwise; but, while in Nature hybrid productions are rare, and often die out, because not so well adapted to the surrounding conditions as their competitors, in the garden the care and art of the gardener is exerted to protect and ensure the survival of the forms brought into being by their skill in availing themselves of Nature's pliability.

—THE PRESENTATION TO MR. THOMAS MOORE will be completed at a complimentary dinner at the Cannon Street Hotel, on Tuesday, May 23. As the number of seats will be limited, accommodation can be afforded only for those who give timely notice of their intention to be present. The charge for each seat will be 21s. Mr. SHIRLEY HIBBERD, 15, Brownswood Park, London, N., will give prompt attention to all communications on the subject.

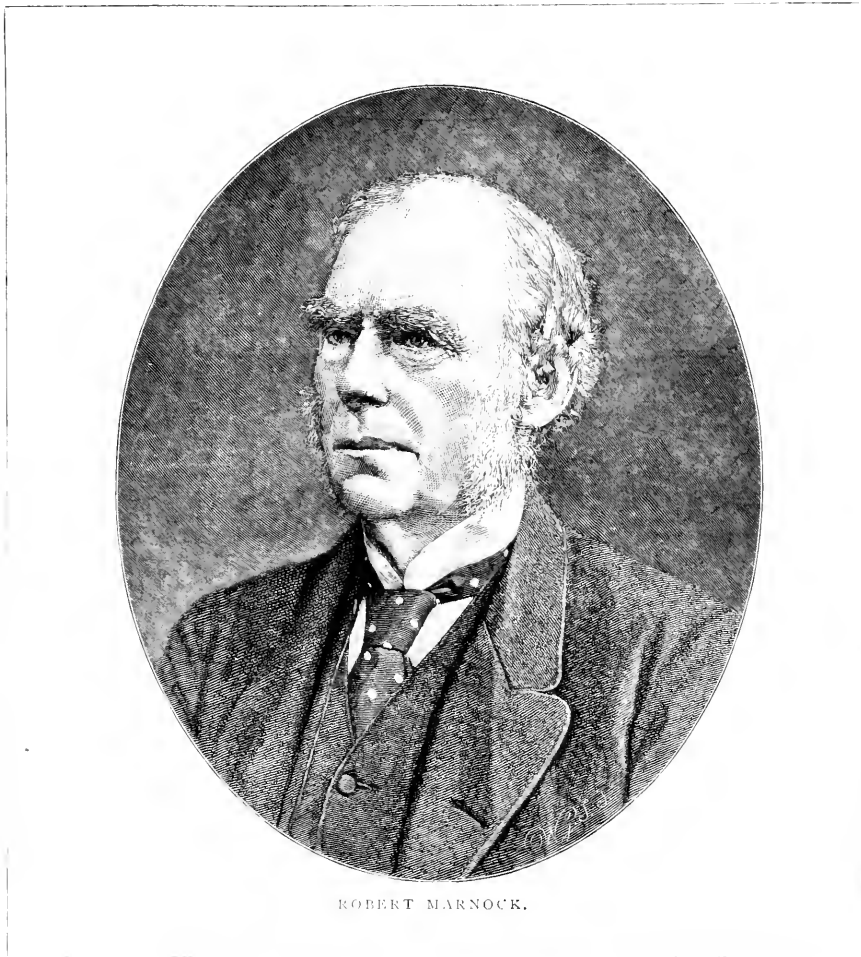
—SMILAX CHINA.—In the winter garden at Kew this pretty climber, with its glossy leaves and long climbing tendrilled shoots, is now in flower. It is interesting, as being of some economic importance, as it furnishes the China root of commerce, which is said to possess alterative and sudorific properties. Two or three centuries ago this was regarded as an infallible remedy for gout, but it has shared the fate of many so-called infallible remedies, and has nearly fallen into disuse. The root-stocks (eaten by the Chinese) yield a yellow dye with alum, and a brown one with sulphate of iron. S. China makes a pretty wall plant in sheltered situations.

—AGRICULTURAL EDUCATION.—The Lord President of the Committee of Council on Education has appointed Professor WRIGHTSON, President of the College of Agriculture, Downton, near Salisbury, as the first Professor of Agriculture in the Normal School of Science, and Royal School of Mines, South Kensington. Professor WRIGHTSON has for many years been well known as a scientific agriculturist, and is also the occupier of a large mixed farm. We congratulate the pupils of the school in the selection of so competent a Professor.

— *GOODIA LATIFOLIA*, in the Winter Garden at Kew is one of the most ornamental of the pot plants now in flower. It is a neat-habited bush, with alternate trefoil-like leaves, and terminal racemes of bright golden-yellow Laburnum-like blossoms. *G. pubescens* has smaller leaves and flowers than *G. latifolia*, and, although worthy of a place in the cool conservatory, is not nearly so handsome a species as the first-named one. The genus is named in honour of PETER GOOD, an employe in the Royal Gardens at Kew, who was sent out as collector to

opened some weeks back, but genuine young growth. Lilacs were open last week, as also Hawthorn, with Laburnums showing colour. The forwardest Horse Chestnuts had flowers open on the 10th of the month, and the earliest Oak leaves were unfolded on the 6th; the Ash is further behind other trees in leaving this year than usual, showing its proverbial cautious habit, but it is on the move. The earliest heads of Rye were last week shot right out, and seed Turnips were shedding their flowers. One general feature in trees and shrubs like

China (*I. anisatum*), was introduced to Europe by the celebrated traveller and botanist, SIEBOLD, and shortly afterwards was figured in the *Botanical Magazine*. There seems no doubt that in many places in the South and South-west of England this handsome shrub would succeed well in the open. From the letterpress accompanying the figure just mentioned the following particulars are derived. In Japan *I. religiosum* is looked upon as sacred; branches and wreaths of it are placed over the tombs of their friends by the Japanese, and their priests burn its



ROBERT MARNOCK.

Australia, where he died. An account of his life and work, from the pen of the veteran ex-Curator, appeared some time ago in these columns.

— EARLINESS OF THE SPRING.—The present is likely to be remembered as a most exceptional season, the spring, like the winter, being unusually mild, which, as a matter of course, has so far had a marked effect on vegetation. In North Middlesex, at the end of the third week in April, may be seen on south walls Honeysuckles, Gloire de Dijon, Maréchal Niel, and the old blush China Rose, with flowers fully open—not buds that were formed in autumn, such as have been reported as having

this spring is the profusion of flowers they present. If the May frosts that of late years have been so prevalent should keep off, most crops that suffer through them are likely to be abundant and unprecedentedly early. Previous to the rain which within the last few days has fallen, the wells were almost as low as they usually are seen in summer.

— THE SACRED ANISE TREE OF JAPAN.—In the open border at Kew a nice bush of this interesting and pretty shrub is now in full bloom. It has numerous rather large white flowers, nestling amongst the dark green leathery leaves. This species, which was formerly confounded with the true Star Anise of

bark as an incense on the altars of their deities. A singular use is made of the pulverised bark by the public watchmen. Hollow tubes, graduated on the inside, are filled with this substance, which is lighted at one extremity, and burns gradually and uniformly, so that when the fire has reached a certain mark the watchmen strike the hour upon a bell, and thus announces it to the public.

— MACKAYA BELLA.—A full-page illustration of this beautiful Acanthad, which was prepared from a specimen from the celebrated garden of Sir GEORGE MACLEAY, at Pendell Court, appeared in our columns for 1879, vol. xi., p. 629. It was first

discovered by Mr. J. SANDERSON in the bed of the Tongat River, in Natal, and was described by him as a beautiful shrub, one mass of most delicate pale lilac campanulate flowers. Unfortunately it has with some justice earned the reputation of being a shy flowerer, for neither at Kew nor at Pendell Court does it flower every year, although it grows with great vigour. The Kew plant, which is now flowering in the Palm-house, was kept purposely restricted as to pot-room, &c., and after having made its growth as subjected to a gentle course of "drying off."

— **GENISTA PURGANS.**—In the Kew Arboretum one of the showiest of the smaller shrubs is the subject of this note. It forms a low, round, compact bush, the dark green almost leafless shoots of which are thickly studded with bright yellow flowers. A native of South Europe.

— **A ROSE SHOW AT THE MANSION HOUSE.**—The Lord MAYOR and the Lady MAYORESS will hold a Grand Rose show, on June 29, at the Mansion House, in aid of the proposed Scarlet Fever Convalescent Home, and of the Royal Hospital for Women and Children, Waterloo Bridge Road. The exhibition will consist of 10,000 Roses, from the gardens of the principal growers, arranged with Ferns and other accessories in an artistic manner. There will also be an exhibition by amateur growers, among them some of the leading citizens, who have taken up the idea with great spirit, and who, at a recent meeting at the Mansion House, promised the Lord MAYOR their hearty support in the preparations. Among the bodies represented will be the Stock Exchange and the Commercial Sale Rooms, the Corn and Coal Exchange, &c. The Lord MAYOR has entrusted the arrangements to Mr. J. FORSYTH JOHNSON, Horticultural Director of the Alexandra Palace.

— **CYPRIPEDIUM PUBESCENS.**—What a handsome object this hardy North American Lady's Slipper makes when treated as a pot plant, and how well it will bear forcing, is exemplified by a fine specimen at Kew. Each growth is terminated by a large flower, with its twisted brownish sepals and petals, and large pleasing yellow lip spotted internally with reddish-brown.

— **TREE OR PERPETUAL FLOWERING CARNATIONS.**—The main interest of the meeting at South Kensington on Tuesday last centred in the Auricular, and other objects of value scarcely got that attention they so well deserved. It was not till late in the day that the committee of the National Carnation and Picotee Society inspected a batch of very fine scarlet and rose-flowered tree Carnations staged by Mr. C. TURNER, Royal Nursery, Slough, and first-class Certificates of Merit were awarded to the following varieties:—*Conqueror*, salmon-rose, slightly striped with purple, distinct, large, and full; *Enchantress*, pale rose paling to pink on the edges of the petals, and flecked with dark purple, extra fine and distinct; *Flambeau*, pale creamy-lemon ground, the petals deeply suffused and edged with black and dull red, very fine petal, and full substance; *Hector*, pale red, finely-shaped petal, and full flowers; *Nimrod*, pale bright red, very fine petal, flowers large and full; *Premier*, bright crimson, very fine, a little rough, but flowers full and of good size; *Rufus*, rich scarlet shaded with dark, large, full substance, fine petal; and *Whisper-in*, scarlet, flaked with black, distinct, fine and free. It was a grand batch of seedlings, all of good habit and remarkably free of bloom, and invaluable for cutting from at this season of the year.

— **STANDARD ROSES IN POTS.**—A group of some thirty plants of these, staged by Messrs. VEITCH & SONS from their Coombe Wood Nurseries, were a special and marked feature in the conservatory of the Royal Horticultural Society on Tuesday last. That such Roses, equal to those grown in the best soil that a Rose can delight in when cultivated in the open ground, should have been produced in pots of comparatively small size, was a real surprise. What massive heads they had—what healthy and fine-coloured foliage—and what splendid flowers they bore—these were characteristics noted by all. With the exception of three or four of the Tea-scented varieties, these standard Roses had been in the pots for four years without being shifted, and those shifted last autumn had occupied the same pots three years without a shift. In the autumn some 3 or 4 inches of the surface soil is

removed, leaving bare the upper roots. A good layer of Clay's Fertiliser is laid in first, and then a dressing of rich and suitable soil is added. The plants are kept in a cold-house, and a little fire-heat is applied in spring—only, however, when there is danger of frost affecting the young growths. A good surface-dressing of Clay's Fertiliser is given once or twice during the spring. Pruning is done early in the year, the shoots being cut back to a strong eye or two, and when these come away they make a vigorous growth. Many of the flowers were quite good enough for an exhibition stand. Those of La France were particularly fine; those of Jean Ducher especially so; they were truly ravellous in development. The leading varieties were Marie Baumann, Madame Victor Verrier, Prince Camille de Rohan, Beauty of Waltham, La Rosière, Jean Liabaud, Marchioness of Exeter, Paul Verrier, Marquis de Castellane, Magna Charta, Hippolyte Jamin, Madame Rougier, Edward Moren, Alba mutabilis, Monsieur Noman, Marçal Niel, Marguerite de St. Amand, Madame Willermos, Duchesse de Vallombrosa, Catherine Mermet, and Madame Lacharme. When the plants have gone out of bloom they are plunged rim-deep in the open ground, and well looked after; and when the fogs and damp of November precede winter they are removed to the cold-house. Such a group of Roses, so varied in variety, and so uniformly good throughout, reflects great credit on Mr. HILL, Messrs. VEITCH & SONS' Rose grower at Coombe Wood. A more thoroughly interesting and instructive exhibit will scarcely be witnessed this season.

— **IONOPSIS PANICULATA.**—It is a great pity that this delicate and graceful Orchid does not submit more easily to altered conditions and the cultivator's skill, for there are few more charming species. It has an arching panicle bearing a large number of white, purplish-tinted flowers, the delicate outlines of which, according to an enthusiastic writer in a foreign book, seem to have been traced by a fairy's hand. It is a native of Brazil, and the treatment under which Burlingtonias and some of the more delicate *Oncidiums* flourish seems best adapted to it. Now in bloom in the Orchid collection at Kew.

— **LINNEAN SOCIETY.**—The following papers will be read at the meeting on Thursday, May 4, at 8 P.M.:—"Notice of Remains of the Great Auk found in Oronsay, Argyllshire," by S. GRIEVE; 2. "Cape Orchids," by HARRY BOLUS; 3. "Dimorphic Florets of *Catananche lutea*," by B. D. JACKSON; 4. "Butterfly Genitalia," by P. H. GOSSE; 5. "New Varieties of Sugar-cane," by Baron DE VILLA-FRANCA.

— **ANDROSACE SARMENTOSA** is a vigorous and handsome species from the loftier regions of the Western Himalayas. It is yet far from common in collections, but as it is readily propagated by means of its long runners and by no means requires the care and attention demanded by several other members of so interesting a genus, it will doubtless become a general favourite ere long. The red-purple blossoms are borne in long-stalked umbels. Now in flower at Kew.

— **PRUNUS SEKKULATA.**—This extremely desirable ornamental shrub was sent from China by Mr. REEVES to the Horticultural Society sixty years ago. In describing it in the *Transactions* Dr. LINDLEY says it is "One of the most ornamental hardy plants with which I am acquainted, and far more beautiful than any of the double Cherries commonly in cultivation." Several trees in the Kew Arboretum amply justify Dr. LINDLEY's statement; they are now one mass of bloom. The flowers, too, are larger than those of the common double Cherry, are produced in greater profusion, and the buds and young flowers are delicately shaded with pink.

— **GROUPS OF ADIANTUMS.**—The common practice of growing all, or nearly all, our Ferns in pots is little short of a mistake, if it is not in reality an everyday error. Cultivating so many Ferns in pots for cutting purposes is undoubtedly the wrong way of making the most of the plants, as it is also the wrong way of creating an appearance. Ferns must be grown in pots for a great many purposes which need not be mentioned, but as a general rule the effect is a tame one. Not so, however, when they are planted out with a little taste and skill. Is there

an amateur in the country who has not a corner in his plant stove or fernery where little groups of Ferns could be formed in miniature rockeries, which would be something to look at as well as to cut from? Two *Adiantums* that look remarkably pretty planted in this way are *A. affine* and *A. ethiopicum*; the latter grows a few inches higher than the former, and a group formed of both, if only to fill in a corner, will never lack admirers of what is chaste to the eye and beautiful to look upon.

— **GENTIANA ACAULIS.**—The Royal Nursery at Slough is one of the places in the South where the rich blue vase-like blossoms of this glorious plant are seen to rare advantage. On either side of a broad gravelled walk, with a shade-providing evergreen hedge behind, there are on a narrow border quite large breadths of this noble *Gentiana*, and in one corner of the nursery there is also a spacious plantation of it that is flowering superbly. The plants are so well established that they in all probability have been there for many months past. The colour is perhaps a more brilliant blue than is found in *G. verna*; the growth is in all respects larger, and no more pleasing hardy plant can be presented to notice than a good patch of *G. acaulis*, with a fine head of its flowers rising above a dense carpet of shining leathery leaves. There is perhaps something in the soil of the Royal Nursery that suits the plants, and it is certain to be well cared for, as all plants are in such a hospitable home. In some districts that are cool and moist, like the midlands of Nottingham, Yorkshire, &c., this plant does exceedingly well, and it is not unusual to see it used as edgings to garden walks and borders. It would be difficult to find a more pronounced hue of blue in any flower at all comparable with that found in this splendid *Gentiana*.

— **PRIMROSES IN KENT.**—The general testimony of the inhabitants of the Primrose districts of this county is to the effect that they scarcely remember seeing the flowers so fine and plentiful as they have been this season. Possibly the moist summer, followed by a dry time in the autumn and a mild winter, had something to do with this. A great many of the flowers have been gathered by women, and sent to London by the busket; some of the gatherers have made £2 and £3 each in this way. It is worthy of note that, in examining the flowers of the Primroses where they grow most luxuriant in the hedgerows, thrum-eyed flowers are numerous, and generally allied to fine form and substance. They have this season made a prodigious leaf-growth, more especially on the north sides of the roadways. A very handsome-coloured form was found on a bank in a country lane in East Kent a short time since.

— **MYOSOTIS DISSEIFFLORA.**—It is not a little surprising to find how much of *M. sylvatica* is distributed for this spring Forget-me-Not, and sometimes a bad form of it. Occasionally paragraphs are written in praise of the species that heads this note, and when flowers are furnished it is found an inferior type has been taken for it. The trade are unquestionably to blame in the matter, and it is due to their customers that they exercise more caution in obtaining seed of a true character. The seed of *M. disseiffora*, as figured in a recent number, is smaller in the grain, narrower also, and more pointed at the ends, with a short white stalk at one end, and not so shining as in the case of *M. sylvatica*. The seeds of the latter are broader, flatter, larger, and more shining in appearance. But as it is more of a matter for the expert in seeds to deal with such small differences as this, it may be remarked that *M. disseiffora* differs in the foliage, is earlier, has larger flowers, and is altogether much more attractive to the eye. The white forms of *M. disseiffora* of which we have heard and seen much lately, are but *M. sylvatica* alba magnified into a new variety.

— **CHOISYA FERNATA.**—This comparatively new introduction is flowering beautifully in the Clapton Nursery, and will evidently turn out one of the best greenhouse plants that has appeared for some time. It seems to be an excellent grower, and equally free in the production of its flowers. It has handsome glossy leaves, and a moderately close habit of growth; the individual flowers, which are pure white, with numerous yellow anthers, in size and general appearance are not unlike the mock Orange, *Philadelphus*, and are produced at the extremities of the shoots in large loose corymbs in the way of *Hydrangea*

hortensis, but smaller. Most likely it will turn out a good forcing plant for conservatory decoration; its handsome distinct appearance, combined with its free flowering habit, commend it to general cultivation. It comes from the temperate districts of Mexico.

— **HEATHS AT THE CLAPTON NURSERY.**—We often hear the remark that Cape Heaths are not cultivated in such numbers now as in times past. But if not it is difficult to understand what becomes of the immense quantity to be seen at Messrs. Low's, for it might well be supposed that the tens of thousands that here fill the series of long pits would be enough to stock the kingdom; they comprise most of the leading kinds, hard and soft-wooded, in beautiful condition. The old, but unequalled, greenish-yellow variety, Cavendishii, quite as beautiful and profuse in flower when small as it is in a large state, and the equally handsome ventricosa coccinea minor and v. grandiflora are most in demand for spring flowering. These are perhaps the most useful decorative kinds at this season, and there is no greenhouse or conservatory that is not improved by their presence.

— **HONESTY.**—A large patch of this fine old biennial, when in bloom, as it is just now, is always attractive, and if the pure white kind and the darker purple strains be grown the effect is so much the greater. One of the commonest of garden plants, but yet, amongst the general public, one comparatively little known, it is not strange that when inquirers asks its name, and are told "Honesty," a smile of incredulous inquiry is the result. "Why Honesty?" is at once asked, and echo answers, "Why?" perhaps, for the query is one difficult to reply to. Honesty, Thrift, Sage, &c., are designations applied to common garden plants in remote ages, doubtless to commemorate certain virtues, perhaps then not more common than now; and if the names as ordinary appellations were not as good as any others—and they certainly are—they at least serve to remind us that there are such virtues, though, perhaps, those who grow the plants must have least reason to be so reminded. The man who can grow Honesty continuously and yet be devoid of the virtue the plant typifies, must needs be devoid of all other good qualities. The plant itself, however, is not in a strict sense always honest, for it will sport, and is thus far unreliable. True the white form—away of the more compact habit of growth—seems to keep true, but then the purple will sport to white, and the spotted plants will be tall and of looser habit, like to the dark coloured Conqueror. The coarsest habit of growth is found in the pale purple, the kind that is perhaps most commonly seen in cottage gardens. This is not nearly so attractive as is the deeper coloured variety, whilst the white kind is not half known, though so easy of culture and so pleasingly effective. As a rule, enough care is not taken in sowing seed to ensure a good show of flowers in the spring. As a biennial, seed should be kept one year under another, and be sown with Canterbury Bells, Sweet Williams, Foxgloves, &c., early in May, and if where the plants are to remain and bloom so much the better. It is a common practice to let the seed sow itself, and hence an irregular bloom, and often the loss of an entire season.

— **THE JAMAICA INSTITUTE.**—A series of lectures on the natural resources of Jamaica and the best methods of developing them has just been published under the auspices of the Institute. We have already noticed the lectures of Mr. MORRIS on Coffee and Cinchona culture, and now we may mention that the other lectures are devoted to the culture of Vams, Cassava, &c., the treatment recommended emphasised with a profusion of italics, being summed up in these words—"Feed, feed, feed the soil; the timbers of Jamaica, with an appendix giving the vernacular and scientific names of the principal timber trees, with notes as to their uses. Other lectures are included on subjects of foremost importance to the colony, but which hardly come within our scope. We can but think such lectures and publications must be beneficial, and we are pleased to note in passing the testimony as to the successful results of the zeal and skill displayed by Mr. MORRIS, the Director of Public Gardens and Plantations.

— **MAGNOLIA PURPUREA.**—Next to Magnolia conspicua the above variety is perhaps the finest flowering tree of the present season. When people

are planting they do not always study future effects, nor is it indeed probable that half the planters in the kingdom have what may be termed a definite idea of the future in view when flowering trees and shrubs are huddled together anyhow in shrubby beds and borders. But there are exceptions to all rules, and a notable one may now be seen at Powderham Castle, the beautiful seat of the Earl of DEVON, where this Magnolia is associated with green Hollies and Phloxia serrulata, with its bronze coloured young leaves, against which the flowers of the Magnolia appear to be pure white, the purple streaks only appearing upon minute inspection. There is a grand bush of this variety, faultless in symmetry, fashioned upon the outside like a tea-cup, in the American garden, which is overhung by a noble Copper Beech just bursting into leaf, and which has a charming appearance. The flowers are so numerous, about two-thirds of them half unfolded, and the young leaves just showing themselves that one hardly knows whether the glowing clumps of choice Rhododendrons in full blow or the Magnolia are the prettier; and so, undecided and unable to award the palm to either, one is thankful there is plenty of room for both.

— **FLORAL DECORATIONS.**—We note with pleasure the advance Northwards of the taste and demand for floral decorations, which during the last few years has spread so rapidly in the South. Last week we had to note the success in this direction achieved by Messrs. J. & K. THYNE, at Glasgow; and have now to record a triumph in the same line obtained by Messrs. DOWNIE & LAIRD, at a ball given in Edinburgh on April 19 by the officers of the Black Watch (42d Highlanders).

— **COVENT GARDEN LIFEBOT FUND.**—Amongst recent successful musical entertainments we note the high-class concert given at St. James' Hall on the 20th inst., under the auspices of a committee of gentlemen connected with the neighbouring market, on behalf of the Covent Garden Lifeboat Fund. By the efforts of this committee the sum of £1,066 10s. has at various times been placed to the credit of the National Lifeboat Institution, and we have no doubt the result of their latest efforts will be to considerably augment this amount.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending April 24, issued by the Meteorological Office, London:—The weather has been cloudy and unsettled. Heavy showers of rain have occurred in all parts of the kingdom, while a sharp thunderstorm was experienced over central and south-eastern England on the 23d or 24th. The temperature has been several degrees higher than it was during last week, and was a little above the mean in all districts. The thermometer was generally highest on the 21st, when maxima of 67° or 68° were registered over eastern and central England, and 60° to 65° in most other districts. The minima which were recorded in most places during the earlier part of the period varied from 32° over Scotland and in "England, S." to 39° in "England, N.W." The rainfall has been about the average in "England, E.," but more in all other districts. At all our more westerly stations the excess was rather large. Bright sunshine shows an increase in all districts; the percentage was greatest (41) in "England, S.W.," and least (26) in "England, N.E." Depressions observed:—The barometer has been very unsteady, several important depressions and some secondary disturbances having passed over our islands in an easterly direction. The wind, which was at first north-westerly, subsequently varied between west and south, and, though moderate or light generally, increased to a fresh or strong breeze at times, and reached the force of a gale in the south on the 22d and 23d, and at some of our north-western ports on the 24th.

— **GARDENING APPOINTMENTS.**—Mr. E. BERRILL, for several years Foreman to Mr. BEECH at Castle Ashby, has been engaged through Mr. JONES, of Frogmore, as Gardener to H.R.H. the Duke of Albany at Claremont.—Mr. JAMES INGLIS, from Messrs. DOWNIE & LAIRD'S, Finkhill Nursery, Corstorphine, Edinburgh, has been engaged as Gardener to ex-Provost LINDSAY, Hermitage Hill House, Leith.—Mr. JOHN MELVILLE, late Gardener at Great Tew Park, Eastone, Oxon, has been engaged as Gardener to F. PEEL, Esq., Roly, Sydenham Hill, S.E.—Mr. EDWARD ROGERS has succeeded Mr. MASTERMAN as Gardener at Scilly Hall, Bawtry, Yorks.—Mr. W. J. CLARKE, late Foreman to Mr. THOMSON, Kilkerran, Ayrshire, has been engaged as Gardener to Mrs. CARSON, Spinfield, Great Marlow.

ROBERT MARNOCK.

AMONGST modern landscape gardeners the name of Robert Marnock, now an octogenarian, reposing on his laurels, occupies the highest position. His reputation in this department of gardening is indeed world-wide, though the laurels to which we have alluded have chiefly been won by his artistic and picturesque creations of English garden scenery, pre-eminently "natural" and "English" in their style. In early life Mr. Marnock occupied the prominent post of gardener at Bretton Hall, then one of the best and most noted gardens in Yorkshire, and while here he contributed a competitive design for laying out the Botanic Garden at Sheffield, which was accepted; and this led to his being entrusted with the execution of the work, and to his appointment as the first Curator of the garden, now nearly fifty years ago. While he had charge of the Sheffield garden Mr. Marnock was the successful designer of another competitive plan for laying out the garden of the Royal Botanic Society in the Regent's Park, and this led to his removal to London and his establishment as Curator of the gardens in the Inner Circle about 1840. So clever was this design and so successfully was it carried out that the fame of the designer was assured, and thenceforward Mr. Marnock took place as one of the leading landscape artists of our time. The conclusion then reached has been fully borne out by the many works, public and private, which Mr. Marnock has subsequently carried out.

For some time after his removal from Sheffield Mr. Marnock was in business as a nurseryman at Hackney—at first alone, and afterwards in partnership with Mr. Mawley; but this was eventually given up, and his time was divided between his duties as Curator of the Botanic Garden, including his very successful management of the Regent's Park exhibitions, and the landscape works which he successfully carried out. In 1862 he gave up the management of the Royal Botanic Society's shows, and the exhibits and others, to the number of 153, presented him, at a dinner at the "London Tavern," with a testimonial, consisting of a tea service and other articles of plate, as an acknowledgment of his urbanity and integrity in his intercourse with them.

Though giving up his connection with the Royal Botanic Society Mr. Marnock continued to practise in his profession as a landscape gardener until 1879, when he retired in favour of Mr. J. F. Meston, who had been associated with him in the carrying out of many of his designs. On this occasion his friends and admirers subscribed to present him with his portrait, which was in due course carried out, the portrait being painted by Mr. Wiegmann, and presented with the following address, which is attributed to Canon Hole, who was one of the committee:—"We, the undersigned, on behalf of a large number of persons (although only a portion of those who would have joined us had we thought it desirable to give more publicity to our project) are authorised to express, on presenting you with your portrait, our high appreciation of your talents as an artist, and of your amiable qualities as a friend. Believing you to be the most successful landscape gardener of your time we congratulate you upon the great and beautiful work which you have done, and we trust the remembrance of the happiness which you have conferred on others will make you happier in your declining years. We pray that when these shall end in peace the faithful likeness which we now offer with affectionate respect may be a solace to those who are near and dear to you; and we know that not only will your memory be fondly cherished by those who may survive you, but that for many a generation the name of Robert Marnock will be remembered in those pleasant homes where he developed all the grace which Nature suggested, and where 'he made the desert smile.'" The surplus of the sum subscribed was expended on an original painting of one of Mr. Marnock's works, which was also presented to him.

Mr. Marnock has been intimately associated with the literature of horticulture. From 1839 to 1842 he was editor of the *Floralist Magazine*, a monthly periodical, and for several years, commencing with 1845, he edited the weekly *United Gardeners' and Land Stewards' Journal*.

The urbanity and gentle kindness which were ever the most conspicuous features of Mr. Marnock's character endeared him to all who came in contact with him; and few men, we imagine, who have filled

positions so important and responsible, have made fewer enemies or drawn about them so many friends. Of these personal friends those who know him best will be most fully appreciative. Of his works it may suffice to say they will be lasting monuments of his skill and taste. Mr. Marnock—who, we are happy to see, is in excellent health—has lately removed to London from Tonbridge Wells, where he pitched his tent for a time, one inducement, as we have heard him say, being the existence of a garden at his proposed residence laid out, in the style that most found favour with him, by the late Mr. Masters, of Canterbury.

HOME CORRESPONDENCE.

Examples of the Mild Winter in the Far North.—Although the weather for the past fortnight has not been of so genial a character as it was for some months previously, and while vegetation may be said to have sustained a decided check, there are still to be seen numerous instances of flowers peeping out afresh much earlier than their usual period of flowering. Amongst them may be mentioned *Wistaria sinensis*, which had some racemes of flowers full open on the 10th inst. *Ceanothus azureus* is also flowering in great profusion, having its shoots intertwining with large clusters of the scarlet flowers of the *Clinanthus*, lately described in the *Gardeners' Chronicle*. These three different kinds of flowers rambling over the south front of my house make a blend of colours worthy of adoption in a more favoured climate. *Magnolia conspicua* has also been flowering freely on a wall with east aspect for nearly a month, and scarlet and various coloured *Rhododendrons* have been flowering since the end of January. Another instance of the softness of climate in this locality is, I consider, worthy of mentioning in the flowering of *Marchal Niel* and *Gloire de Dijon* Roses growing on the south front of a farmhouse in the neighbourhood, and that without any assistance by way of protection. Upon visiting my friend, who is a keen amateur in gardening, about the beginning of April, I was astonished to find he had both the above-named Roses in full flower, while a succession of well-developed buds seemed in a fair way to keep up a succession. *J. Webster, Garden Castle.*

The Jodrell Laboratory at Kew.—A very few years ago there was literally no place in the United Kingdom where the physiology of plants was or could be adequately studied. Botany at that time consisted (so far as this country was concerned, or so far as public means for its prosecution allowed) simply in the identification by means of living or dried specimens of the so-called species, and their comparison one with the other by means of "characters," discernible by the naked eye, or by means of a lens. We do not for a moment undervalue these researches, nor do we forget what such a man as Robert Brown did, either in the identification of species or in the elucidation of the mysteries of plant life; the fact remains, however, that until these last few years there was not in the country any means where the ordinary student could, if he would, investigate those details of plant life which are comprised under the head of physiology. The public lectures and demonstrations afforded in the establishments to which students resort were confined mainly to the most superficial and ready means for the examination and study of what we may term outward morphology. But the time came when it was felt, and felt strongly, that the physiological side of botany should be more carefully and thoroughly investigated. The divorce of form and structure from the actual working of the organism could no longer be tolerated. In morphology and systematic botany this country was equal—and more than equal—to the task; but in physiology we were grievously behind-hand, and this in a country where the traditions of Hales and Priestley still existed, and where we pride ourselves on our practical habits, was a reproach beyond endurance. Even now if a student desire to undertake practical work in this department, he is almost compelled to betake himself to Germany, or other countries, where the necessities of study and research in this department of botany are more amply provided for. The establishment of the Jodrell Laboratory at Kew, an illustration of which we give above (fig. 80), and, better still, the work that has already been done in it, as recorded from time to time in these columns, go some way towards removing the reproach under which, and too justly, botanical science in this country has laboured. The laboratory is fitted up with means of study in the way of chemical and physical apparatus, which are sufficient for their purpose, and which we are glad to hear are being made use of to good purpose. It is to the munificence of Mr. Jodrell that the country owes the foundation of this laboratory, and it is mainly to the guiding zeal of the Assistant

Director, Mr. Dyer, that we owe its equipment and management. On another occasion we may advert more at length to the work already done and in progress in this establishment. Suffice it now to say that while the results already obtained are such as are creditable to British science, they are also of a nature to be ultimately of great practical benefit so far as the cultivation of plants and the comprehension of their life history is concerned.

Nelumbium luteum.—Looking into Mr. Robinson's *Sub-tropical Garden* I observe that he says that a plant lived in Paris in the open air for several years and flowered. Why should it not do so in England? Surely it would be worth a serious trial. *Alex. Nesbitt, Oldlands, Uckfield.*

Kennedya rubicunda.—When one sees this plant one is always reminded of the Australian Glory Pea, *Clinanthus Dampieri*, which used to be more common in gardens than it is now. I have seen the latter flowering beautifully upon an open wall in the month of May a few years ago in the quiet little village of Delgany, county Wicklow, but do not remember having seen any of the sort in England. The blue *Clinanthus* (*punicus*) I have not seen for many years, the last I remembering seen was at Duddingston,

free from insect pests. Under similar treatment, I have grown this *Primula* in London districts with the same success; in fact, so long as a frame becomes an essential in its culture, this *Primula* might be grown in any garden under these conditions. *L. Jenkins.*

Alexandra Park, Manchester.—A chance visit a few days ago to this favourite place of resort gave me the pleasure of a sight of the magnificent display of Tulips, which for many years has been a feature of this park in spring: this year's show is in no way inferior to those in previous years. The arrangement and shape of the beds have been previously described in your columns, and need not, therefore, be again specified. I shall merely, in the briefest manner, touch upon some of the best varieties which are here in bloom, and present the finest effect. Grand Duke, a golden-yellow, striped with red, makes a brilliant bed. The rose and white Cottage Maid is one of the finest of the light-coloured sorts. The deep red of Crimson King is remarkably fine, and equally so is the red and yellow of La Cour de France; Potter, a variety with violet flowers of great substance, and the best of its class; Proserpine, a rich silky-rose; Rosa Mundi, with flowers of a delicate rose; Sanson, bright crimson; Rose Griselin, rose and white, and Van der Helst, red and white, make excellent and effective beds.

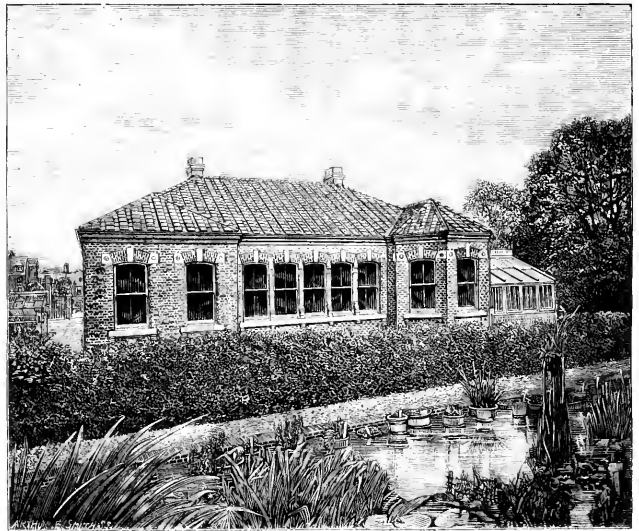


FIG. 80.—THE JODRELL LABORATORY AT KEW.

near Edinburgh, in 1864. It covered the back wall of a greenhouse, and was under the charge of a "man of all work," until a change took place which gave the writer the opportunity of seeing the plant. But to return to the Kennedy, which makes a good climber: its flowers are both interesting in form and pretty to look at, which is more than can be said for a good many more creepers that are more frequently met with and more commonly grown. *W. J.*

The Double Crimson Primrose.—I note at p. 524 your correspondent "Alpha" speaking of this desirable old plant growing at the Newton Nurseries, Chester. In his remarks as to soil most fitting for the successful culture of the plant, "Alpha" advises that no manure of any description be used; but this must not be taken as the rule. When the original batch of this *Primula* was planted by me some three years ago, not only was an abundant supply of well rotted manure used, but during the growing season the plants were watered overhead with liquid manure thrice weekly, and which I have no hesitation in saying had a most beneficial effect on the plants, judging by their rampant growth and the multiplicity of crowns. With "Alpha's" other remarks I fully agree—it should never see a ray of sun or feel the frost, and it must be kept incessantly moist; these are in my opinion the greatest essentials to success, and the latter the surest means of keeping the plants

The grand effect produced by 50,000 bulbs judiciously planted may easily be imagined, and Mr. Manderson's taste in this department is not surpassed. It is noticeable that a few of the beds have suffered in the following manner:—The shoots grow an inch or two in height, and then decay without appearing above the ground, the bulb remaining sound. Mr. Manderson ascribes it to the frosts. In other respects, also, the park looks well, the trees bursting into leaf and the lawns presenting a most healthy appearance. The houses are filled to overflowing with bedding-plants in grand condition, waiting for the genial warmth of May to take their place for the admiration of thousands during the summer months. *A.*

The Introduction of the Cedar of Lebanon.—A paragraph in an article on the "Travels of Plants" in the *Gardeners' Chronicle* for March 25, just received here, calls up a reminiscence. Here is the paragraph:—"The introduction of the Cedar of Lebanon into France was an effort of most interesting devotion on the part of Bernard de Jussieu, who brought it from the Holy Land in 1737, and kept it alive on the voyage by sharing with it the very small quantity of water which he received during a prolonged voyage. In the absence of a flower-pot, Jussieu is said to have planted the Cedar in his hat, and by giving it a moiety of his daily glass of water he succeeded in keeping it alive, and afterwards had the

satisfaction of planting it in the Jardin des Plantes at Paris. In 1837, at the age of 100 years, it was cut down, having attained a height of 80 feet." I dimly remembered having read this narrative before in a fuller version. This is to be found in an article on coniferous trees in the *Edinburgh Review* for October, 1864. That account enters into details—that Bernard de Jussieu, when travelling in the Holy Land, brought away with him from among the Cedars of Mount Lebanon a little seedling, made a flower-pot of his hat, in which he planted it, got it safely to Marseilles, and that Marseilles, that tempestuous weather and contrary winds so prolonged the voyage that the passengers were restricted to half a glassful of water a day all through a lengthened voyage; that, sharing this with his little plant, he reached Marseilles at length with his own health seriously damaged, but that of his seedling uninjured; that, after all this privation successfully endured, he came near to losing the fruit of his devotion through the incredulity and suspicion of the officers of the Customs, who, suspecting a scheme for smuggling jewels, wished to unearth this treasure from its singular receptacle: how, his eloquent appeals prevailing, he was allowed to carry it to the Jardin des Plantes, where it became a great and famous tree; and, finally, how, "in its hundredth year (1837) it was cut down to make room for a railway, and now the hissing steam-engine passes over the place where it stood. I had supposed it was well known that Bernard Jussieu never went to the Holy Land, and that most readers of the *Gardener's Chronicle* would know that no railway has as yet invaded the Jardin des Plantes, or that in such a case it would be likely to cross the steep knoll, upon which still stands (or last summer stood) the Cedar of Lebanon which, as a seedling, Jussieu is said to have brought over from England in the crown of his hat, said hat the while probably covering the honoured head of the founder of the great system, it is hardly to be wondered while to enquire where the penny-a-linger of the *Edinburgh Review* obtained his materials, but the story of the voyage from the Levant to Marseilles seems to be an adaptation of one about three Coffee plants which Antoine de Jussieu is said to have despatched from the Jardin des Plantes in 1720 to Martinique in a vessel commanded by Captain Declieux, one of which was kept alive by the devotion of the captain, under circumstances similar to those of that part of the preceding story, *Asa Gray*.

Tropæolum Hermosa Grasshoff.—This is the best dwarf-growing double flowering Nasturtium that I am acquainted with. The flowers, of which I send you a few, are crimson, and when fully expanded, measure nearly 2 inches in diameter, and are produced in profusion, and well above the foliage. As a conservatory basket plant with the shoots trained loosely round the sides and bottom of the baskets and depending therefrom, or grown in 45-pots for embellishing the entrance of the staging with the depending shoots hanging gracefully over the edge of the stage, the effect is very striking, and on this account, as well as by reason of its easy culture, every one possessing a greenhouse should grow the subject of this notice. *H. W. W.*

Tucking Them In.—When careful housewives find the frocks of the youngsters too long they usually get over the difficulty by running tucks in them. And there are many things in the world besides the garments of the juvenile members of the community that may happen to be above regulation length, and on which it is possible to practise tucking-operations. Amongst these the leaves of exhibition *Hyacinths* may now be numbered. Those who have any knowledge of this favourite flower know that in addition to large, well-developed spikes composed of full-sized flowers—the spikes sufficiently drawn out to prevent crowding, yet not beyond this—nicely balanced foliage is indispensable, the points of the leaves coming little if at all above the base of the spike; for if, as often happens, the leaves are long, reaching so high as to partially hide the flowers, there is a want of proportion that mars the appearance of the plant. Therefore, the condition of the foliage is always an important consideration with judges. Knowing this, an exhibitor at one of the leading provincial shows recently held, who had got his *Hyacinth* leaves too long, set to work to rectify the defect by tucking them in. The manipulation might have passed muster as a not badly-executed piece of deception, for there was nothing to show that the leaves had been in any way tampered with, the surface of the pots being nicely covered with moss, yet it did not escape the notice of the judges that the leaves looked a little too regular, and felt slightly soft to the touch; but, in the hurry caused by the too limited time usually allowed to get through the work, so that the public may be admitted at the stated time of opening, they made the award in accordance with the arrangement which the competing groups presented, the ingenious exhibitor taking 2d with twenty-four, and 1st with twelve. After the schedule had been gone

through the judges had a little breathing time, and they thought it would be as well to have a closer look. Turning a few of the doubtful plants out of the pots the way they had been managed was at once seen: the upper half of the soil the pots contained had been taken out, and each leaf bent right back close down to the bulb as low as admissible without detaching it from the bulb; the points were then turned up to what the operator no doubt looked upon as the right length for them to appear, tucking the spare portion below the surface, and then carefully replacing the soil, which was pressed in, rounding it over the bulbs so as to bring the leaves close up to the base of the flower-stems, and finishing off with the usual covering of moss which tidy exhibitors use to give a trim appearance. Without the tucking-in performance the leaves would have three-fourths hid the spikes. It is needless to say both collections so improved were disqualified, the exhibitor in place of prizes gaining a notoriety which is not unlikely to stick to him [And which will we trust, secure his exclusion from similar competitions in future. Ed.] *T. E.*

Berberis Darwinii.—I observe that one of your correspondents suggests that *Berberis Darwinii* should be placed in a sheltered position, my experience leads me to think that this is a mistake. I have here many planted in the front rank of shrubberies, and a few in the open ground. Those in the open are incomparably finer both as regards growth and flowering. One of the former, about 7 feet high and 8 to 9 feet in diameter, is simply a mass of bloom, the leaves being almost entirely hidden, and the amount of bloom is very nearly equal on every side of the shrub. This is entirely unexpected, and quite isolated. Those in the shrubberies, on the contrary, are stalky, one-sided shrubs, with not one-hundredth part of the amount of bloom which is to be seen on the isolated example. *Alx. Nesbitt, Oldlands, Uxbridge.*

New Potatoes.—In reply to "A. D." of last week, *Englishman*, *Fluke* and *Crowwell*, were sent out (season 1881) by Messrs. Benjamin Kerr & Co., of Aberdeen; *Adirondack* and *Queen of the Valley* were sent out (spring, 1881) by Messrs. Kerr & Fotheringham, of Dumfries. At the International Potato Exhibition last year prizes were offered, Class F, for three dishes of distinct new varieties in commerce, not offered to the public before season 1880, to include one dish of *Matchless*; and if "A. D." will turn to the report of that exhibition he will find *Adirondack* and *Queen of the Valley* a very prominent position in that class; and besides they were also shown in many of the other competing collections; thus proving that they were in commerce to no mean extent. I hope "A. D." will now be convinced that my corrections were needed, as it would be very injudicious to exhibit these varieties again in 1882 as *novæ fide* new varieties of this year, which they are not so. My correction of "A. D.'s" list of new varieties was only so far as I knew positively; I am not sure but that the list might be farther corrected, and will gladly assist "A. D." if he communicates with *W. Kerr, Dargavell, Dumfries, N.E.*

Calceolaria bicolor.—This old and seldom seen plant is now in fine condition in the Newton Nursery, Chester (James Dickson & Sons), where other true species are grown—now seldom to be seen. The plant is grown in a 12-inch pot, and has twelve fine corymbs of bloom, and I believe one was recently taken from the plant with 225 spikes or single flowers forming the corymb. It is one of the most useful plants I know, and one of the best for late autumn flowers. Old varieties of plants long since passed out of general cultivation appear to be a speciality of this nursery, as I frequently see old friends which I thought had departed years ago. *Ebor.*

An Early Peach.—*Mr. Rivers*, of Sawbridge-worth, sent me some early Peach trees at the beginning of this year, among which was one called *Alexander*, which produced perfectly ripe and nicely flavoured fruit on the 19th and 20th of this month, just fifteen weeks from the time I received the tree. As this tree is making good wood I hope next year to have ripe fruit on it by the middle of March. *S. M.*

The Fruit Prospect.—It seems fall early to say much of fruit prospects as yet, but from present appearances there will be an abundance of cherries and plums, as trees of both these have been laden with blossoms, and these, so far, have set well, and seem to be uninjured by the cold and rather sharp frost that occurred on the night of the 15th, when the glass ran down to 25°, and for several days after the wind was keen and cutting. These stinging winds have told on Peaches and Nectarines, the latter especially, whose growth, on east walls, where they have been more exposed to the weather. The fruit set well, but in the absence of sun, and so much

cold prevailing, they have been unable to swell, and unless an immediate favourable change takes place, numbers will fall. Apricots are very full, and have had to be thinned severely, and as the fruit is now getting forward and well covered with foliage, it may, I think, be regarded as safe. Peas and Apples must be thin in most places, and more particularly those where the trees had much of a load last year, as all these are only showing a very few blossoms. Gooseberries and Currants, unless we have frosts sharper than any yet this spring, will be laden, as they are set and swelling fast, and Strawberries are full of promise, the crowns looking fat and strong, with big trusses bursting out, and the plants furnished with leaves more as they generally are in May or June than at this early season. The wood of Figs is completely studded with fruit, as they appear at every joint, and unless we get a cold May to throw them off the crop will be such as we have not seen before. Taking one thing with the other, the outlook is altogether a cheering one for gardeners and market growers, who depend so largely on the harder fruits for returns, will have reason to rejoice, as the harvest for them is likely to be a full one, and it is earnestly to be hoped that it may be so, as they have had a most trying time of it lately. *T. S.*

Vinca variegata.—I can fully endorse the remarks made about this beautiful and useful plant. I wonder that it is not more extensively grown, as winter and summer alike it is always good. As a bed it forms a most elegant object, especially at this season, the silvery foliage and the delicate blue of the flowers contrasting so well especially in the shade, and in or near a dark background. I have a bed of it planted about four years ago which is now a perfect picture, the new foliage and mass of flowers being better and more plentiful than I have ever seen them before. Another thing in its favour, that it is so little trouble to keep in order, the only thing we do to it being to clip it in the autumn to keep it from encroaching on the grass; and now every shoot is erect and studded with flowers, as the mass forms a complete semi-circle about 21 feet in height in the centre. The bed is an oblong about 20 feet by 5 feet. I should think some circular masses in a large garden would be very telling objects. I find it does best if planted where it can remain a few years, as it throws up more and stronger shoots from the crown every year. *Chas. Clark, Trevano Gardens, Helston, Cornwall.*

The April Showers and the Fruit Crops.—The former have not only nourished but revealed the latter, stimulated by the forcing rains, the fruits have grown beyond their leafy coverings, and are now (April 24) visible. The progress they have made during the last fortnight, notwithstanding the keen winds and frosty nights, has been very great. The results, too, so far, seem to be satisfactory, when Peaches, Apricots, and Nectarines promise a fine crop. No doubt some have been frosted off in low-lying localities, but, as a rule, most of them have escaped. So far, Apples and Peas are only just coming into flower, in a few individual trees. Both being out. Cherries are also in full bloom, and promise an abundant crop. Gooseberries and Currants have set well and are swelling fast, and seem a full crop. We have had several smart hail-storms to-day, and these generally precede sharp frosts at nights, and altogether colder and harsher weather; besides this, hail itself does great damage to young and delicate fruit. Its weight bruises, its intense coldness seems to remain long enough in contact with the fruit to chill it; still, as the wind is south-westerly, it is hoped we may soon see the last of the hail, and that the leaves and fruit will soon have advanced so far as to be safe against weather. The earth is seldom dry at this season, and yet at no time does rain foster growth more rapidly than in April. The rain generalises the air and moistens and softens the soil, and the lower and younger fruits, and these respond to its touch at once, in leaps and bounds forward. This has been an exceptionally good seed time, and notwithstanding the bad harvesting weather of the past autumn our seeds so far promise well. The main crops of Onions, Carrots, Parsnips, Peas, Brassica, &c., are well up and growing freely. Early Potatoes have not come so quickly as usual, and Asparagus is thin—only a few leaves have shown here up to this date. But of course everything depends on sets and soil in regard to such crops. Both are cold here, which makes all the difference. Broccoli have come in well, but are generally rather smaller than usual; however, after the wholesale clearances of the past few winters they have been welcome of any size. *T. T. F.*

MR. JOHN KELLY, Gardener to the Earl of Hope-town, who is about to leave his situation in May, has been presented by the under gardeners with a handsome vase containing, as a token of the high estimation in which he has been held during his stay there.

Reports of Societies.

Royal Horticultural. April 25.—Dr. Maxwell T. Masters in the chair. The lecturer on this occasion was Mr. Shirley Hibberd, the substance of whose discourse on the Auricula will be found at p. 560. The display of the National Auricula Society, reported below, was the all-absorbing feature of the day, but there were a few groups of other plants that must not be overlooked by us. First we give credit to Mr. Barron for as pretty a little group as we have ever seen from Chiswick, consisting of dwarf standard Azaleas, Marguerites, and erect-flowering Gloxinias, carpeted with Ferns and Lycopods. Messrs. James Veitch & Sons contributed a group of standard Roses in pots that have never been equalled in quality, every plant being excellent in foliage and flowers (see p. 566). A Silver-gilt Flora Medal was awarded. Mr. Wm. Paul & Son, Waltham Cross, contributed a beautiful group of half specimen Roses, including well-flowered examples of Countess of Rosebery, Magna Charta, John Hopper, Prie de Waltham, Etienne Levet, La France, Duke of Edinburgh, and others; and to it a Silver Flora Medal was awarded. To a pretty group of Clematises from Mr. C. Noble, Bagshot, a similar medal was voted, as also to a collection of pot Roses from Messrs. Lane & Son. To C. Brown, Esq., Grosvenor House, Gunnersbury, a Silver Banksian Medal was awarded for a group of nine beautiful forced Indian Rhododendrons and a good plant of *Lycaste Harrisoniae*. Mr. B. S. Williams sent a choice group of *Amaryllis*, &c.; Captain Patton, a collection of Tulips; Messrs. Barr & Sugden, another choice assortment of *Daffodils* and other spring flowering plants; Messrs. Cannell & Sons, a group of plants of *Primula Sieboldii*, and another of an exquisite variety of the white *Parietaria*; *Chrysanthemum frutescens*; and Mr. G. W. Piner, Uckfield, a very choice lot of cut blooms of Tea Roses. Bronze Banksian Medals were awarded to each.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, in the chair.

Larch leaf-miner.—Mr. MacLachlan read a paper on a diseased condition of the Larch, brought about by the attacks of the larva of a small grey moth, *Coleophora laricella*. The female lays her eggs on the twigs or buds of the Larch, and the larvae when hatched in the autumn construct for themselves cases of the cuticle. The young autumn larvæ attach their cases to the young leaves in spring and mine the leaves, causing the shoots to assume a blanched appearance. Mr. MacLachlan believed that owing to the regulating influence of insectivorous birds, such as titmice, the damage done to the plantations was not very serious in the long run; and referred in illustration to the attacks of a similar larva (*Cemostoma laburnella*) on the leaves of Laburnum, which although they caused great disfigurement of the leaves, and to that extent weakened the trees, did not seriously injure the trees. It was difficult to suggest a practicable remedy, but the smoke from burning rubbish on the windward side had been recommended.

***Gentiana verna*.**—Mr. G. F. Wilson showed flowers of this exquisite plant, some of which had been grown in ordinary soil destitute of lime, and others under exactly the same conditions except as to the presence of lime. It was manifest that the flowers grown without lime were of a darker blue, while those with lime were paler azure-blue with a white eye. The plants on the lime produce not only paler, but earlier blue flowers, but are more vigorous and free-flowering than when the lime is absent. [See an article on the distribution of alpine plants according to the nature of the soil, at p. 238, August 20, 1881. Ed.]

Fertilisation of *Hoya glabulosa*.—Mr. W. G. Smith referred to this subject, and exhibited *Hoya* flowers with flies attached to the glutinous discs of the pollen masses. This *Hoya* is highly fragrant; this fragrance is very attractive to insects, and it is by insect agency alone that the flowers can be fertilised in a state of nature. The flowers of *Hoya* differ from Orchids in their perfectly regular form, but they agree somewhat in their pollen grains, which are grouped in masses of two and placed in five small pouches. The five little glutinous dark coloured discs, belonging to the bases of the pollen-masses, are the only parts visible in the open flower. In *Hoya* there are five pairs of pollen-masses arranged regularly round the centre of each flower. When insects alight on the disc (attracted by the powerful fragrance) it almost invariably happens that one foot slips and gets caught by one of the five little glutinous discs. In the effort of the insect to escape, two, three, or even four of its other feet are almost sure to get similarly caught. The insect then tries with all its power to free its limbs, and if these efforts are successful the pollen masses are drawn out of the pouches with the feet. The basal appendages of each pair of pollen masses are elastic, and

when in the pouch they are like an extended spring, but the instant the masses are drawn out by the insect's foot the spring closes, the two pollen masses quickly cross each other and hold tightly on to the insect's little claws. If the insect is weak it cannot withdraw its legs at all, and so perishes in the flower; but if strong it flies away with one to five pairs of

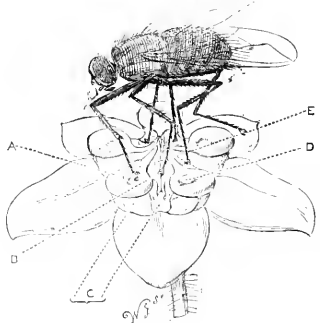


FIG. 90.—FERTILISATION OF HOYA.

Flower with fly attached by four of its feet (a) to the glutinous discs of the pollen masses; a shows one foot free, with one pair of pollen masses fixed by its glutinous disc (see further enlargement below); c, the combined pistils and stamens (gynostemium); d, stigma; e, furrow, or pouch, with pollen masses beneath, and viscid disc emerging (see figure below), enlarged 4 diam.

pollen-masses clasped round its feet. Sometimes an insect breaks part of a leg off in its efforts to escape. The five stigmas are not ready to receive the pollen at the time the pollen is ripe, so that it is only when the insect re-slights on to some neighbouring *Hoya* flower in a different stage of growth that cross-fertilisation takes place.

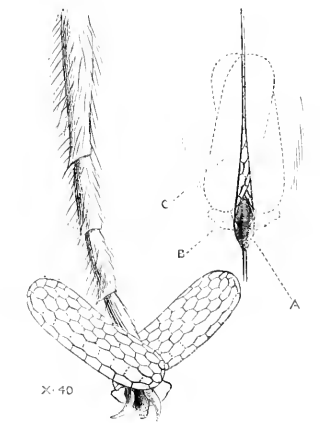


FIG. 91.—FERTILISATION OF HOYA.

Upper figure:—The pollinia within the furrow. a, Glutinous disc; b, Elastic appendage of pollen mass; c, Pollen mass. Lower figure:—Part of a fly's leg with pollen masses attached. The row of larger cells near bottom edge is petaloid.

Rhododendrons.—Numerous cut specimens were shown and commented on by Mr. Mangles. From the Royal Gardens, Kew, came a truss of *Rhododendron Aucklandi* (or *Griffithii* var. *Aucklandi*) for comparison with a hybrid variety to be mentioned hereafter; flowers of *R. Maddeni*, a very fragrant form, which has the merit of blooming when in a small state; and a magnificent truss of *R. Broughtonii*. Mr. Mangles showed a hybrid of his own raising named *Alice Mangles*, a very beautiful form, with bold oblan-

ceolate leaves, and a magnificent, but rather loose conical truss of large lilac nodding bells about 4 inches in diameter, 6-lobed, and each supported on a long spreading stalk. It was raised from the pollen of *R. Aucklandi* and the stigma of *R. ponticum*. The calyx, which in *Aucklandi* is broadly and irregularly cup-shaped, with shallow lobes of which two are much larger than the others, was here 6-lobed, and the twelve stamens of unequal lengths. *R. edinense* ×, raised by Mr. Anderson Henry from *R. Henryanum* ×, crossed with the pollen of *R. Nuttallii*, *R. Henryanum* itself being a hybrid between *R. Dalhousiae* and *R. formosum*.

An unnamed hybrid of great interest and no little beauty was also shown by Mr. Mangles, who raised it between *Azalea mollis* as the male parent and *R. ponticum*. It has something of the foliage of *A. mollis*, but evergreen; the flowers are borne in a terminal raceme with long ascending stalks; the corollas, which measure 2½ inches across and which otherwise are like those of *R. ponticum*, are slightly hairy, as in *Azalea mollis*. The stamens are ten, filaments declinate of unequal length.

R. Dalhousianum, with greenish-yellow flowers of the fashionable tint facetiously described as "Greenery-yallery Grosvenor Gallery," the species as growing wild in Sikkim, and as figured in Sir Joseph Hooker's *Rhododendrons of Sikkim Himalaya*, being wild.

A hybrid between *R. campylocarpum* male and *R. John Waterer*, with the form of flower of the former, with something of the colour and markings of the latter.

R. glaucum, with small rose-pink flowers in a dense truss, and with a strong aromatic perfume.

A hybrid between *R. Henryanum* × (above described) and the pollen of *R. Edgworthii*.

R. Thomsoni, with the blood-red tubular flowers supported by a large entire cup-shaped calyx. From Captain Rogers, of River Hill, came *R. Falconeri*, with purplish flowers, a 6-lobed corolla and twelve stamens. From Mr. Luscombe (gr. Mr. Dave), came trusses of *R. Fortunei*, supposed to be crossed with *R. Thomsoni*, but the parentage, so far as the latter species is concerned, was not obvious.

Mr. Mangles also showed flowers of a hybrid raised in Mr. Parker's nursery at Tooting, between Countess of Haddington and *R. Edgworthii*. The flowers are large, tubular, white, with a dash of lemon at the base, and sweet-scented.

R. chamecistus, a dwarf alpine lime-loving species, with charming pink flowers. (See p. 258.)

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair.—But few new plants came under the notice of the members at this meeting, the most important being *Masdevallia imperialis* from R. Warner, Esq., apparently a variety of *M. Lindenii*, with very broad segments, and of the same colour; *Gymnogramma Lauchena grandiceps*, from Messrs. Dixon & Co., a Fern with bipinnate fronds, the ultimate segments rounded, and the terminal ones much crested, the frond being densely covered, especially on the under surface, with yellow bloom; *Abubertia violacea*, from Mr. K. Dean, a plant desirable for its dwarf habit, and very deep violet flowers; *Calceolaria bicolor*, from Messrs. James Dickson & Sons, Chester, a pretty and curious variety, with the upper half of the flower white, and the lower half clear canary-yellow; *Azophila Rebecke*, from Mr. W. Bull, a tropical Australian Tree Fern, with slender stem, oblong bipinnate fronds, the rachis clothed with black scales; a remarkably fine specimen of *Masdevallia Lindenii* var., from Mr. T. Horsman, Hbley; a new, very fine, large white bedding *Viola*, named Mrs. Laing, and a clear yellow bedding *Pansy* named Mrs. J. Llewellyn, both from Mr. H. Hooper, of Bath. The following awards were made:—

First-class Certificates.

- To Mr. R. Warner for *Masdevallia imperialis*.
- To Mr. W. Bull, for *Azophila Rebecke*.
- To Mr. H. Hooper, for Bedding *Viola* Mrs. Laing.
- To Mr. H. Hooper, for Bedding *Pansy* Mrs. Llewellyn.
- To J. H. Mangles, Esq., for *Rhododendron Alice Mangles*.
- To Mr. R. Dean, for *Abubertia violacea*.
- To Messrs. Dixon & Co., for *Gymnogramma Lauchena grandiceps*.

Cultural Commendation.

- To Mr. T. Horsman, for *Masdevallia Lindenii* var.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Mr. Lyon, gr. to Sir E. Scott, Southridge Court, showed at this meeting a beautiful dish of Keen's Seedling Strawberries, and received a Cultural Commendation. Mr. W. Gallop, Bradford Deverell Gardens, H. Doncaster, sent a scarlet-fleshed Melon, of fairly good flavour for the time of year. Mr. A. Harding, Orton Hall Gardens, Peterborough, sent four varieties of Apples; and examples of the John Apple, a very small variety, juicy, and good in flavour, came from Chiswick.

National Auricula (Southern Section).—The

annual exhibition of this rising Society, held at Kensington on Tuesday, was the largest and best as regards all-round quality, that has yet been held in the South, and we should much question if any very greatly superior in these respects have been seen in the North. The autumn growth of the plants taking place at a time when there was so much moisture about caused many a plant to throw up autumn trusses, a result that bodes ill for the spring bloom; but the winter in the South was kind to the Auricula—there being neither frost, and a genial spring brought them on well, but too fast for those intending to compete, and the best of the blooms were over at least ten days ago. Mr. Douglas, generally a successful competitor, could not get near the head of the prize list, so that the Northern men, on this occasion at least, had matters all their own way. Amongst the Lancashire and Yorkshire friends present were the Rev. F. D. Horner (still with the Auricula *facile princeps*); Mr. Gorton, Eccles; Mr. Barlow, of Stakehill, Castleton; Mr. Pohlman, of Halifax; Mr. Woodhead, of Halifax; Mr. Bolton, of Warrington, and right well they held their own. For the Southern growers Mr. Douglas, Mr. Turner, and Mr. Llewellyn did well; and we note a welcome addition to ranks of the fancy in the person of Mr. Cannell. The names of the prize-winners and the successful flowers are given below. The seedling flowers of the show were more numerous and very good, showing steady progress, as was exemplified by the number of First-class Certificates awarded. In the green-edged class the Rev. F. D. Horner gained the 1st prize with Agamemnon, a large, bold flower, with fine orange tube, dense and pure paste, broad, dark ground colour, and well defined green edge. Mr. J. Douglas was 2d with Jumbo, a good green with very smooth and rounded petals, good paste and fine yellow tube. Both of these received First-class Certificates. The green-edged class showed a good number of really fine flowers. Mr. Douglas gained the 1st prize with Mrs. Moore, a large, finely rounded flower, with a good round yellow eye, broad ground colour, with grey edge. Bluebell, from the Rev. F. D. Horner, gained the 2d prize; it is quite unique, having a pale eye, very fine paste, blue ground colour, and silvery-grey edge, and fine mealed foliage. George Rudd (Woodhead), shown in this class, has the mealed foliage and pure paste, contrasting well with the black ground colour, the edge is rather narrow, but the flowers are very round. Luna (Horner), a well proportioned flower, was well shown in this class; it has a black ground colour with fine smooth edge. All of the above took First-class Certificates. In the white-edge class Mrs. Dowell (Woodhead) is a very pure white of the Smiling Beauty type, with mealed foliage; it received the 1st prize and a First-class Certificate. The Rev. F. D. Horner was 2d with Grey Horn, a flower of the John Simonite type; it has a very pure white edge, with a nicely rounded petal. In the self-edged class the 1st prize was awarded to Mr. E. Pohlman, of Halifax, for a very fine dark flower with a large truss supported on a stout stem. Mr. Douglas came in 2d with Duke of Albany, a flower with smaller truss but very dark well-rounded petal and round pure paste. Mr. Pohlman's flower also received a First-class Certificate.

In alpins there was a good assortment of new flowers from Mr. Turner and Mr. Douglas principally. In the yellow-centred class Mr. C. Turner gained the 1st prize with Amazon, a large flower of the finest quality, with maroon edge, shading to red. Mr. J. Douglas was 2d, with Princess of Waldeck, maroon edge, shading to reddish-crimson, smooth petal. Mr. Douglas also exhibited in this class Amelia Hardwidge, a neat and fine flower, shaded to reddish-crimson; this, with the two others, received First-class Certificates. In the cream or white centres Mr. Turner was 1st, with Charles Darwin, a very round smooth variety, with yellowish-cream centre and plain purple shaded edge. Mr. Douglas was 2d, with Ada Hardwidge (Douglas), a neat and pretty flower, of small size, cream centre, and reddish-purple shading.

The prizes were awarded as follows:—

TWELVE AURICULAS, DISSIMILAR.—1st, the Rev. F. D. Horner, Kirkby Malzeard, with Excelser (Horner), green-edged; Agamemnon (Horner), green-edged; and Luna (Horner), white-edged. 2d, Mr. J. Douglas, with Moonlight (Horner), grey-edged; Frank Simonite (Simonite), white-edged; Mrs. Douglas (Simonite), violet self; John Simonite (Walker), white-edged; Heroine (Horner), plain coloured self; George Lightbody (Headley), grey-edged; Alex (Horner), and Lana (Horner), both grey-edged. 2d, Mr. E. Pohlman, Halifax, with Garibaldi (Pohlman), dark self; Beauty (Trail), grey-edged; Sophia Dumaresque (Lightbody), white-edged; Blackbird (Spalding), self; George Lightbody, Confidence (Campbell), green-edged; and Alexander Meiklejohn (Kay), grey-edged; Prince of Greens, Brunette (Pohlman), a fine black self; Colonel Taylor (Leigh), green-edged; and Acme (Read), white-edged. 3d, Mr. T. Woodhead, Shuben Head, Halifax, with Acme (Read), Heroine (Pohlman), self; Colonel Taylor (Leigh), Emperor (Liton), green-edged; Mrs. Dowell (Woodhead), a white-edged seedling; George

Rudd (Woodhead), a grey-edged seedling; Prince of Greens (Trail), Neat and Clear (Woodhead) a dark self seedling; Charles Turner (Woodhead), a seedling grey-edged; Shibusen Beauty (Woodhead), a seedling self; and John Simonite (Walker), 4th, Mr. J. Douglas, gr. to F. Smith, Esq., a seedling self with Freedom (Woth), green-edged; a seedling grey-edged (Douglas); Pizarro (Campbell), self; Blackbird (Spalding), Ne Plus Ultra (Smith), white-edged; Charles J. Perry (Turner), purple self; Lancashire Hero (Lancashire), green-edged; Smiling Beauty (Heap), white-edged; Prince of Greens (Lancashire), white-edged; Heroine (Pohlman), green-edged; and Acme (Read), J. T. D. Llewellyn, Esq., Penitence, Swansen, and Messrs. Cannell & Sons also competed.

SIX AURICULAS, DISSIMILAR.—1st, the Rev. F. D. Horner, with John Dultrey (Horner), a seedling grey-edged; Heroine (Horner), Prince of Greens (Trail), John Simonite (Walker), Miranda (Horner), white-edged; and Geo. Lightbody (Headley), 2d, Mr. T. Woodhead, with Prince of Greens (Trail), C. J. Perry (Turner), Lancashire Hero (Lancashire), Grey Lightbody (Headley), Acme (Read), and Col. Taylor (Leigh), 3d, Mr. J. Douglas, with Dr. Kidd (Douglas), white-edged; C. J. Perry (Turner), Smiling Beauty (Heap), Geo. Lightbody (Headley), Lancashire Hero (Lancashire), and a green-edged seedling, 4th, Mr. Pohlman, with Heroine (Horner), Grey Lightbody, Lancashire Hero (Lancashire), Col. Taylor (Leigh), Confidence (Campbell), Acme (Read), and a seedling self, 5th, Messrs. Cannell & Sons, with Beauty (Trail), Col. Channepys (Turner), grey-edged; John Waterston (Cunningham), grey-edged; Vulcan (Simonite), dark self; and True Briton (Hepworth), and True Briton (Hepworth), white-edged. 6th, J. T. D. Llewellyn, Esq., with Alderman Wisbey, green-edged; Imperator (Liton), Corona (Llewellyn), a seedling purple self; Unique (McLean), grey-edged; Talisman (Simonite), and Metropolitan, self.

FOUR AURICULAS, DISSIMILAR.—1st, R. K. Penon, Esq., Dinham, Ludlow, with Eliza (Sims), self; Frank Simonite (Simonite), Lancashire Hero (Lancashire), and Geo. Lightbody (Headley), 2d, Rev. E. F. Fellows, with Temple (Keay), Royton, and Mr. Horner (Read), grey-edged; Lord Clyde (Lightbody), self; Lancashire Hero (Lancashire), and True Briton (Hepworth), 3d, Mr. R. Gorton, Gildarook, Eccles, with Pizarro (Campbell), Lovely Ann (Oliver); Frank Simonite (Simonite), and True Briton (Hepworth), 4th, Mr. J. M. Robing, with White Rose (Leitch), and Maria (Chapman), grey-edged; Admiral Napier (Campbell), Duke of Argyll (Campbell), self; and Geo. Lightbody (Headley), 5th, Mr. T. File, Southern Hill, Reading, with Smiling Beauty (Heap), Mrs. File (File), a dark self; C. E. Brown (Headley), and Anna (Trail), green-edged. 6th, Mr. W. Brockbank, Brockhurst, Didsbury, with Alma (Lightbody), grey-edged; Metropolitan (Spalding), Lovely Ann (Oliver), and Reliance (Mellor), white-edged.

TWO AURICULAS, DISSIMILAR.—1st, R. K. Penon, Esq., with Lancashire Hero (Lancashire), and Geo. Lightbody (Headley), 2d, Mr. W. Bolton, Warrington, with Geo. Lightbody, and Kingdove (Horner), 3d, Mr. W. Brockbank, with Garibaldi (Pohlman), and Frank Simonite (Simonite), 4th, Rev. E. L. Fellows, with Lady Hero and the Ultra (Simonite), 5th, Rev. H. D. Ombrian, with Lancashire Hero and an unnamed grey-edged. 6th, Mr. Samuel Barlow, Stakehill, Castleton, with a seedling self and Queen Victoria, grey-edged.

SINGLE SPECIMEN AURICULAS.—Green-edged: 1st and 2d, Rev. F. D. Horner, with Prince of Greens (Trail), and Colonel Taylor (Leigh); 3d and 4th, Mr. Woodhead, with Colonel Taylor and Imperator (Liton); 5th, Mr. Brockbank, with Prince of Greens; 6th, Rev. F. D. Horner, with Talisman (Simonite); 7th, Mr. Bolton, with Colonel Taylor; 8th, Horner, with a pair of raiser and exhibitor not stated. Grey-edged: 1st, 2d, and 3d, R. K. Penon, Esq., with George Lightbody (Headley); 4th and 6th, Mr. Pohlman, with George Lightbody; 5th, R. K. Penon, Esq., with E. Brown; 7th and 8th, Rev. F. D. Horner, with George Lightbody. White-edged: 1st, Mr. Woodhead, with Acme (Read); 2d, Mr. Douglas, with Silvia (Douglas); 3d, Mr. Pohlman, with Acme; 4th and 5th, Trail's Beauty, exhibitors unknown; 6th, a seedling, exhibitor unknown; 7th, Rev. F. D. Horner, with Blue Bell; 8th, R. K. Penon, Esq., with Smiling Beauty. Self: 1st, Rev. F. D. Horner, with Kingdove; 2d, Blackbird, exhibitor unknown; 3d, Mr. Douglas, with Topsy (Kay); and 4th, with Campbell's Pizarro; 5th, Pohlman's Garibaldi; 6th, Amelia Hardwidge, a bright pink shaded flower; 7th, Amelia Hardwidge, a prettily shaded, and several fair seedlings of his own raising; and Sensation and Dolly Varden (Turner), Mrs. Meiklejohn (Meiklejohn), and Duadem (Gorton).

SIX ALPINE AURICULAS.—1st, Mr. James Douglas, with Mrs. Meiklejohn, Didsbury, Amelia Hardwidge, and a seedling, all red shaded; and George Lightbody (Turner), and Sensation (Turner). 2d, Mr. Turner, with King of the Belgians, Unique, William Fowle, Sensa-

tion, John Ball, and Gertrude, the last four all being self flowers, 3d, Rev. E. L. Fellows, with, amongst others, King of the Belgians, very fine; and a good rich chestnut self seedling, 4th, J. T. D. Llewellyn, Esq., Mr. R. Dean, Ealing.

SINGLE SPECIMEN ALPINES: GOLD CENTRE.—1st, Mr. Turner, with Amazon, reddish-magenta shaded; 2d, and all the other prizes, Mr. Douglas with a magenta shaded seedling, Amelia Hardwidge and King of the Belgians.

WHITE OR CREAM CENTRE.—1st, Mr. Turner with Charles Darwin, a charming plain shaded flower, and 2d with Mentor, dark purple shaded; 3d and 4th, Mr. Douglas with Queen Victoria (Turner), mauve-purple shaded; 5th, Mr. Turner with Gladiator, violet shaded; 6th, Mr. Douglas, with Geo. Lightbody (Turner).

PURELY DISSIMILAR ALPINES.—1st, Mr. Samuel Barlow, with nine pale hued or yellow show kinds, the double yellow and purple and a show green-edged kind that can hardly be termed fancy. 2d, Mr. Douglas with buff and greenish ground flowers which were decidedly fanciful; and 3d, Mr. R. Dean with a lot of charmingly leaved flowers unnamed.

PREMIER AURICULA.—The Rev. F. D. Horner's plant of George Lightbody with nine perfect tips.

POLYANTHUSES: SIX GOLD-LEAVED.—1st, Mr. S. Barlow, with Rose of Sharon, a fine flower of England (Mund), Cheshire Favourite (Saunders), Prince Regent (Cox), Sunrise (Barlow), and Exile (Crownshaw), 2d, Mr. W. Bolton with Earl of Lincoln (Hufton), Exile (Crownshaw), George IV. (Buck), Cheshire Favourite (Saunders), and President (Liton); 3d, Mr. James Douglas, with Rev. E. L. Fellows (Crownshaw), Earl (Bullock), Exile (Crownshaw), and George VI. (Buck), Cheshire Favourite (Saunders), and President (Liton).

THREE GOLD-LEAVED.—1st, Mr. S. Barlow, with Cheshire Favourite (Saunders), Firely (Barlow), and Exile (Crownshaw); 2d, Mr. Bolton, with two seedlings and Buck's George IV.; 3d, Mr. R. Dean.

SINGLE SPECIMENS.—1st, J. T. D. Llewellyn, Esq., with Cheshire Hero; 2d, Mr. Brockbank, unnamed; 3d, 4th, and 5th, Mr. Barlow, with Firely, Cheshire Hero, and Exile; and 6th, Mr. R. Dean, with George IV.

Royal Botanic: April 26.—A smaller show than the last, but still of good quality, and favoured with better weather than the visitors to Kensington experienced on previous days, although threatening at times rain with easterly gigue. Roy Cross featured, and included the remarkable group of standards shown at Kensington by Messrs. James Veitch & Sons; a group of nine bushy specimens from Messrs. Paul & Son, Westhart, which took a 1st prize, and consisting of well-bloomed plants of Countess de Sereny, Ed. Maron, Madame Willeroz, Juno, Madame Lacharme, and others; as also from the same firm some grand cut blooms of Maréchal Niel and a collection of robust young plants of various new Roses, including splendid flowers of R. N. G. Baker, Abbot Duport, Madame Welch, Dupuy Jamin, &c. For six new Roses Messrs. Paul & Son also took the 1st prize, the finest being Comtesse Camondo (H.P.), a very dark claret-crimson of great promise, the flowers being full and well built; the others were Madame de Sereny (H.P.), a fine, deep pink shaded rose; Jules Jinger (H.P.), bluish-white; Guillaume Guillemot (H.P.), rose; Madame Angèle Joarquer (Tea); Gloire de Bourg la Reine (H.P.), a dark-centred crimson. Messrs. William Paul & Son, Waltham Cross, W. H. Wood, and others, also had good sized, well grown plants and a splendid assortment of cut blooms, among the former specially good being Countess of Rosebery, J. Hopper, Victor Verdier, La France, Fisher Holmes, Duke of Edinburgh, Madame Fyrot, Crown Prince of Siam, and the new Mrs. Moss Ross, well named Little Gem. Another group of half specimens from Messrs. Lane & Son, Berkhamstead, half a dozen neat plants from Mr. Wiggins, gr. to H. Little, Esq.; and some beautiful cut Teas from Mr. Piper, of Uckfield, also contributed much to the general effect. Stove and greenhouse plants were small, but generally fresh and well flowered, and the leading exhibitors were Messrs. Peed & Son, Norbury Nursery, Lower Norwood; Mr. G. Wheeler, and Mr. H. Eason, gr., North Hill, Hightgate. Azaleas generally were poor, but Mr. G. Wheeler's *Arbutus* (H.P.), a fine dozen, most conspicuous amongst which were Roy Leopold, Duc de Nassau, Ferdinand Kegeljan, and Madame Lemoineir. Of twelve forced Rhododendrons Messrs. Lane & Son were the only exhibitors, showing large and admirably bloomed plants of *Arbutus* (H.P.), *Arbutus* Geert, Guido, Sir R. Feil, Boddartianum, Columbus, Illuminator, and others. Mr. Noble's group of small Clematises was here also much admired, especially the new varieties Darwin, a very beautiful full double flower of a soft shade of lilac, Princess Beatrice, a single very fine and petalled sucer-shaped flower of a clear pale lilac colour; and Daniel Deronda, a very large single flower of a rich purple, with a paler coloured bar, and shaded with reddish-bronze. Show Pelargoniums were admirably exhibited by Mr. Turner and Mr. Wiggins; but Cinerarias were very poorly shown as to quality. Mr. Turner also had some fine perpetual flowering Carnations, and Messrs. Cannell & Sons their group of Primula Siebold.

The same firms also contributed large and attractive collections of stove and alpine Auriculas, which made a nice display. In the competition with twelve show varieties, Mr. Douglas came in 1st with Lord of Lorne (Campbell), Mrs. Moore (Douglas), a new grey-edged, with large tips, remarkable for the breadth of the paste and the depth of the bar; and Jumbo (Douglas), a well leaved green edge, of great promise. Smiling Beauty (Heap), Blackbird (Spalding), Dr. Horner (Reid), C. J. Parry (Turner), Ne Plus Ultra (Smith), Lancashire Hero (Lancashire), John Waterston

(Cunningham), Alex. Meiklejohn (Kay), and Geo. Lightfoot (Headley). 2d, Mr. Turner; 3d, J. T. D. Llewellyn, Esq. Mr. Turner also started several new alpines, from amongst which the following were singled out for distinction:—Gladiator, violet shaded; Mentor, dark purple shaded; Charles Darwin, plum shaded; J. T. D. Llewellyn, violet shaded; and Amazon, heavily shaded red-purple. Groups of new red and rare plants came from Mr. B. S. Williams, and Mr. Bull, and the fine white *Amaryllis Mrs. B. S. Williams* here gained the badge of distinction; while most conspicuous of Mr. Bull's novelties was the beautiful erect flowering *Medimilla amabilis*, first figured and described in our vol. 1, 1874, p. 372, and of which we repeat the figure (fig. 87, p. 561), as, though so fine a plant, it is still little known. *Gymnogramma Lauchiana* grandiceps, a crested form of this well known Gold Fern, shown by Messrs. Dixon & Co., of Hackney; *Adiantum Pacotti*, a very dwarf species, from Mr. Bull; *Pelargonium Fridesmaid*, a bold free decorative variety with the lower petals pure white and the upper ones dark crimson, from Mr. Wiggins; and *Azalea pontica narcissiflora*, a very free blooming plant with clear straw yellow double blossoms, from Messrs. Veitch, were about the pick of the novelties.

The awards made to new plants were:—

Botanical Certificates.

To Mr. B. S. Williams, for *Crimm Makoyanum*.
 To Mr. B. S. Williams, for *Cologny Massaganea*.
 To Mr. W. Bull, for *Odontoglossum Hallii pictum*.
 To Mr. W. Bull, for *Adiantum*.
 To Mr. W. Bull, for *Adiantum Victorice*.
 To Mr. W. Bull, for *Medimilla amabilis*.
 To Mr. W. Bull, for *Davallia filix-plumosa*.
 To Messrs. Dixon & Co., for *Gymnogramma Lauchiana grandiceps*.

Floral Certificates.

To Mr. Turner, for *Alpine Auriculas*, *Gladiator*, *Mentor*, *Charles Darwin*, *J. T. D. Llewellyn*, *Amazon*.
 To Mr. Douglas, for show *Auricula Mrs. Moore*.
 To Mr. Douglas, for show *Auricula Junbo*.
 To Mr. B. S. Williams, for *Amaryllis Mrs. B. S. Williams*.
 To Mr. C. Noble, for *Clematis Daniel Deronda*.
 To Mr. C. Noble, for *Clematis Darwin*.
 To Mr. C. Noble, for *Clematis Princess Beatrice*.
 To Mr. H. Hooper, for bedding *Viola Mrs. Laing*.
 To Mr. H. Hooper, for bedding *Fansy, Mrs. Llewellyn*.
 To Mr. Wiggins, for *Pelargonium* (decorative) *Fridesmaid*.
 To Messrs. Veitch & Sons, for *Azalea pontica narcissiflora*.

British Beekeepers' Association.—The quarterly meeting of the committee and representatives of county affiliated Associations was held in the Board-room of the Royal Society for the Prevention of Cruelty to Animals, 105, Jernyn Street, on Wednesday, the 12th inst. Mr. Thos. W. Cowan in the chair. Further arrangements were made in connection with the exhibitions of bees, hives, honey, &c. to be held at Cardiff in connection with the Bath and West of England Agricultural Society's Show, and at the annual show of the Royal Agricultural Society, to be held at Reading. The Hon. Secretary was requested to communicate with the British Dairy Farmers' Association and to make arrangements for an exhibition of honey, hives, &c., at their annual show, to be held in the Agricultural Hall, Islington, on October 3 and following days. The Hon. Secretary reported the formation of several new county Associations since the meeting of the present year. The progress of these Associations was much retarded owing to the insufficient supply of persons who could act as experts and teach the art of bee-keeping in their respective counties. It was resolved that the Hon. Secretary be requested to communicate with the experts of the central society, and ascertain from them upon what terms they would receive young men, and instruct them sufficiently to enable them to act as experts.

Meteorological: April 19.—The usual monthly meeting of this Society was held at the Institution of Civil Engineers, 25, Great George Street, Mr. J. K. Laughton, F.R.A.S., President, in the chair. The papers read were:—1. "Barometric Gradients, Wind Velocity, and Direction, from the Kew Observatory," by Mr. G. M. Whipple, B.Sc., F.R.A.S., F.M.S., and Mr. J. W. Baker, F.M.S. For the purpose of investigating the subject of the relations of the force and direction of the wind to the distribution of barometric pressure, the authors have distributed Kew observations for the five years 1875-79. The results show that the rate at which the wind blows increases almost directly with the inclination of the gradient in an arithmetical proportion, the mean rate of increase being 1.85 mile per hour for each additional inch of difference in the barometer readings at each end of the slope. The authors find that the angle at which the wind crosses the line of gradient at Kew does not vary with either the steepness of the gradient or the velocity of the wind in any material extent, and also that the angle is found generally to be between 40° and 60°, the average of the whole series of observations giving a deviation of 52°. "On Difference of Temperature with Elevation," by Mr. George Dines, F.M.S. In this paper the author gives a summary of his observations made at Walton-on-Thames during the last six years. Two stations, almost identical in size and construction, were used, one being placed on the ground and the other on the top of the tower of the house; the bulbs of the thermometer in the former being 4 feet, and in the latter 50 feet above the ground. The results show that the average maximum

temperature for every month is always greater, and the average minimum lower, on the ground, than that on the tower.

Obituary.

It is with regret we have to announce the death of Mr. JAMES DALE, so long gardener at Brancepeth Castle. Gardeners, by the very nature and association of their calling, become, like the plants they cultivate, rooted in the soil, and usually cling to the scenes of their cares and labours with an affection that those not so occupied can scarcely understand. None of the many who have had the pleasure of being shown by Mr. Dale over Brancepeth can fail to have noticed and appreciated how strong this laudable feeling was present in him. In 1854 he succeeded his father, who had charge of the garden here so far back as 1796. Mr. Dale was universally respected by all who knew him. He died on April 1, and was interred at Brancepeth church. A notice of this famous old Border castle and its garden will be found in our vol. xiv., n.s., pp. 231, 232.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, APRIL 26, 1882.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				Hygrometric Deductions from Glaisher's Tables 6th Edition.	WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Day's Average of 18 Years.	Highest.	Lowest.	Range.	Dep. of Max. from Average.			
April 19	In.	In.	+	-	+	-			
20	29.97	+0.22	64.0	48.0	56.0	53.0	9	61	W. 0.0
21	29.93	+0.18	65.1	45.5	53.4	47	8	60	S.W. 0.0
22	29.42	-0.34	59.5	49.5	50.0	53.0	5	47	S. S.W. 0.6
23	29.17	-0.59	56.8	47.0	48.0	50.5	5	46	S.W. 0.7
24	29.34	-0.43	58.0	43.5	54.0	47.3	4	40	W. 0.16
25	29.14	-0.63	57.3	39.0	43.4	44	6	39	S.W. 0.83
26	29.31	-0.46	56.3	43.0	47.5	47.5	8	41	N.W. 0.09
Mean	29.47	-0.29	57.0	43.6	49.5	47.4	7.8	48	S.W. 1.53

April 20.—Showers during the early morning. A fine bright day, sun shining brightly. Fine night.
 21.—A very fine bright day, sun shining brightly. Fine warm, calm night.
 22.—A dull, rainy morning. A fine bright afternoon, sun shining brightly. Fine night.
 23.—Dull, cloudy day; rain in early morning, occasional showers throughout the day. The sky generally clear after 7 P.M.
 24.—A very fine bright day, with frequent showers of rain. Fine clear night.
 25.—A very wet day; steady rain all day.
 26.—A dull morning, fine and brighter after 3 P.M. Fine, overcast night.

LONDON: Atmospheric Pressure.—During the week ending April 22, the reading of the barometer at the level of the sea increased from 29.60 inches at the beginning of the week to 29.50 inches by 9 A.M. on the 16th, decreased to 29.35 inches by 3 P.M. on the 17th, increased to 30.06 inches by midnight on the 18th, decreased to 30.03 inches by 3 P.M. on the 19th, decreased to 30.01 inches by 9 A.M. on the 20th, increased to 30.32 inches by midnight of the same day, and was 29.52 at the end of the week.

The mean reading for the week at the level of the sea was 29.85 inches, being 0.12 inch higher than last week, and 0.09 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 65°, on the 21st. On the 16th the highest temperature was 53°. The mean of the seven high day temperatures was 58°.

The lowest temperature in the shade in the week was 34°, on the 16th; on the 22d the lowest temperature was 49° 5'. The mean of the seven lowest temperatures was 43° 1'.

The greatest range of temperature in one day was 23.5°, on the 21st; the smallest was 10°, on the 22d. The mean of the seven daily ranges was 14.9°. The mean temperatures were, on the 16th, 42° 0'; on the 17th, 48° 4'; on the 18th, 47° 3'; on the 19th, 49° 4'; on the 20th, 53° 0'; on the 21st, 53° 4'; on the 22d, 53°. Of these those of the 17th, 18th, 19th, 20th, 21st, and 22d, were all above their averages by 1° 6', 0° 3', 2° 2', 6° 5', 5° 8', and 5° 2' respec-

tively; and that of the 16th was 3.7 below the average.

The mean temperature of the air for the week was 49° 8', being 2° 0' higher than last week, and 2° 6' above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 122° 5 on the 21st; the highest on the 19th was 62°. The mean of the seven readings was 97° 9'.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky, was 30° 4 on the 16th. The mean of the seven readings was 37° 4.

Rain.—Rain fell on three days to the amount of 0.33 inch.

ENGLAND: Temperature.—During the week ending April 22 the highest temperatures were 70° 4, at Cambridge, 66° 6 at Nottingham, and 66° at Sunderland. The highest temperature at Brighton was 59° 8, at Liverpool 60° 4, at Plymouth 61°. The general mean was 63° 5.

The lowest temperatures in the week were 26° 2 at Nottingham, and 28° at Leicester and Hull. The lowest temperature at Liverpool was 41° 5, and at Truro and Plymouth was 41°. The general mean was 32° 6.

The greatest ranges of temperature in the week were 49° 4 at Nottingham, 37° at Hull, and 35° at Leicester. The least ranges were 18° 9 at Liverpool, 20° at Plymouth, and 21° at Truro. The general mean was 30° 9.

The mean of the seven high day temperatures was highest at Cambridge, 62° 1, at Sunderland 59° 5, and at Leicester and Nottingham was 58° 4; and was lowest at Wolverhampton, 53° 8, at Bolton and Bradford 54° 4. The general mean was 57° 1.

The mean of the seven lowest night temperatures was highest at Truro, 46° 4, at Plymouth 45° 5, and at Liverpool 44° 6; and was lowest at Wolverhampton, 39°, at Bolton 39° 6, and at Hull 40°. The general mean was 42° 2.

The mean daily range was greatest at Cambridge, 19° 8, at Nottingham and Sunderland 18° 1; and was least at Truro, 10° 9, at Plymouth 11° 1, and at Liverpool 11° 5. The general mean was 14° 9.

The mean temperature for the week was highest at Cambridge, 50° 7, at Truro 50° 4, and at Blackheath 49° 8; and was lowest at Wolverhampton, 44° 9, at Bolton 45° 5, and at Hull and Bradford 46° 9. The general mean was 48° 2.

Rain.—The largest falls were 1.68 inch at Truro and 1.57 inch at Plymouth. The least falls were 0.12 inch at Leeds and 0.32 inch at Sunderland. The general mean fall was 0.70 inch.

SCOTLAND: Temperature.—During the week ending April 22 the highest temperature was 62°, at Aberdeen and Paisley; at Greenock the highest temperature was 57°. The general mean was 60° 1.

The lowest temperature in the week was 24° 6, at Aberdeen; 26° 4 at Glasgow; the lowest temperature was 38° 2. The general mean was 31° 5.

The mean temperature for the week was highest at Edinburgh, 49° 1; and lowest at Aberdeen, 42° 7. The general mean was 46° 2.

Rain.—The largest fall was 1.76 inch at Greenock; the smallest was 0.51 inch at Leith. The general mean fall was 0.89 inch.

JAMES GLAISHER, F.R.S.

Queries.

He that snitcheth much shall learn much.—Bacon.

PARCHAL RATING.—The occupier of 11 acre of land has been assessed at £6 12s 6d on a rental of £7 15s. As tenant's fixtures, or plant, there are five small greenhouses and other frames, and an additional assessment has been charged on these at the rate of £13. Is he, as a nurseryman growing stock solely for a livelihood, exempt from the extra assessment? M. 7.

Answers to Correspondents.

* Prof. Reichenbach complains of some correspondents sending him specimens without any indication whence they come. Some of the parcels have been detained at the English post-office on account of their large size. The Professor's willingness to oblige is notorious, but his time, patience, and purse should not be needlessly trespassing upon.

ARLITON: A. M. Z. We have never seen one exactly like the flower you send, in which there is a double set of petals, and show imagine it is new. You must send better specimens of the other things before we can undertake to examine them.

AVELE AND HELLERBORN: A. Chapman. We do not think that the Hellebore is at all likely to be injurious to the way you suggest. The roots of the Maple have probably got into some soil not suitable for it.

ARACARIAS: H. T. C. The best way of treating the trees is to give them a top-dressing of good fresh loam—a cartload or two to each tree.

AQUATIC PLANTS: H. S. *Nymphaea alba*, N. odo-

ras, Nuphar luteum, Menyanthes trifoliata, Villarsia nymphoides, Butomus umbellatus, Hydrocharis nymphoides, Acorus Calamus, Hottotia palustris, Rumex Hydrolapathum, Myosotis palustris, Polygonum Persicaria, Sagittaria sagittifolia, Iris Pseudocorus Lythrum, Salicaria, Caltha palustris, Ranunculus Flammula, Aster triflorus, Carex Pseudo-Cyperus, C. pendula, Epilobium hirsutum, Equisetum sylvaticum, Osmunda regalis, Lactea Thelypteris, Typha latifolia, and T. angustifolia. These are all fine plants for your purpose. You may call them weeds, if you like, but they are handsome ones.

CAMELLIA: H. S. We are afraid there is no remedy. You had better destroy the plant at once; or, if you prefer, you might try the experiment of making several incisions lengthwise into the ball, not going deeper than the rind, and then mousing it up. It would be an interesting experiment, but we have not much faith in the result. It is possible it would throw out new roots from the edges of the wounds.

CHEMISTRY: Practical. The Chemistry of the Farm (Bradbury, Agnew, & Co.). Your other question next week.

CINERARIAS, DOUBLE: Waite, Nash & Co. Very good indeed. The lighter coloured sort appears to be identical with, or very closely resembling, a named variety, exhibited a few weeks ago by Mr. Verregens, of Birmingham. We think Mr. Cannell has also one very much like it.

ERRATUM.—At p. 256, col. A, sixty-sixth line, for "plentiful," read "portable."

GLOXINIAS: A. W. The deformity is extremely curious, but not uncommon. In the more perfect examples a hose-in-hose corolla is formed, with the singular circumstance that the intensity of colour is outside. Much has been written as to the mostrosity in question, references to which we can furnish if you desire it.

INSECTS: F. D. B. Your Mangel Wurzel roots were partially rotten, and in some portions of the diseased parts we found a number of the Centipede, Julus pulchellus, in different stages of growth. We do not think they are bred within the Peas, and have there diseased portions without any insects in them. The roots seemed to have been injured in digging up. I. O. W.—G. P. The Peas sent are badly infested with the common Pea weevil (Bruchus pisi), the larvae of which were bred within the Peas, and have there assumed the pupa and perfect state. Submitting the Peas to the heat of an oven would kill the insects, but care must be taken not to overheat the seed Peas. I. O. W.

MANURES TO GARDEN CROPS: F. W. S. We do not know of any such book.

NAMES OF PLANTS: H. M. H. Both forms of Scilla nutans, var. Belgica.—Morbifantia. Your plant is an Ichneumon, the Linnaean abreviaturum of Swartz.—Angrecom. Either Dendrobium Dayanum, or a poor form of D. macrophyllum.—Thos. Denny. There is a white variety of Gentiana acialis which is constant. The other plant is Forsytia viridissima.—Sage. Adiantum concinnum, strongly grown.—H. Worcester. Senecio macrogllossus. Figured in Gardeners' Chronicle of June 12, 1875.—Pat. 1, A. Liehen (next week); 2, Pulmonaria officinalis.—B. Ashton. The Bark Cherry (Fronus Padus).

NOTICE TO QUIT: Constant Reader. If a yearly tenant, and you have no agreement to the contrary, you are only legally entitled to six months' notice to quit, such notice to expire on the same quarter-day as that on which you took possession. The landlord is not compelled by law to take any permanent market garden crops at a valuation. You should not so have covered the ground except under a proper lease.

POTATO EXPERIMENTS: Practical. Apply to the Secretary of the Cork Agricultural Society.

VINES: R. P. Hopkins. The leaves have been scalded by the sun acting upon them while moist. Give air earlier in the day, and you will avoid such mischief in the future. Liquid manure, however strong, would not have the same effect.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

CATALOGUES RECEIVED.

- B. S. WILLIAMS, Upper Holloway, N.—New and General Plant Catalogue.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham—Single and Double Dahlias.
WILLIAM PAUL & SON, Waltham Cross, Herts.—New Roses and other Foreign Flowers.
DE SMET FRERES, Heberg-les-Grand, Belgium.—Palms, Cycads, Ferns, and other Plants.
DICKSONS & Co., 1, Waterloo Place, Edinburgh.—Florists' Flowers.

COMMUNICATIONS RECEIVED.—S. H.—H. M.—C. Ballet, Troyes.—F. M.—H. S.—G. R.—G. F.—W.—H. O.—W.—P.—A.—R.—L.—W.—H.—T.—Ceylon.—J.—T. R.—J.—O. E.—J.—P.—A.—R.—L.—W.—S.—J.—W.—H. B.—Mentone.—Clay & Levesley.—J. E.—Practical Orchidologist.—J.—S.—E. G.—D.—Pulmonaria (next week).—S. P.—C.—W.—D.—W.—MacDonald (many thanks).

DIED, on the 20th inst., at her residence, Arnside, Muswell Hill, aged eighty-eight, HARRIET McMULLEN, relict of W. G. McMullen, of the late firm of Hurst & McMullen, 6, Leadenhall Street, E.C.

Markets.

COVENT GARDEN, April 26.

Business somewhat improving, our market being more readily cleared at previous prices. Large arrivals of Asparagus from the Continent. James Webber, Wholesale Apple Market.

Table with 2 columns: Fruit and Average Wholesale Prices. Items include Apples, Figs, Gooseberry, Grapes, Kent Cobs, Lemons, Pine-apples, Strawberries.

Table with 2 columns: Vegetables—Average Retail Prices. Items include Artichokes, Asparagus, Beans, Beet, Carrots, Cauliflowers, Celery, Cucumbers, Kidney Beans, Lettuce, Onions, Peas, Potatoes, Spinach, Tomatoes.

Table with 2 columns: Cut Flowers—Average Wholesale Prices. Items include Abutilon, Amaryllis, Arum Lilies, Azalea, Begonia, Bouvardia, Carnations, Cineraria, Cyclamen, Daisies, Gardenias, Heliotropes, Impatiens, Lilies, Lilium, Magnolia, Marigolds, Mimulus, Narcissus, Petunias, Pinks, Ranunculus, Roses, Tulips, Violets, Wallflowers.

Table with 2 columns: Plants in Pots—Average Wholesale Prices. Items include Aralia Sieboldii, Arborvitae, Begonia, Brunia, Cyclamen, Cyperus, Dieffenbachia, Dracaena terminalis, Ficus, Geranium, Hebe, Hesperis, Impatiens, Myrica, Nerve, Pelargonium, Spiraea, Wilmoriana.

SEEDS.

LONDON: April 26.—A quietness now begins to settle down upon the seed trade, which is a pretty fair sign that we are very near the end of the sowing demand for this season. Red Clover continues to meet a fair sale at slightly easier prices, the offerings being now almost exclusively confined to Canadian and a few parcels of inferior English seed. White Clover and Alsike are without change in value, and meet a steady sale, but Trefoil and Lucerne lower prices have to be accepted to effect sales. Italian Ryegrass: there is a brisk demand for this article, and full prices are readily obtained, the meagreness of stocks leaving holders for the moment masters of the situation. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

COALS.

The following are the prices current at market during the week:—East Wylam, 15s.; Ravensworth West Hartley, 14s. 3d.; Walls End—Haswell, 15s. 6d.; Hetton, 15s. 3d.; Hetton Lyons, 14s.; Hawthorns, 14s. 3d.; Lambton, 15s.; West, 14s.; South Hetton, 15s. 6d.; Tunstall, 14s.; Tees, 15s. 6d.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies have been quite adequate to demand, which is attended chiefly to test quality. Quotations.—Scotch Champions, 50s. to 60s.; ditto Regents, 70s. to 80s.; ditto Magnum Bonums, 85s. to 90s.; Victorias, 110s.; Lincoln Champions, 60s. to 70s.; York ditto, 60s. to 70s.; ditto Victorias, 110s. to 120s.; flukes, 120s. per ton. German Reds, 35s. to 50s. per bag.—The exports into London last week were as follows:—1850 bags from Hamburg, 137 cases Malta, and 20 bags from Rotterdam.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN) Limited, The Vineyard, Garston, near Liverpool

The Company having recently made large and successful importations of Orchids from India, beg to offer Twelve DENDROBIUMS, in pots and baskets, just starting into growth, including package, for 42s., as follows:—Dallohusianum, Parishii, heterocarpum, Falconeri, Wardianum, Chrysanthum, formosum, Devonianum, thysiflorum, Primitivum, calcolum, crassinode.

The Company offer the following specialities:—

TEA ROSES—Twelve finest varieties, package included, for 12s., 18s., or 24s.

PELARGONIUMS—Twelve finest varieties coming into flower, package included, for 12s., 18s., or 24s.

FLOWERING PLANTS—Twelve finest varieties, for GREENHOUSE Decoration, for 12s., 18s., or 24s., package included.

The Company have a fine general stock of STOVE, GREENHOUSE, and ORNAMENTAL FOLIAGE PLANTS.

The Company beg to announce that their young VINES, from eyes this season, are now in fine condition for planting Vineries, and also that they have still on hand a few good Canes of most varieties suitable for fruiting in pots and planting Vineries.



The Company beg to call special attention to

Thomson's Vine and Plant Manure,

which is manufactured by them, and is the Manure used for producing the splendid Grapes grown at Clovenfords. Though this Manure has only been offered to the public during the past four months, the Company are already receiving the strongest testimonials in its favour from those who have used it, and its grand effects are at once apparent to all who see the Vines and Plants in the Vineyard and Nurseries here.

HORTICULTURAL BUILDINGS of all kinds erected and heated in the best manner and at moderate cost.

All Letters to be addressed to

THE MANAGER, THE VINEYARD AND NURSERIES, GARSTON, near LIVERPOOL.

IAPAGERIA ALBA.—Best variety, well established Plants for 10s. 6d. per doz. ...

PLANTS.—Wanted: hardy, Autumn-flowering CAULIFLOWER (small, hardy) Plants. ...

LETTUCE, BROCCOLI, CAULIFLOWER, &c. PLANTS.—Wanted: hardy, Autumn-flowering CAULIFLOWER (small, hardy) Plants. ...

P O T A T O S

SCHOOLMASTER, 5s. per Ton. BUREAN'S SEEDLING, £1.10s. per Ton. ...

Hardy Rhododendrons and Azaleas. ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS and AZALEAS. ...

CALCEOLARIAS, for Bedding.—Strong Autumn-struck Plants of Golden Gem, and other varieties, from Cold Pit, 2s. per 100. ...

Special Offer to the Trade. MYOSOTIS (L. J. ISSLEIA), the beautiful silver-edged blue-flowered Forget-me-Not, one of the very best of all edging or spring garden plants. ...

SEVENTY-FIVE THOUSAND YOUNG PALMS, in store pots.—Latania, Phoenix, Chamaerops, Scaevola, Cocos Weddelliana, Ptychosperma Alexandria, &c. ...

IRELAND and THOMSON have the pleasure to announce that, having purchased the stock of this splendid new TROPÆOLUM, they intend to send out the same the first week in May. ...

SELECT PANSIES, 12 choice varieties, 3s. 6d.; 12 extra-fine, selected PHLOXES, 3s. 6d. per dozen in pots. ...

SELECTED POTATOS. ASHLEAF KIDNEY, 6s. 10s. per ton. MYATT'S KIDNEY, 6s. 10s. per ton. ...

VIOLAS.—30,000 fine strong Plants: VIOLA CORNUATA, WHITE VIRGIN, 5s.; QUEEN OF HEAVEN, 4s.; CLEVEDON YELLOW, 4s.; BLUE KING, 4s. ...

DAHLIAS.—Plants in pots, 300 sorts. KALWAT and SON, Langport, Somerset.

MANGEL WURZEL SEED.—Lowest quotations to the Trade for home-grown seed. JOHN SHARPE, Bardon Manor, Lincoln.

PRIMULA SIEBOLDII, PRIMULA CORTUOIDES AMÆNA.—Thirty best new varieties are offered: good plants, in pots, at 7s. 12s., 2s. per dozen, our selection. ...

STRAWBERRIES.—Strong roots for fruiting this year, at 1s. per 100. Descriptive LIST on application. RICHARD SMITH and CO., Nurserymen, Worcester.

GRASS SEEDS FOR LAWNS.

Of the finest close-growing Evergreen kinds, 1s. per lb. Special preparations for all purposes, soils, and situations. ...

Unsolicited Testimonials.—"Knowing how difficult it is to obtain pure stocks of grass seeds, even when price is a secondary consideration, I write to say the supply I obtained from you for our new terrace lawns has given the greatest satisfaction." ...

FARM SEEDS

Of all kinds, which have given unqualified satisfaction. See Illustrated and Descriptive LIST, free on application.

RICHARD SMITH & CO., SEED MERCHANTS and NURSERYMEN, WORCESTER. (ESTABLISHED 1804)

SUTTONS' FLOWER SEEDS.

POST-FREE. The following should now be sown:—

Table listing flower seeds: PRIMULA, CERNERARIA, CALCEOLARIA, AURICULA, GARNATION, PICOTEE, POLYANTHUS, WALLFLOWER, MYOSOTIS, SWEET WILLIAM, AQUILEGIA. Includes prices per packet and per dozen.

Also all the Hardy Annuals.

From Mr. J. RENSMAW, Gardener to C. J. Lambert, Epsom. "The Cineraria seed I had from you last year has proved the best I have seen, both for variety of colour and size of flower." ...

SUTTONS' Short Select Seed List, Gratia and Post free. SUTTON & SONS, THE QUEEN'S SEEDSMEN, READING.

ASPARAGUS, very fine, 1, 2, and 3-yr. Jerusalem and the ARTICHOKES, RHUBARB, RUBY, Johnston's St. Martin's, LINCOLN, Plain CREAKS, SEED. ASHLEAF POTATOS. FREEMAN, Seed Grower, Norwich.

TWO SPECIALITIES WORTHY OF EXTRA NOTICE. The best Zonal Pelargonium in Cultivation for Summer Bedding is undoubtedly MILES' WEST BRIGHTON GEM. ...

MIGNONETTE. No variety ever introduced has been found to equal MILES' NEW HYBRID SPIRAL. Its beautiful, robust, compact and floriferous habit is the admiration of all who see it. ...

For Present Planting. CELERY PLANT.—Splendidly transplanted stuff can now be supplied of Wright's Giant or Cole's superb Red and White, 2s. per 100 of six score (6d. per score, post-paid), 1s. 6d. per 100 of 100.

LETUCE PLANTS, fine Old Brown Cos and Hammer-smith, at 4s. per 1000 (cheaper in large quantities). Terms cash with orders.

ASPARAGUS.—The finest roots that money can procure, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred. ...

T O T H E T R A D E. CHRYSANTHEMUMS, best named varieties, in 3-inch pots, 2s. per 100.

DAHLIAS, best named varieties, in 3-inch pots, 2s. per 100. DELPHINIUMS, in 3-inch pots, 2s. per 100. ...

SPECIAL CHEAP OFFER. For Cash with Order:—PELLAGONIUM GERANIUMS, strong plants, in pots, lushly in flower, of the best leading varieties, 2s. per dozen.

VERBENAS, Pelargoniums.—Special Offer. WILLIAM BADMAN offers the below-named Plants, of which he has a large healthy stock:—VERBENAS, Purple, White, Scarlet, Crimson and Rose, only best bedding sorts. ...

TRICOLORS, Mrs. Stoddard, 2s. per 100; Sophie Dumaresque, Lady Cullum, Sir R. Napier, 2s. per 100. BRONZE, McNamee and Black Joughals, the best bedders, 2s. per 100 in 12 pots.

SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Prince Silverwings, Little Toot, Flower of Spring, all at 2s. per 100. GOLD-LEAF, Crystal Palace Gem, 2s. per 100; Happy Thought, 1s. 6d. per 100.

DOUBLE, Madame Annetta Ballet, finest white, 15s. per 100; Madame Thibaut, market pink, 12s. per 100. TROPÆOLUM Vesuvius and coccinea elegans, good bedders, 2s. per 100.

CALCEOLARIAS, CARNATIONS, PICOTEE, PANSIES, DAHLIAS. CALCEOLARIA GOLDEN GEM, fine autumn-struck plants, which have been once re-transplanted, 5s. per 100, 40s. per 1000.

PELARGONIUMS IN BLOOM.

BECKWITH & SON. Have now ready many thousands of the above, in all stages of bloom, in upwards of 100 varieties. Prices, package free, delivered to any London Station:— 5s. 6s. 5s., and 47 10s. per 100.

TOTTENHAM NURSERY, LONDON, N.

SHANKS'S PATENT LAWN MOWERS.

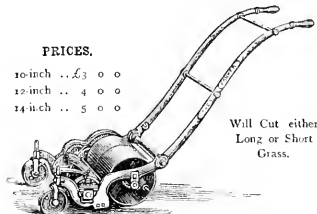
The only Lawn Mower fitted with Double-edged Sole-plate, which enables the Cutting Parts to Last Twice as Long as in other Machines.

H A N D M A C H I N E .



PRICES.
To cut 10 inches wide £3 10 0
To cut 12 inches wide £4 10 0
To cut 14 inches wide £5 10 0
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"THE YANKEE" LAWN MOWER.

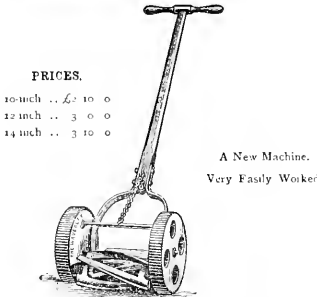


PRICES.

10-inch .. £3 0 0
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14-inch .. 5 0 0

Will Cut either Long or Short Grass.

"THE WAVERLEY" LAWN MOWER.



PRICES.

10-inch .. £2 10 0
12-inch .. 3 0 0
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A New Machine.
Very Easily Worked.

ALEX. SHANKS & SON,
DENS IRONWORKS, ABEROATH, FORTHFARSHIRE;

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Small Lawn Mowers, 6 in., 25s.; 7 in., 35s.; 8 in., 45s.
Illustrated Catalogues with Prices of Horse and Pony Machines on application.

2-WHEEL HAND GAPPING DRILLS.

Will sow every description of Farm and Garden Seeds.



For larger Manual and Pony Drills, see Illustrated List free from F. BIRD & CO., 11, Great Castle St., Regent St., London, W.

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THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says:—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*:—"This new machine does its work rapidly and admirably, the grass being cut with precision, and," he further adds, "the use of it will, we have no doubt, become general." Price 15s.
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PATENT RED-RUBBER GARDEN HOSE.

Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary Indiarubber Hose. Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."
Private Customers Supplied at Trade Prices.

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Manufacturers, 63, Long Acre, London, W.C.

HORTICULTURAL SHEET GLASS.

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—
14 X 12 20 X 12 20 X 14 20 X 16 20 X 18
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All descriptions of British and Foreign Glass can be obtained from

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Can be obtained in all sizes and qualities of

BETHAM & SON,
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B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 20-oz., and also large sizes in all qualities for cutting-up purposes, in 20-ft. and 300-ft. cases.

RALPH WALLER & CO. (Limited),
45, Dale Street, Manchester, Manufacturers of all kinds of GARDEN NETTING for protecting Fruit Trees from Frost, also HOTHOUSE SHADINGS for Orchids and Conservatories.

GARDEN NETTINGS.
No. 2, at 5d per run 54 in.; 72 in., 6d; per run: 100 in., 9d per run.
No. 3, at 6d per run 54 in.; 72 in., 8d per run; 100 in., 1s. per run.

HOTHOUSE SHADINGS.
Fine Netting, 6d. per run 54 in.; 72 in., 8d. per run; 100 in., 1s. per run.
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No. 6 (improved), 1s. per run 54 in. In pieces 30 yards long.

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No. 1, 3d per piece 20 yds. by 38 in.
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Company's on application.



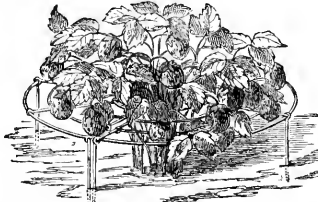
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It combines Efficiency with Appearance, Convenience with Economy, and its effects are Lasting.
Sold in Packets, 1s. each, with full Directions for Use, and may be obtained from all Seedsmen and Nurserymen.

Sole Manufacturers and Proprietors,
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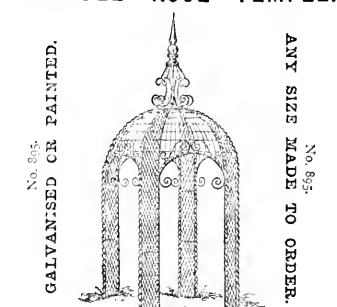
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Preserve your strawberries from Slugs, Contact with the Soil, and superfluous Moisture, by using R. HOLLIDAY'S "STRAWBERRY ORINOLINE," which has been in use now for sixteen years. For Testimonials see Circular.
For GARDEN and CONSERVATORY WIRE-WORK, AVIARIES, BASKETS, FLOWER-STANDS, ARCHES, TRELLISES, &c., see Illustrated Catalogue.

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THOMAS'S NEW PATTERN PORTABLE ROSE TEMPLE.



A very ornamental structure, suitable for a Lawn, or to be placed over a gravel walk where four paths meet.

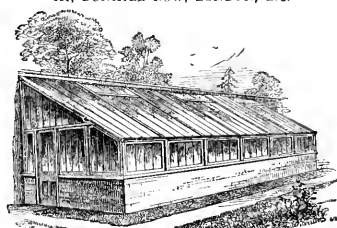
PRICES (Galvanised or Painted):—

Height.	Diameter.	To suit Pathways.	Width of Trellis.	£ s. d.
6 feet.	6 feet 3 inches.	4 feet wide.	9 inches.	4 4 0
12 feet.	8 feet.	5 "	1 foot.	5 10 0
14 feet.	9 feet 9 inches.	6 "	1 foot 3 ins.	7 0 0

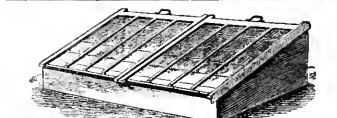
J. J. THOMAS & CO.,
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285, Edgware Road, London, W.)
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W. H. LASCELLES will prepare Special DRAWINGS and ESTIMATES for GREENHOUSES, if desired, without charge, and send his Illustrated Sheets, post-free, and also Sketches of Wooden Buildings for Tool-houses, Store-houses, &c. Horticultural Work of every description executed in the very best manner.



No. 75. MELON, OR CUCUMBER FRAMES.
CASH PRICES—Carriage Paid.

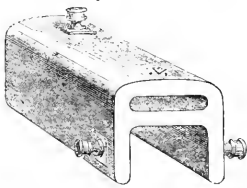
No. 2 size ..	8 ft. long	..	6 ft. wide	..	£ 17 0 0
No. 3 size ..	12 ft. long	..	6 ft. wide	..	4 17 6
No. 4 size ..	16 ft. long	..	6 ft. wide	..	6 7 6

These Frames are 14 inches deep in front, and 24 inches deep at the back; the lights are 4 inches thick, with a strong iron strengthening rod, and one handle to each light. These Frames are made of the best hard red deal, shipped from the best districts for durable wood, all painted four coats of best oil-colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales; also to Edinburgh and Dublin.
Estimated for Garden Frames, Pit Lights, Sashes, &c.
"The Frames you sent me give the greatest satisfaction."
— W. SMITH, Bentley Terrace, Melton Mowbray.

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UPPER GROUND STREET, LONDON, S.E.,
Have the largest and most complete Stock in the Trade to choose from.



CAST IRON FLUED SADDLE BOILER.

We are now in a position to offer this extraordinary Boiler, made in Cast Iron, 3 feet long, and will shortly be able to supply larger sizes. This Boiler will be found to be more durable in Cast Iron than in Wrought Iron.

HOT-WATER BOILERS, PIPES, and CONNECTIONS, and all CASTINGS for Horticultural Purposes:

*ILLUSTRATED CATALOGUE, 12th Edition, price One Shilling.
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Hot-water and Hot-air Apparatus erected Complete, or the Materials supplied.

SEE THE NEW AMERICAN LAWN MOWER, THE "PRESIDENT,"



Before you buy any other. It is the Best in the World, and its sale exceeds any other. Unsurpassed for SIMPLICITY, DURABILITY, and LIGHTNESS OF DRAUGHT, when cutting long or short, wet or dry Grass.

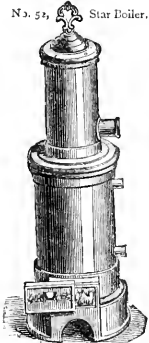
Hand Sizes: 8 in. 10-in. 12-in. 14-in. 16-in. 18 in. The "PRESIDENT" 42 in. 48 in. 54 in. 60 in. 66 in. 72 in. List of Pony and Horse Mowers on application.

THOMAS M'KENZIE & SONS (Limited),
15, Holborn Viaduct, London, E. C. 1.
Dawson Street, Dublin; and Victoria Street, Belfast.

VIRGIN CORKWOOD,
for Ferneries, Rockeries, and Ornamental Work in Gardens, supplied at wholesale rates to Nurserymen and Seedsmen by **WM. RANKIN and SONS, 10, Carlton Place, Glasgow,** and Lisbon, Portugal. Shipments direct from Lisbon at special quotations.

BEIGATE SILVER SAND.—Coarse and fine, on rail at 7s. 6d. per ton—less than 4-ton trucks. Terms cash.—Apply to H. SIMS, The Priory, Beigate.

No. 57, Star Boiler.



Will keep a night all night without attention.

CONTRACTORS TO HER MAJESTY'S WAR, PRISON, AND INDIAN DEPARTMENTS.

STEVEN BROS. & CO.,

HORTICULTURAL and GENERAL IRONFOUNDERS,

35 and 36, UPPER THAMES STREET, LONDON, E. C.

Works: McDOWALL, STEVEN & CO., Glasgow. Established Fifty Years.

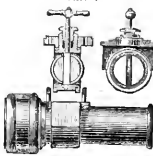
The largest and best Stock of **HOT-WATER BOILERS and PIPES, CONNECTIONS and COIL BOXES, COIL CASES, FURNACE FITTINGS, &c.,** in London.

Also of **WROUGHT, WELDED RANGE BOILERS and KITCHEN RANGES.**

Our Foundries are the largest in Glasgow, covering over 7 acres of land, and employing over 1000 men.

Illustrated Price List on application. Special Prices quoted for quantities.

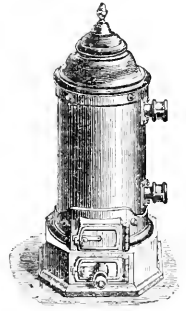
Steven Bros. Milton Patent Valve.



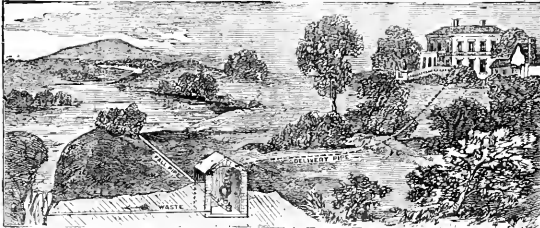
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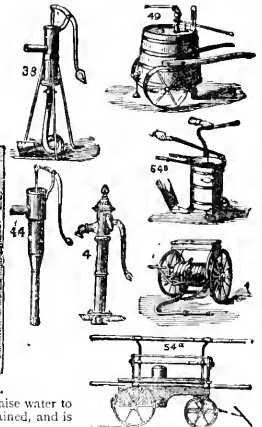
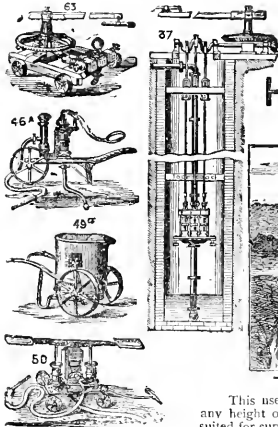


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THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.



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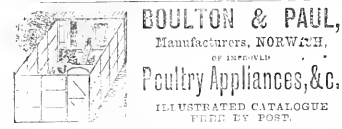
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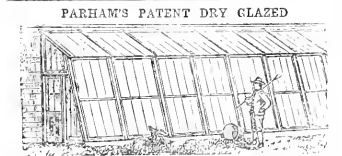
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Applied to Conservatories and Greenhouses.
With Illustrations, Prices, &c.
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HORTICULTURAL BUILDINGS
Of every description Made, Erected, Fitted and Heated.
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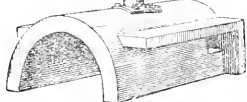
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WORKS: CHELMSFORD.

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Patronized by
HER MAJESTY,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
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Is extensively used for all kinds of
OUTDOOR WORK, CONSERVATORIES,
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CAN BE LAD ON BY REGISTERED LABORER.

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PAINT.—Large quantity for Sale, especially prepared for Horticultural Buildings, Greenhouses, &c., 2 1/2 pints per gallon. Improved Zinc White Paint, 4s. 6d. per lb. Cash. — A. LEETE & CO., 129, Ludlow Road, Southwark, S.E.

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"Proceedings of the Times, 25th July 1874."—I have this day forwarded from Chipping to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Pierrefield Park, Chesham. — I am, sirs, yours respectfully, Wm. Cox."

CAUTION.—Hill & Smith would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade mark as above, without which none is genuine.

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FIRE.—Established 1710. Home and Foreign Insurances at moderate rates.

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Assurance against Accidents of all Kinds—Assurance against Railway Accidents alone—Assurance against Fatal Accidents at Sea—Assurance of Employers' Liability.

RAILWAY PASSENGERS' ASSURANCE
Company. The oldest and largest Company, insuring against all accidents of all kinds at the Right or Local Companies. Chairman, Subscribed Capital, £1,000,000. Paid-up Capital and Reserve, £250,000. Moderate Premiums. Bonus awarded to Insured for 10 years, £1,700,000. Has been a Gold Medalist. Apply to the Clerks at the Railway Stations, the Local Agents, or to Messrs. J. C. & Co., Grand Hotel Buildings, Charing Cross, London. W. H. WILLIAMS, J. VIAN, Secretary.

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Established 1840. Especial attention paid to subjects in Botany and Natural History. Copies of Coloured Drawings can be reproduced of any size that may be required, and Estimates will be furnished on full particulars being addressed to his London Agent.

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HAIR DRESSING and HAIR PROLIFER, will be largely used, and the popularity which we predicted for it twelve months ago has been proved. We have no competitors in London or in the provinces, bearing witness to the efficacy and merits of the preparation. It is a really invaluable adjunct to the toilet, and is a most efficacious preparation in all cases of baldness. It costs 2s. 6d. and 4s. 6d. per bottle; three, 7s. and 12s. 6d.; six, 13s. 6d. or 24s.; dozen, 26s. or 46s. From Chemists, Perfumers, and Hairdressers, everywhere; or, K. & F. WARDER, 40, Broad Street, London, W.

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Children's, 2/6 8 | Hemstitched, 3/6 8
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PARTNERSHIP.—Advertiser, with Glass and Ground, seeks WORKING PARTNER, to Grow for Market, all small seasons. Near Manchester. Lease. Also a GARDENER WANTED, used to above work.—C. F. C., *Gardener's Chronicle* Office, W.C.

WANTED, a HEAD WORKING GARDENER, who thoroughly understands the Cultivation of Plants and Fruit under Glass, and whose Wife is a good Laundress. Family small.—A. D., 22, Whitehall Place, W.

WANTED, a practical GARDENER—must be thoroughly understood in Vine and Peach-tree, Currant Strawberries, Melons, &c. Wages 2s a week.—Apply with testimonials, to E. H. FORWOOD, Manor House, Chesham.

WANTED, as GARDENER, a steady, active experienced single man, used to Horticulture, Kitchen, and Flowers. He will be required to make himself generally useful. Wages 24s per week and board.—Mr. SHEPHERD, The Lodge, Aberdeen Park, Highbury, N.

WANTED, a married man, without family, as SECOND GARDENER (to live in a Lodge); E. J. Kennal Manor, Chislehurst, Kent.

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WANTED, an active energetic MAN, well qualified to Produce and Grow in large quantities, and sell first-class style, Hard and Soft-wooded Flowering Plants. A thoroughly capable man would find this a desirable situation in every way. It is essential that applicants be able to refer to well-known Market Growers, with whom they have gained their experience.—L. K., Hurst & Son, 175, Oldbush, E.C.

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WANTED, an active industrious man as PROPAGATOR and GROWER of Soft-wooded Plants for Market—one who has Ground for Covent Garden preferred. Must be a thorough practical man. Wages, 60s, good cottage, and overtime.—SHAWS, Nurseries, Kenilworth, Leics, Yorkshire.

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WANTED, a MAN, aged 35. Wages 24s. per week. Must have been in Market Nurseries, and be quick at Pottling, Watering, &c.—Apply by letter, with reference, to H. E., Chiswick Nursery, Turnham Green.

WANTED, TWO young MEN, used to Pottling, Watering, &c., for Market Nursery. Wages 18s per week.—J. COLE BROS., Goose Green, East Dulwich, S.E.

WANTED, an active young MAN, with good character and thorough knowledge of Forcing Fruit, &c.—Mr. LORMICK, The Nurseries, Ashford, Staines, Middlesex.

WANTED, a MAN, to assist in the Greenhouse, and make up off-sets.—Apply, personally, to R. CHILDS, Bloeham Nurseries, 67, Rye Lane, Peckham, S.E.

WANTED, a thoroughly efficient and energetic MAN, for the Forestry Department of a large Nursery—Apply, stating age, qualifications, references, and salary expected, to NURSERIES, Messrs. Nutting & Sons, 60, Islington, London, E.C.

WANTED, AT ONCE, an experienced BOOK-KEEPER and CASHIER. Must be thoroughly trustworthy and quick at the account. None but the best characters will bear the strictest investigation as to sobriety and trustworthiness need apply. Guarantee required.—Apply, stating experience, salary, and references, to S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

TRAVELLER WANTED.—THE ADVERTISER wishes to meet with One or Two energetic Men, having a connection amongst Seedsmen, Florists, and Gardeners, or still in connection with the Horticultural world, who can command a large Sale. Manchester and neighbourhood would require special attention. Only those who can give exceptional references need apply. Address only, A. B., 3, Tyndale Place, Upper Street, Islington, London, N.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING and COLLECTING MACHINES for 1882.

THE WINNERS OF EVERY PRIZE IN ALL CASES OF COMPETITION.

Patronised by Her Most Gracious Majesty the Queen on many occasions, His Royal Highness the Prince of Wales, the King of the Belgians, the late Emperor of the French, the Emperor of Russia, and most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "Journal of Horticulture" of June 9, 1881.—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Son, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856,

And Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

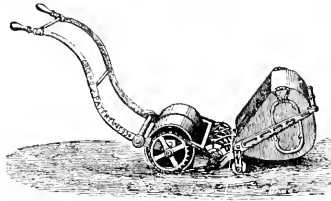
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible. 2d. They are worked with much greater ease than any other. 3d. They are the least liable to get out of order.
- 4th. They make little or no noise in working. 5th. They will cut either short or long Grass, wet or dry.

Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower.

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
* To cut 22 inches. By Two Men ...	8 10 0
* To cut 24 inches. By Two Men ...	9 0 0
* If made stronger, suitable for Donkey, 30s. extra.	

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 28 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

PRICES.

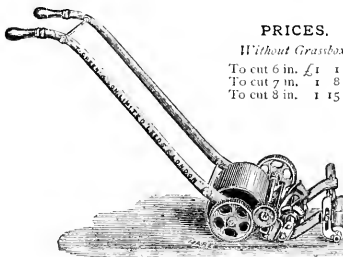
Without Grassbox.

To cut 6 in. £1 1 0
To cut 7 in. 1 8 0
To cut 8 in. 1 15 0

PRICES.

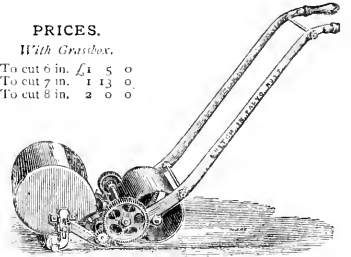
With Grassbox.

To cut 6 in. £1 5 0
To cut 7 in. 1 13 0
To cut 8 in. 2 0 0



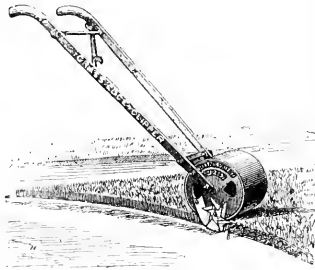
This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, servicable machine, and very easy to work.



GREEN'S PATENT GRASS EDGE CLIPPER. GREEN'S PATENT LAWN TENNIS COURT MARKER.

Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.

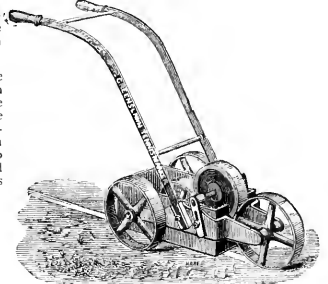


SIZE and PRICE.

Wide. 8 inch ..	Diam. 7 inch ..	£1 10
Packing Case, 2s.		

This Machine is of novel design and construction, and the simplest and most effective in its operations.

In the trough containing the liquid there is a loose drum which revolves when the machine is in motion, and conveys the marking material to the intermediate pulley, which in its turn transmits it to the front one, so that the ground is marked effectively as the machine is pushed along.



Price, 21s.

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.

Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

No Lawn Mower Manufacturer keeps so large a stock of Mowers as is to be found at our London Establishment, 54 and 55, Blackfriars Road, where purchasers can select out of several hundred Machines, of Hand, Pony, and Horse Power, and have their Orders executed the same day they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

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GARDENERS' CHRONICLE.

Established 1841.

No. 436.—Vol. XVII. { NEW SERIES }

THURSDAY, MAY 6, 1882.

{ Registered at the General Post-office as a Newspaper. } Price 5d. POST-FREE, 5 1/2d.

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ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardener's Chronicle*, Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE—COMMITTEES' MEETINGS, Fruit and Flower at 11 A.M.; Scientific at 1 P.M. General Meeting for the Election of Fellows, &c., at 3 P.M. **PLUMENADE SHOW** Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

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GREAT FLOWER SHOW OF THE SEASON and HORTICULTURAL IMPLEMENT EXHIBITION, May 23, 24 and 25. Roses, Orchids, Anise, Peonies, Rhododendrons, Fruit, and Vegetables. Competition for Prizes offered by Messrs. CARTER & CO., SUTTON & SONS, and DANIELS BROS. Band of the Royal Horse Guards each day from 3 o'clock.

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ROYAL BOTANIC SOCIETY,
Great Park, Richmond, Surrey.
THE FIRST SUMMER EXHIBITION OF PLANTS and FLOWERS will take place on WEDNESDAY, May 17. Tickets open at 2 o'clock. The Bands of the Royal Horse Guards and Foot Guards will perform from 7 to 9 o'clock. Vouchers to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 5s. each; or on the day of Exhibition, 7s. 6d. each.

ALEXANDRA PALACE.
(JONES & BARBER, Lessees). The following are the Flower and Decorative Shows fixed for the present season:—
July 10.—**DECORATIVE EXHIBITION and PELARJURY.**
July 8.—**GRAND ROSE SHOW.** (GONIUM SHOW.)
Aug. 5.—**NATIONAL GOSWELLERY SHOW.**
Aug. 12.—**GRAND DECORATIVE EXHIBITION and SHOW of GIDDIE.**
Sept. 10.—**NATIONAL GRAPE EXHIBITION and POT ZONAL PELARGONIUM SHOW.**
Oct. 7.—**NATIONAL GOSWELLERY SHOW.**
Nov. 4.—**EXHIBITION OF HARDY FRUIT.**
Dec. 23.—**EXHIBITION OF HARDY TREES.**
Shows may be obtained upon application to J. FORSYTH JOHNSON, Director of Horticultural Exhibitions.

SUTTONS' CALCEOLARIA. THE BEST.
"Really grand in size, colour, and variety."
Rev. T. J. W.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' CINERARIA. THE BEST.
"The best I have seen, both for variety of colour and size of flower."
J. R.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA. THE BEST.
"The admiration of all who see them."
W. F. J.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA. THE BEST.
"The form, size, substance, and colour of the flowers are perfect."
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Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' GLOXINIA. THE BEST.
"The Gloxinias are really magnificent."
W. M.
Price 2s. 6d. and 5s. per packet, post-free.

SUTTON AND SONS,
THE QUEEN'S SEEDSMEN,
READING, BERKS.

Tea Scented Roses on Brier.
EDWIN HILLIER'S stock of the above is a new fit for distribution; fine healthy plants in 48-size pots by the dozen, 100, or 1000.

Tea Scented Roses on Brier.
EDWIN HILLIER'S stock of the above is a new fit for distribution; fine healthy plants in 48-size pots by the dozen, 100, or 1000.

TEA ROSES, on own roots, extra strong, out of 1 1/2-inch pots, 6s. per 100, for cash.
MAIRIS & CO., Weston-in-Gordano, Bristol.

SHOW PELARGONIUMS—3000 Blooming and Succession Plants, fine healthy stuff, in 48's, 5's, 7's, 75's, and 100's per 100. Leading varieties.
TURNER BROS., Florists, Allerton, Liverpool.

NEW PALM—NEW PALM.—A few hundred young Seedlings, in store p-85, of the new and scarce graceful Palm, *Thrinax excelsa*, may be had at J. VAN DER SWAELMENS' Lily Nursery, Ghent, Belgium.

Cabbage Plants for Sale.
S. BIDE can offer good strong Drumhead or Cattle CABBAGE, Early Battersea, Enfield Market, Imperial, and Nonpariel, at 3s. per 1000 for Cash with Order.
S. BIDE, Alma Nursery, Farnham, Surrey.

CAULIFLOWER PLANTS—Fine strong healthy plants. Price per 1000 on application.
JOHN CATELL, Nursery and Seed Establishment, Westernham, Kent.

GLOBE ARTICHOKE PLANTS, 6s. per dozen, 40s. per 100; low prices to the Trade. Now ready.
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Floral Commission Agency.
NURSEYMEN and OTHERS having choice CUT FLOWERS for DISPOSAL are requested to communicate with W. CALE, 4, Tavistock Row, Covent Garden, W.C.—**MAKREHAL NIEL ROSES WANTED.**

Eucharis amazonica.
BULBS WANTED, in large quantities.
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WANTED, good Plants of Tricolor GERANIUMS, out of 8's. Lowest price per 1000.
W. AND J. BROWN, Stamford.

WANTED, Old or Young Plants of EUPHORBIA JACQUINIFLORA.
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WANTED, STEPHANOTIS FLORIBUNDA, to cover glass 14 x 7, well-grown, healthy, and plenty bloom plants. Price 1s. per rail to D. B. C., Rosfield, Sevenoaks.

WANTED, strong plants of CLEMATIS VITALBA, VITICELLA, and FLAMMULA. State particulars and price to CHARLES NOBLE, Bagshot.

SWEET BAY TREES.—WANTED to PURCHASE PLANTS, standards or bushes, from 4 to 8 feet high; also ORANGE and LEMON TREES.—Apply to O. PHILLIPS, Royal Cavour, 20 and 21, Leicester Square, London, W.C.

WANTED, large healthy Palms, well furnished and clean, consisting of Spathophias, Areca lutescens, Kentias, Raphis, or any tolerably erect-growing and not too tender sorts; also Aspidistra lurida and Pandanus Veitchii, for stock in EXCHANGE for other PLANTS or CASH.
W. HOWARD, Southgate, N.

CARTERS' NEW DOUBLE MAZARINE BLUE VIOLET, now being sent out for the first time. The finest Ultramarine Blue Double Violet in cultivation. Strong Plants, 2s. 6d. each, 24s. per dozen.

THE NEW DOUBLE PINK BOUARDIA, "PRESIDENT GARFIELD." JAMES CARTER and CO. have been appointed, by Franz & Neuner, Sole Agents in Europe for the Sale of this charming Plant, orders for which are now being booked in strict rotation. Price 10s. 6d. and 21s. each. Usual Discount to Trade.

DOUBLE WHITE BOUARDIA, "ALFRED NEUNER."—First class Certificate Royal Horticultural Society. Price, good Plants, 1s., 2s. 6d., 2s. 6d., and 5s.; extra strong plants, 7s. 6d. each, from JAMES CARTER and CO.

KING'S NEW COLEUS for 1882.—The splendid varieties Certificate'd by the Royal Horticultural Society last season are now being offered by JAMES CARTER and CO. The Set of 6 Varieties, price 25s.

CARTERS' PRACTICAL GARDENER.—The Best Amateurs' Guide. Price 1s. 6d., post-free 1s. 4d., from JAMES CARTER and CO.

CARTERS, THE QUEEN'S SEEDSMEN. By Royal command to the Prince of Wales, 237 and 235, High Holborn, London, W.C.

Tuberous Begonias.
JOHN LAING and CO'S Gold Medal Collection is unrivalled. They have now in cultivation 10,000 Begonias, which will present to the public an unprecedented floral display this summer. Orders now booked for blooming plants middle of June. Price, 12s. to 6s. per dozen. CATALOGUES on application. Advertisers

JOHN LAING AND CO, Forest Hill, S.E.
NEW PLANTS.—MR. WILLIAM BULL'S New Illustrated Plant CATALOGUE for 1882 is now ready; price 1s.

NEW PLANTS.—*See* Illustrations in Mr. WILLIAM BULL'S CATALOGUE for 1882; price 1s.

NEW PLANTS, including those introduced and sent out for the first time by Mr. WILLIAM BULL and others worthy of cultivation.

NEW PLANTS.—*See* Descriptions in Mr. WILLIAM BULL'S NEW CATALOGUE for 1882; price 1s.

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

ALTERNANTHERA magnifica and paronychia-oides, 5s. per 1, 50s. for 22s.; verbena-rod 6s. per 100. WM. ETHEKINGTON Manor House, Swanscombe, Kent.

Ampelopsis Veitchii.
J. W. WIMSETT and SON have strong plants of the above to offer to the Trade, in 48 pots at 9d. per dozen. Ashburnham Park Nursery, King's Road, Chelsea, S.W.

DAHLIAS.—DAHLIAS.—DAHLIAS. Intending Exhibitors should send for CATALOGUE from C. R. FERRY, The Cedars Nursery, Cusick Bromwich, near Birmingham.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s., and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, super, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
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Now is the time to transplant HOLLIES—Grand specimens of all sizes to 10 feet high, and of the Best Variegated and green kinds. See LIST free on application. These Trees should be seen to be purchased.
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GERANIUMS for BEDDING-OUT Strong healthy autumn-struck plants, in good variety, at 10s. per 100. Silver Variegated, 12s. per 100. Packages free for cash with order.
S. BIDE, Alma Nursery, Farnham, Surrey.

GERANIUMS.—Extra fine Plants, in 48's, of *Vesuvius*, *Madame Vaucher* and *Master Chastain*, fit for immediate effect, 3s. per 100. Special price per 1000. Cash with order.
JAMES PAGE, The Horsey Nursery, Horsey, N.

E. H. KRELAGE and SON, Haarlem. Holland, desirous to form a Collection of Show Auriculas, next autumn, beg Growers of this Plant to make them offers of sorts they have for sale, stating lowest prices per couple, and if they wish to sell them in exchange for Bulbs, &c., or for Cash.

BEDDING VIOLAS—Admiration, Duchess of Sutherland, Sovereign, Pursty, and Victoria, all autumn struck in open ground, 8s. per 100.
Double crimson and white DAISIES, full of bloom, 2s. 6d. per 100. SANTOLIA INCA autumn struck, 8s. per 100. GRAPE HYACINTHS, ANEMONE JAPONICA, SCHIZOSYLIS COCCINEA, and the finest SEDUM for bedding, all at 8s. per 100.

T. L. MAYOS, Nurseryman, Hereford.

SALES BY AUCTION.

Lower Sydenham, S.E. CLEARANCE SALE. MESSRS. PROTHEROE AND MORRIS will sell by auction...

Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, N.E.

Little Blake Hall, Winstead. CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by the owner, by leaving the neighbourhood to sell by auction...

Valuable Imported Orchids, just brought home by Mr. W. E. FERFMAN, will sell by auction...

Highly Important Sale of Established Orchids. Mr. J. C. STEVENS will sell by auction...

A GRAND LOT OF CUTLEAVES, including Dawson, the finest forms of Xenostigma, Evans, Lohata, Rose, &c.

CYPRIPEDIUM, including caudatum, roseum, leucostictum, Stonei, superbiens, &c.; DENDROBIUM, Auswornia, one of the finest plants in the country...

Thursday Next. IMPORTED ORCHIDS. Mr. J. C. STEVENS will sell by auction...

Established Orchids, from the Collection of Sir T. LAWRENCE, Bart., M.P. Mr. J. C. STEVENS has received instructions from Sir Trevor Lawrence to include in his sale...

Choice Imported and Established Orchids. Mr. J. C. STEVENS will sell by auction...

Thursday, May 18. PHALANOPSIS AMABILIS and SCHILLERIANA. Mr. J. C. STEVENS has received instructions...

West Drayton. FOR OCCUPATION or SPECULATIVE INVESTMENT. Highly Valuable FREEHOLD MARKET GARDENS...

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Fifty Nurseries, Market Gardens, Florist and Seed Businesses to BE DISPOSED OF. MESSRS. PROTHEROE AND MORRIS' Horticultural Register contains full particulars...

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Delargoniums. Show, French, and single-petaled, in healthy plants, catalogued in single pots, 35s. per 100, packing included...

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Beans—Canadian Wonder. also Pale Blue and Newington Wonder. Prices on application to WALKINS and SIMPSON, Seed Merchants, 12, Exeter Street, Strand, W.C.

NEW BEDDING TROPÆOLIUM, Bed-4-foot Rival (Bell), strong plants, 2s. per dozen. Select named and small GERANIUMS, in double and single forms...

WEST KENT HORTICULTURAL SOCIETY.

President.—THE RIGHT HON. EARL SNEYDE, G.C.B., Lord Lieutenant of Kent. THE ANNUAL EXHIBITION of the SOCIETY will be held in Camden Park, Chislehurst, on SATURDAY, July 8.

THE NORTHAMPTONSHIRE CHRYSAETHEMUM SOCIETY'S ELVKENTH ANNUAL SHOW will be held in the Corn Exchange, Northampton, November 22 and 23, 1882.

THE SECRET of HIGH CULTIVATION. IN POISS: How to Grow Soft-wooded Plants to the Highest possible State of Perfection...

TO THE TRADE.—Show and Fancy Dahlias, Madame Thibaut, true to name, 20s. per 100. Double GERANIUMS, Madame King, best double pink, 15s. per 100.

DELARGONIUMS—Handsome, strong, well coloured Golden Tricolor, Dresden, Silver Tricolor, Silver-edged, 24s. per 100.

SEAKALE SETS and ARTICHOKES for Planting to Sell. T. BROSNAN, Norman Farm, Fulham, S.W.

JOHN SOLOMON offers good strong Spring-strawed, and other varieties, well rooted, at 6s. per 100, 50s. per 1000, for cash with order.

AZALEAS, with buds, for September.—Indian, hardy Moths, hardy Ghent—4s., 4s., 4s., 4s., per 100, each with order.

HENDERSON'S NEW FUCHSIA. F. EDELWEISS.—The best and purest double white corolla ever offered in Fuchsia...

CHRYSANTHEMUMS.—The very cream only of all classes of large-flowered Pompon, Japanese, and Early; no inferior sorts kept.

H. I. HARDY, F.R.H.S., offers fine strong unusually healthy Autumn-struck Plants. GERANIUMS, Yesuvius and other Scarlets...

QUEEN OF PINKS (Hardy's New), fine magenta-pink, 4s. per dozen. STOUR VALLEY BEAUTY (Hardy's New), delicate peach, 4s. per dozen.

CALCULARIAS, aureo-limbata, from single pots, 1s. 6d. per dozen. VERBENAS, best named sorts, from single pots, 1s. 9d. per dozen.

LOBELIAS—Empress William, brilliant blue, the very best Dwarf pet. Bedding and borders, from single pots, 1s. per dozen.

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Orchids. THE ODONTOGLOSSUM-HOUSE at Mr. WILLIAM BILLS Establishment is now a charming sight, and highly respectable in its character. Establishment for New Rare Plants, 536, King's Road, Chelsea, London, S.W.

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The best Zonal Pelargonium in Cultivation for Summer Bedding is undoubtedly

MILES' WEST BRIGHTON GEM.
After five years' trial it still holds the first position as the most floriferous, compact, and effective variety yet introduced.

Awarded Three First-class Certificates.
Price, in 60-seed pots 4s. 1s. 6d. per dozen.
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Special quotations for large quantities.

MIGNONETTE.

No variety ever introduced has been found to equal

MILES' NEW HYBRID SPIRAL.
Its beautiful, robust, compact and vigorous habit is the admiration of all who see it.
It is far more fragrant than any other variety.
Price of seed (in sealed packets only), 1s. per packet.
Established plants, in single pot 5s. to 12s. per dozen; or 1s. 6d. each.
Liberal Discount to the Trade.

W. MILES,

WEST BRIGHTON NURSERY, HOVE, SUSSEX

SEEDS:

VEGETABLE, FLOWER, and FARM.

RICHARD SMITH & CO.

Spare neither expense nor trouble in obtaining the finest quality, and they invite a comparison of their prices with those of any other firm.
LISTS free on application.

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SEED MERCHANTS and NURSEYMEN,
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Orchids a Speciality.

The stock at the Clapton Nursery is by far the largest hitherto seen in Europe, and is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

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" Knowing how difficult it is to obtain pure stocks of grass seeds, even when price is a secondary consideration, I write to say the supply I obtained from you for our new terrace lawns has given the greatest satisfaction."
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Of all kinds, which have given unequalled satisfaction. See Illustrated and Descriptive LIST, free on application.

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ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants.
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Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and will be pleased to show them to any one interested in this beautiful class.

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Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

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CARTERS' SEEDS OF PRIZE FLORISTS' FLOWERS FOR PRESENT SOWING.

Primula, Carters' New Blue, Holborn Gem — The first blue Primula ever offered — a distinct and valuable break. Awarded First class Certificate of the Royal Horticultural Society, January 10, 1882.	Price, per pkt. 5s 0d and 10s 6d.
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Coleus, choice Mixed	1 6 and 2 6
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Geraniums, Show vars.	1 0 and 2 6
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" Bronze vars.	2 6
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CALADIUMS! CALADIUMS!!
Twelve choice named varieties, including several of quite recent introduction, a splendid selection, package free, for 22s.
Six varieties for 12s. 6d.

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The grandest collection extant, including
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PELARGONIUM EDWARD PERKINS

is one of the most distinct and best winter bloomers yet introduced. Coloured Plates, or Bunch of Flowers, 6d. each, returnable to Customers.

Strong Plants, 5s. to 10s. 6d. each.

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Ferns a Speciality.

EXOTIC AND BRITISH FERNS,
IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

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Border Carnations, Tree Carnations, Pinks, Tuberos Begonias, New Double and Single Zonal Geraniums for pot culture, Foliage Geraniums, New Ivy-leaf Geraniums, New Fuchsias, Ferns, Bouvardias, Salvias, Abutilons, Coleus, Chrysanthemums, Cyclamen, Gloxinias, Double Petunias, Miscellaneous Stove and Greenhouse Plants, and Bedding Plants in great variety.

CATALOGUE of the above, including all the Best Novelties, has now been posted to all old Customers, and will be forwarded free to all applicants, upon receipt of three penny stamps.

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BOLEYN NURSERY, UPTON, ESSEX.

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and as full as can be desired of useful and reliable information on Garden and Flower Seeds, yet without any unnecessary costliness, post-free on application. Such a catalogue as this is claimed to be most of necessity conducive to economy, both as regards purchaser and vendor.

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Every endeavour is made to supply Seeds of the *Finest Quality and of the Best Varieties at a Moderate Price,* to attain which desirable object neither trouble nor expense are spared in the procuring and proving of the Seeds.

THE GUINEA COLLECTION
(Carriage free), for the Anstetter's Garden, has been much approved, and contains a most valuable and useful assortment of Vegetable Seeds.
All enquiries are gladly and promptly attended to.

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Seed Merchants & Nurserymen, Worcester.
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Vanda Roxburghii.
MR. WILLIAM BULL has just received a large importation of **VANDA ROXBURGHII**, in excellent condition, and makes special offer of nice healthy plants of this handsome ORCHID, 2s. 6d. per dozen.—
 Single Plants at 2s. each.
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 100 Plants at 1s. 6d. each.

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

Dahlia.
CORK AND SON, FLORISTS, Brunswick Road, Norwich, beg to offer the following, all good grown plants, well established in pots, to the Trade and Public generally.—
DAHLIAS, Show, Fancy, and Pompon. Single.
PELAGONIS, Show and French.
ZONAL GERANIUMS, superb collection, in 5-inch pots. Sent on receipt of Post-office Order, with plants to compensate for carriage. Prices on application.

Plants for Spring.
CHARLES TURNER'S CATALOGUE is now ready, containing full Lists of Florist Flowers, Pelargoniums of all classes, new Roses, Bedding Plants, &c. C. TURNER especially directs attention to his fine collection of Carnations, Picotees, and Cloves, at this most seasonable time for planting. The Royal Nurseries, Slough.

NEW ROSES of 1882, in pots.—Seller's Selection, 30s. per dozen; Funchers, 36s. per dozen. The above comprise all the best English and French raised Hybrid Perpetuals, Perpetual Polyantha, Teas, Hybrid Teas, and Perpetual Moss.

ROSES of 1881, of above-named classes, 18s. to 24s. per dozen, in pots.

CHOICE ROSES.—Tea-scented, Hybrid Tea, Noisette, China, and Bourbon, 18s. to 24s. per dozen, strong plants in pots.
 Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

EARLIEST OF ALL PEA (Laxton).—Gardeners and others who are trying this new Pea will greatly oblige by reporting their opinion of it to Messrs. HOOPER AND CO., COVENT GARDEN, W.C. As soon as they are in a position to do so.

To the Trade.
SWEDE, large Purple-top.—The undersigned offer for Cash about 250 Sticks of the above, and of a first-class Stock, grown under their own supervision, from carefully selected Stock Seed. Large buyers treated liberally. Samples and prices apply.
W. W. JOHNSON AND SON, Seed Growers and Merchants, Boston, Lincolnshire.

Cattle Cabbage.
CATTLE CABBAGE.—Robinson's Champion Oxheart Cabbage, good strong plants, 2s. 6d. per 1000.
W. C. PERKINS, Fcton, near Northampton.

New Crimson and Yellow Bomarea.
BOMAREA SHUTTLEWORTHII.
SHUTTLEWORTH, CORDER AND CO.
 We have great pleasure in offering the above beautiful new species. Its numerous brilliant red and yellow flowers render it one of the most charming of cool conservatory chambers. *Vide* description by Dr. Masters in the *Gardeners' Chronicle* for January 27, 1882, p. 76.
 Strong plants are now offered, price 21s., 42s., 63s. each.
 Also strong plants of
BOMAREA CONFERTA, 30s. 6d., 63s., 21s., and 42s. each.
CORDERI, 2s., 7s., 6d., and 10s. 6d. each.
SHUTTLEWORTH, CORDER AND CO., Orchid and New Plant Importers, 191, Park Road, Clapham, S.W.

3000.—Tree or Perpetual Flowering Carnations.—3000.
A ALEGATIÈRE, scarlet; Vulcan, mottled A. red; Irma, mottled pink; La Florifère, white; Fusilier, rose striped; Le Favori, carmine-pink, &c., extra strong plants, which will average many flowers each, the best in the trade, 25s. per dozen; also good flowering plants, 12s. 6d. per dozen. Souvenir de la Malmaison, 2s. 6d. and 12s. per dozen.
 Descriptive CATALOGUE free on application.

5000.—Border Carnations.—6000.
CHOICEST NAMED VARIETIES, 6s. 6d. to 12s. per dozen; also SHOW PINKS, 6s. per dozen. By post, or in 60-pots.
 Descriptive CATALOGUE free on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

Verbenas—Verbenas.
WILLIAM BADMAN offers the following **VERBENAS**—Purple King, Crimson King, Le Grand, Fleuve de Neige (White), Lady Cowley (Pink), strong rose striped; Cuttings, 6s. per 100, 50s. per 1000; or established in pots, 10s. per 100, 80s. per 1000.
 100 in 12 choicest Show varieties, 8s.; in 25 best sorts, 10s. per 100.
DAHLIAS, best sorts, good plants, 15s. per 100. Terms Cash, Packing included.
 Gemmeary Nursery, Gravesend.

THE VERY CHOICEST STRAINS.—
FRIMULA, CALCEOLARIA, CINERARIA, BEGONIA, CYLLAMEN, and AURICULA, in packets, 1s. to 5s. each, post-free.
 Extremely showy coloured **COWSLIP SEED**, 1s. per packet, post-free.
 The Best Evergreen **LAWN MIXTURE** (sow now), 12s. per cwt., carriage paid.
SEEDS and PLANTS of every description, of best qualities, at the most moderate rates.
 Priced CATALOGUES post-free.
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

DAHLIAS and VERBENAS.—Our celebrated collections of the above are now ready. Descriptive CATALOGUES free on application. The Plants are very fine and early this season. Trade orders respectfully solicited.
KEVNES and CO., The Nurseries, Salisbury.

Pyrethrums, Double-flowered, in Pots.
ROBERT PARKER begs to announce that he can supply the above-named by the dozen, 100, or 1000, in nearly 100 named varieties, from 9s. per dozen upwards.
 Descriptive LISTS forwarded to applicants.
 Exotic Kitchens, Tooting, Surrey, S.W.

CHOICE FLORISTS' FLOWERS

Nice Young Plants from Pots.
Carefully Packed, Post or Carriage Free, at Prices quoted.

- | | | | |
|--|-----|-------------|----------------------|
| CHRYSAANTHEMUMS , new varieties of 1882, including— | | Per dozen.— | d. |
| some splendid sorts | ... | 6 | 0 |
| large flowered, incurved, &c., fine exhibition varieties | ... | 4 | 0 |
| good standard sorts, to name | ... | 16s. | per 100, and 2 6 |
| DAHLIAS , new varieties of 1882, including Walter Williams, Joseph Green, and Prince of Denmark Show and Fancy, splendid exhibition sorts | ... | 25s. | per 100, and 3 6 |
| FUCHSIAS , new varieties of 1882, including Lizzie Vinder and Trumpeter | ... | ... | 6 0 |
| choice exhibition sorts, 1879-80 | ... | ... | 4 6 |
| popular varieties, to name | ... | 10s. | 6d. per 100, and 6 6 |
| GERANIUMS , Zonal, new varieties of 1882-81, superb exhibition sorts, carefully selected | ... | ... | 12 0 |
| in splendid variety, from our fine collection | ... | ... | 6 0 |
| good popular sorts, including some very fine varieties | ... | ... | 2 6 |
| PHLOXES , Perennial, very choice varieties, fine | ... | ... | 3 6 |
| PENTSTEMONS , a very choice assortment | ... | ... | 3 0 |

Cheque or Post-office Order to DANIELS BROS., TOWN CLOSE NURSERIES, NORWICH.

NEW CATALOGUES of Vegetable and Flower Seeds,

Stove and Greenhouse | for 1882. | Florists' Flowers, Herbarious Plants, Bedding Plants, &c.

For Plant advertisements, see last week's *Gardeners' Chronicle*

CHOICE STRAINS OF FLOWER SEED, post-free, at low prices. The undernamed are all of one quality, and that really good; the difference being only in the price of the seeds.

SEEDS OF BEDDING PLANTS, 3s. and 6d. packets.—
 Ageratum, Lobelias of sorts; Perula nankiensis, Single Petunias, Golden Pyrethrum, Verbena, &c.

SEEDS OF FLOWER PLANTS, 3s. and 6d. packets.—
 The best strains procurable. Carnations, Picotees, Pinks, Pansies, Show or Fancy; Antirrhinum, Hollyhock, Stage or Alpine Auricula, French or African Margold.

SEEDS OF GREENHOUSE PLANTS, 6d. and 1s. packets.—
 A fine assortment of the most reliable kinds. See Catalogues.

SEEDS OF HARLEY HORTICULTURAL PLANTS, 3s. and 6d. packets.—
 Wallflowers, of sorts; Sweet Williams, Polyanthus, Primroses, Canterbury Bells, Aubrietias, Alyssum, Arabis, &c., in great variety.

SEEDS FOR CONSERVATORY DECORATIONS, 6d., 1s., and 2s. 6d. per packet.—
 Special care is taken to supply the finest strains of *Frimula sinensis*, Spotted Cavendish, Balsam, Cyclamen, Cineraria, Gloxinia, Tuberosa Begonia, Cockscamp, Petunia, Geranium.

SEEDS OF STOCKS and ASTERS, 3d., 6d., and 1s. packets, from the best growers only, English and German.

COLLECTIONS of ANNUALS, 12 packets, distinct varieties, 1s. 6d. or 3s.; 25 ditto, 3s. or 6s.; 50 ditto 6s. or 10s. 6d.

COLLECTIONS of BIENNIALS and PERENNIALS, 12 packets, distinct varieties, 1s. 6d. or 3s.; 50 ditto, 3s. or 6s.; 50 ditto, 6s. or 10s. 6d.

VEGETABLE SEEDS, see Catalogue. Carriage free for orders of ten and upwards. 3d. and 6d. packets post free of Beet, Borecole, Broccoli, Brussels Sprouts, Cabbage, Carrot, Cauliflower, Cucumber, Cress, Endive, Leek, Lettuce, Marrows, Melons, Mustard, Onion, Parsley, Parsnip, Radish, Spinach, Tomato, Turnips, Herbs, &c.

COLLECTIONS of the most useful **VEGETABLE SEEDS** made up liberally, carriage paid, for 10s. 6d., 21s., 42s., and 63s. See Catalogue.

WM. GLIBRAN & SON,
 OLDFIELD NURSERY, ALTRINCHAM.
DAHLIAS, SINGLE AND DOUBLE.
H. CANNELL AND SONS beg to invite all lovers of the above to see their splendid stock consisting of not less than 12,000 plants of all the best varieties in cultivation, the single varieties, &c., including their Glaze of the Garden, New White Avalanche, New Paragon, Cambridge Yellow, and the new set of splendid kinds raised by T. Hove, Esq., and many others whose beauty and splendour are almost beyond description; for full particulars of which see the best, most correct, descriptive and Illustrated Catalogue ever published, sent post-free.

Dahlia Jaegerzi.
 The secret of having this magnificent variety (King of the Autumn) in its full splendour is to plant last year's bulbs (not spring-struck plants) and consequent on our having introduced it we hold 500 fine pot roots—and now offer them at 2s. each, 20s. per dozen. These will flower nearly equal to the ordinary kinds, and give that satisfaction and unusual beauty which no other plant in open garden has afforded for many years.

DOUBLE PYRETHRUMS.
H. CANNELL AND SONS beg to announce that they have the best and most effective colour—
 Condition for immediate planting and flowering all the season, in 100 best varieties in cultivation. H. C. & S. selection, 5s. per dozen; 35s. per 100, mostly showing flower.

VIOLAS (Half an Acre).
 THE above are now a grand sight, and will continue so all the season. The most effective colours—Blue, White, and Yellow. Splendid plants, ready for planting, full of flower-buds, 2s. per dozen, 9s. per 100.



ALEXANDER PEACH.

Pyramid and dwarf-trained Trees, in pots, of this very early and valuable forcing Peach can be supplied at 10s. 6d. each.

THOMAS RIVERS & SON,
SAWBRIDGEWORTH, HERTS.

THURSDAY, MAY 18.

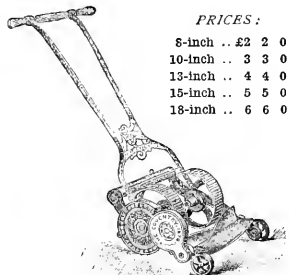
PHALÆNOPSIS AMABILIS and SCHILLERIANA.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER, St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 18, at half-past 12 o'Clock precisely,

SOME THOUSANDS OF THE ABOVE PHALÆNOPSIS.

Full particulars in next week's "Gardeners' Chronicle."
On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.



PRICES :
 8-inch .. £2 2 0
 10-inch .. 3 3 0
 13-inch .. 4 4 0
 15-inch .. 5 5 0
 18-inch .. 6 6 0

Awarded 1st Prize at the Sydney Exhibition, 1880. Awarded 1st Prize at the Melbourne Exhibition, 1881. Also awarded Silver Medal at the Royal Horticultural Society, June, 1881, for collection of Garden Implements, Tools, &c., &c.

“THE COVENTRY.”
 (REGISTERED).

NETTLEFOLD & SONS desire to call especial attention to their “COVENTRY” LAWN MOWER, which they can confidently recommend as the best and cheapest in the Market. It has all the improvements which have of late been introduced into this class of Machine, either in England or America; and for the manner in which it does its work, its lightness, and the ease with which it can be used, cannot be surpassed. Its cheapness brings it within the reach of every one, and in this respect it defies competition with any American machine before the public. It is made, as it name implies, at Coventry, by skilled English workmen, and of best English Steel and Iron. These Machines can also be supplied with ROLLERS AT SAME PRICE, and GRASS BOXES at a small extra cost.

MANUFACTURED BY

NETTLEFOLD & SONS,
 54, HIGH HOLBORN, LONDON, W.C.

BOULTON & PAUL, Horticultural Engineers, NORWICH.

CONSERVATORIES, ORCHARD-HOUSES, PEACH-HOUSES, GREENHOUSES, &c. Illustrated Catalogue, Twelve Stamps; Illustrated Lists, Post-free.



Independent Slow Combustion Boiler for Small Greenhouses.

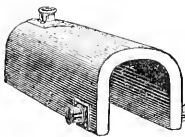
TO HEAT BY HOT WATER; REQUIRING NO BRICKWORK.

Specially adapted for small Greenhouses; for quick heating or slow combustion. Quite portable, and will heat properly for twelve hours. Made with strong wrought-iron cylinder set in a cast-iron base, with fire-bars and sliding door. Only one-tenth the cost of heating by gas, and much more effective. Fitted with two 2-in. cast sockets, door for feeding, and socket for smoke-flue.

Cash Prices—Carriage paid.

of Boiler complete, as shown in illustration, but exclusive of piping:—

Size.	Total Height.	Diameter.	To heat 4 in. Piping.	Price.
1	27 in.	16 in.	40 ft.	£3 10 0
2	30 in.	16 in.	60 ft.	4 0 0
3	33 in.	16 in.	80 ft.	4 10 0
4	36 in.	16 in.	100 ft.	5 0 0



Plain Saddle Boiler.

Plain Saddle Boilers are generally used for heating from 100 feet to 300 feet of 4-in. piping; above that quantity it is more economical to use our Check-end Boiler, as one of these, 3 feet long, will heat double the quantity of piping a 3-foot Plain Saddle will.

Size of Sockets.	Size of Boiler inside arch.			Heating Power for 4-in. Piping.	Prices on application.
	Length.	Width.	Height.		
Fitted with 2 Sockets.	18 in.	22 in.	10 in.	120 ft.	Prices on application.
	21 in.	22 in.	10 in.	125 ft.	
	24 in.	22 in.	12 in.	150 ft.	
	27 in.	24 in.	14 in.	200 ft.	
	30 in.	24 in.	14 in.	250 ft.	
	36 in.	26 in.	16 in.	300 ft.	

The Perfect Throttle Valve.



2-in. 12s. 6d.
 3-in. 12s. 6d.
 4-in. 15s. 0d.

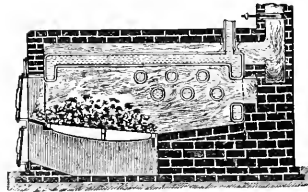
The whole of the working parts of these valves can be removed without disturbing or cutting the pipes.

Screw Valves. Tight under any Pressure.



2-in. 15s. 0d.
 3-in. 20s. 0d.
 4-in. 25s. 0d.

Patent Check-end Saddle Boiler.



Check-end Saddle Boiler, simple and durable.

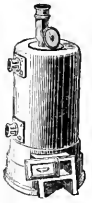
No.	Outside Length.	Outside Width.	Outside Height.	Cross Tubes.	Heating Power for 4-in. Piping.	Price only.
1	30 in.	20 in.	18 in.	1	300 ft.	£8 10 0
2	39 in.	20 in.	18 in.	1	400 ft.	10 10 0
3	42 in.	22 in.	18 in.	1	750 ft.	13 0 0
4	48 in.	24 in.	20 in.	1	1000 ft.	16 0 0
5	48 in.	27 in.	20 in.	1	1250 ft.	20 0 0
6	54 in.	27 in.	22 in.	2	1500 ft.	23 0 0
7	54 in.	30 in.	22 in.	4	1750 ft.	26 0 0
8	60 in.	33 in.	24 in.	6	2000 ft.	30 0 0

The Phoenix Slow Combustion Boiler.

We claim for our Phoenix Upright Boiler the following good qualities, viz.—It is made of the best materials; has no parts that are liable to failure; is provided with a flue that cannot be choked with fuel; will heat effectually the quantity of pipes stated with the smallest amount of fuel; can be easily regulated; and will hold fuel sufficient for keeping up the proper heat twelve hours; requires no brickwork, and takes up the smallest space of any boiler of its power.

Sockets can be placed in any position.

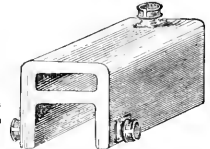
Cash Prices—Carriage paid.



Size.	Total Height without Feed Hole.	Diameter of Boiler.	Heating Power for 4-in. Piping.	Price.
1	25 in.	16 in.	150 ft.	£6 0 0
2	29 in.	16 in.	200 ft.	7 0 0
3	30 in.	16 in.	300 ft.	8 10 0
4	32 in.	18 in.	400 ft.	10 0 0
5	36 in.	18 in.	500 ft.	12 0 0

The Terminal End Saddle Boiler.

This Boiler is much used, and is one we can confidently recommend.



Total Length.	Size of Boiler.			Heating Power for 4-in. Piping.	Prices on application.
	Inside the Arch.	Outside Measure.	Outside Measure.		
30 in.	16 in.	16 in.	22 in.	27 in.	500 ft.
36 in.	16 in.	16 in.	22 in.	27 in.	750 ft.
42 in.	18 in.	16 in.	24 in.	27 in.	1000 ft.
48 in.	21 in.	18 in.	27 in.	30 in.	1300 ft.
54 in.	24 in.	18 in.	30 in.	30 in.	1600 ft.
60 in.	24 in.	18 in.	30 in.	30 in.	2000 ft.

Boilers made to suit any position for Baths, Harness Rooms, Lavatories, &c., &c. All sizes of Boilers given in this Advertisement are kept in stock, and are rated to effectually heat the quantity of Piping named with a minimum amount of fuel. All Orders amounting to 40s. Carriage Paid to any Railway Station in England and Wales; also to Edinburgh, Glasgow, Dublin, and Belfast.

DENDROBIUM FORMOSUM GIGANTEUM.

HEATH AND SON

Beg to announce the arrival of an immense importation of the above, from the same locality in Upper Burma as those last year, which gave such enormous flowers, many measuring 6 inches in diameter.

The “GARDENERS’ CHRONICLE” of October 1, 1881, says:—“From Heath & Son of the College Road Nurseries, Cheltenham, we have been favoured with a bloom of this noble Orchid, measuring 5½ inches across, from a new district in Northern Burma. The lip is 2 inches broad and the yellow blotch very bright.”

The plants from this locality flower twice a year—in the autumn from the new growths, and in the spring from the old, with two to four spikes and from two to five flowers on a spike. The bulbs are very large and many measure 3 feet long.

Small plants, one and two breaks .. 60s. per dozen.
 Small plants, three and four breaks.. 84s. „

Larger plants, six to eight breaks.. 100s. per dozen.
 Few specimens and large masses .. 21s. to 63s. each.

HEATH & SON, EXOTIC NURSERIES, CHELTENHAM.

GREEN'S PATENT

"Silens Messor" and "Multum in Parvo" LAWN MOWERS.

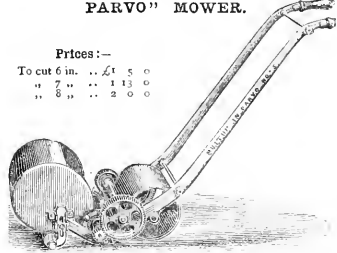
They have proved to be the best, and have carried off Every Prize in all cases of competition. Every Lawn Mower is guaranteed to give entire satisfaction, otherwise they may be returned AT ONCE, free of cost to the purchaser.



HAND MACHINES,
"Silens Messor" Pattern.

To cut 8 in. wide .. £2 10 0	To cut 16 in. wide .. £6 10 0
" 10 " .. 3 10 0	" 20 " .. 7 10 0
" 12 " .. 4 10 0	" 22 " .. 8 10 0
" 14 " .. 5 10 0	" 24 " .. 8 10 0
To cut 24 in. wide £9 0 0	

GREEN'S PATENT "MULTUM IN PARVO" MOWER.

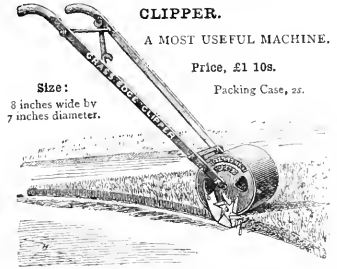


Prices:—

To cut 6 in. .. £1 5 0
" 7 " .. 1 15 0
" 8 " .. 2 0 0

It is simple in construction, easily adjusted, is well adapted for Mowing Small Plots, Cutting Borders, Verges, round Flower Beds, the Edges of Walks, &c. It is a most handy, serviceable Machine, and very easy to work.

GREEN'S PATENT GRASS EDGE CLIPPER.



A MOST USEFUL MACHINE.

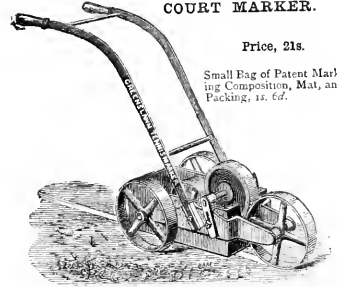
Price, £1 10s.

Packing Case, 2s.

Size:

8 inches wide by 7 inches diameter.

GREEN'S PATENT LAWN TENNIS COURT MARKER.

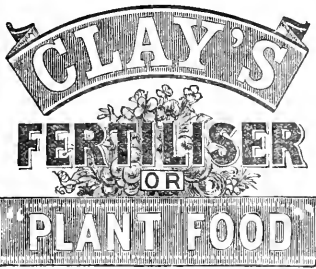


Price, 21s.

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.

They can be had of all respectable Ironmongers and Seedsmen in the United Kingdom, or direct from the Manufacturers,
THOMAS GREEN & SON (LIMITED).

SMITHFIELD IRONWORKS, LEEDS;
And 54 and 56, BLACKFRIARS ROAD, LONDON, S.E.
Carriage paid to all the Principal Railway Stations in the United Kingdom.



FOR ROSES.

The attention of Rose Growers is respectfully called to the following Editorial Notices:—

See GARDENERS' CHRONICLE, April 29, 1882.

"A group of standard Roses in pots, staged by Messrs. Veitch & Sons, were a special and marked feature in the Conservatory at Kensington on Tuesday last. . . . What massive heads they had — what healthy and fine-coloured foliage—and what splendid flowers they bore. These were characteristics noted by all. When it is stated that they were in comparatively small pots, and had not been repotted for four years, the fact that *Clay's Fertiliser* was exclusively used as a manual agent is of the greatest importance. It appears that in the autumn some 3 or 4 inches of the soil was removed and a dressing of the Fertiliser applied, which was covered with a layer of suitable compost, and in the spring a top-dressing of the Fertiliser was given once or twice."

See the GARDEN, April 29, 1882.

"Probably there never has been such a marvellous exhibition of standard Roses in pots as those staged by Messrs. Veitch, at Kensington, on Tuesday last. Every plant in the collection was a marvel of cultured skill, so different from the usual stamp of standard Roses, for each carried a huge and spreading head of vigorous foliage and numerous flowers of really high quality as regards size, form, and colour. The most remarkable point about the collection is the extremely small size of the pots, and the fact that they had not been repotted for four years; but the plants, in order to develop so finely, have been sustained by judicious applications of *Clay's Fertiliser*, a fact which speaks well for that manure."

See GARDENERS' MAGAZINE, April 29, 1882.

"A silver medal was awarded to Messrs. Veitch & Sons for a magnificent collection of standard Roses in pots, in the culture of which the *only manual matter employed* was *Clay's Fertiliser*, which has proved to be of especial value for Roses."

In Packets, 1s. each; and in Bags,

7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
2 6	4 6	7 6	12 6	20 -

MANUFACTURED BY

CLAY & LEVESLEY,

TEMPLE MILL LANE, STRATFORD, LONDON, E.



THE

Gardeners' Chronicle.

SATURDAY, MAY 6, 1882.

THE DEEPEENE,

THE best known and most delightful of all the "stately homes" in Surrey, occupies, with its shrubberies and gardens, a site formed by the frolicsome fairies immediately above their favourite town of Dorking. The graceful spire of St. Martin's Church, though springing from a lower level, might seem to rival the Cedars on the lawn but for the excluding foliage, which secures the privacy that home life requires.

Having long been familiar with the Italian balustrades of Deepdene, seen amid the foliage from without, I felt unbounded pleasure at hearing my first nightingale of this year singing among its groves, hid from the sun of one of the finest days of the present spring.

Owing to the warmth of the soil and the shelter of the hills the tender Conifers at Deepdene are rarely cut or browned by winter and rough weather, and this spring the *Cryptomeria japonica* is exquisite in grace and health. The geology is favourable for Conifers and many other ornamental trees. Greensand, whose colour in this district is usually yellow, will produce at the worst Scotch Fir, an exceedingly ornamental Conifer, and Gorse, a shrub which needs no praise. Elsewhere, and almost always in the hollows, the Greensand is sometimes a hazel loam, sometimes a sandstone rubble much approved by that pretty little native shrub, the Whortleberry, and by *Rhododendrons* and American plants. These are the materials, common to rich and poor, as all outdoor vegetation must needs be, which decorate the grounds at Deepdene and which surpass in beauty the costly art treasures of its galleries. They are well arranged, undoubtedly, and the charm and novelty of great variety have been secured, but the great mass of the shrubs in the groves and thickets about the house consist of *Rhododendrons* and *Azaleas*; and the lively though lowly Whortleberry, with the *Hypericum*, carpet the ground and form an edging for the carriage drives.

It is unfair, perhaps, to compare such tinsel as a painter puts on canvas with the colours spread by Nature's abler hand, but for the sake of naming a purple blossom richer even than the flower of the Gentian, I may say that not even *Raffaello's* and *Coreggio's* painting seemed to me so beautiful as the *Lithospermum prostratum* in the shrubberies. It is an exquisite and hardy plant lying in masses on the ground, and possessing many merits besides its beauty. It has been in full blossom two months, and is still gorgeous. Rabbits do not eat it, and it continues spreading for years, painting the whole surface with purple during March, April, and May. It grows at Deepdene on the right-hand side of the drive, entering the grounds from Chart Lane, and among its companion shrubs are the Heather of the district, cream-blossomed Broom, double Furze, and *Rhododendrons*. This is, perhaps, the prettiest entrance—if pretty is a proper word. The road skirts a richly shrubbed and planted hill, which rises high on the right, the left being open to the vale

of Dorking and the heights of Denbies and Ramore beyond. Two or three beds of variegated Maple and purple Filbert in the margin are noticeable here, and presently the road enters a narrow strait of evergreens, and then, turning suddenly to the right, it winds round a recess, or dell, in the hill, open on the west side, and otherwise absolutely sheltered. Nothing can be more beautiful than the mass of Rhododendrons and specimen trees which fill this recess, including two Conifers of special size and beauty—a *Cryptomeria japonica* and a *Taxodium sempervirens*. A little further and the house is immediately before you, with its pleasant lawn studded with Cedars of Lebanon, evergreen Oaks, a Tulip tree, and many exotic Conifers, *Pinus insignis*, *P. Cembra*, *P. Lobbi*, *Abies Pinosapo*, and others. The plants covering part of the south wall of the house are Magnolias, the Wistaria, Clematis, and Ivy. Orange trees for the lawn are managed here with great success on the French plan, wintered in caves from November 1 to April 1, with very little light, then placed under a verandah and gradually accustomed to the light, and afterwards removed to their permanent positions, where they blossom three times during the summer, the bloom being encouraged by the removal of the fruit.

The germ of Deepdene existed 200 years ago when the Norfolk family owned the property. Evelyn, who himself lived hard by at Wotton, 2 miles off on the Guildford road, spoke of "the extraordinary garden" here, and wrote in his *Diary* in 1655, "I went to Dorking to see Mr. Cha. Howard's amphitheatre garden, a solitary recess, being 15 acres environed by a hill." Old Aubrey described the place in quaint and simple English as "the most pleasant and delightful solitude for house, gardens, orchards, boscaiges, &c., that I have ever seen in England. It is an epitome of Paradise, and the Garden of Eden seems well imitated here." At the beginning of the present century Deepdene was purchased by Mr. Thomas Hope, the author of *Anastattus*, who bequeathed to his son, the late Mr. Henry Thomas Hope, a love for the fine arts, "an epitome of Paradise," and large resources. The old house was replaced forty years ago, and the grounds and estate have been much enlarged. Three sites of former mansions are now included in the park and ornamental part of the domain. The house in Chart Park has vanished, but some fine Cedars of Lebanon, measuring 17 and 20 feet round the trunk, several feet from the ground, and having in one case an immense head of a dozen big limbs, with other trees of ornament, mark the site of the pleasure grounds.

A "temple" dedicated "to the best of brothers," marks the highest ground in the domain, midway between Chart Park and Deepdene, and from this spot the two entirely different landscapes are presented, north and south, one including the ornate house and grounds below, Dorking, Box Hill, and other points of the North Downs, with the gorge in the hill opened by the river Mole. The Holmwood and the Wealds of Surrey and Sussex as far as the tower of East Grinstead Church, lie on the south side of the ridge, together with that other conspicuous tower on Leith Hill, which is shut out from here, however, by intervening woods.

Beech trees surround the Temple and an avenue runs along the ridge. A Larch of weeping habit near this spot claims notice, as well as many specimen trees elsewhere, such as Araucarias, *Abies Douglasii*, *A. lasiocarpa*, a Larch exceeding 100 feet, and a tall Spruce. There is only one *Wellingtonia gigantea* in these grounds, where the much more graceful *Cryptomeria japonica* supplants it. One of the pleasantest views within the boundaries of the domain is down, or up the den, or dell, called by Aubrey "a long hope, i.e., according to Virgil, *Deductus Vallis*,"

reaching from the Temple to the lower ground, where a superb tree, of light green foliage and magnificent blossoms in May, yelet a Horse Chestnut, terminates the long vista.

It is impossible to imagine a more congenial scene than Deepdene for the meditations of a Disraeli, and the conception of *Coningsby*, which was written here. Owing to the art of their formation and the unlevel surface, the pleasure grounds appear twice as great as their actual area of 65 acres. The park, however, is extensive, including that which was formerly attached to Betchworth Castle, a structure now dismantled and formally ruined by the builder's hand and a dense growth of Ivy. For the sake of appearance this house of the last generation would be better restored and occupied, since it has its own park, with two noble avenues of Limes and of Sweet Chestnuts, the largest in Surrey, 25 feet girth. Two domains so different in style and ornament do not blend well, and it may be hoped that this sole blot in a scene so fair may be, at some future time, removed.

The grounds and gardens of Deepdene are under the able management of Mr. Burnett, who also has charge of the kitchen gardens, and the various houses for fruit or flowers. *H. E.*

New Garden Plants.

VANDA SANDERIANA, n. sp.*

The grandest novelty introduced for years! A golden letter day. How I regret not to be able to assist at the *bal parsé* at Mr. Stevens' Rooms!

The sepals are almost circular, the petals small, cuneate oblong, blunt. The lip has a blunt triangular blade and the hypochil appears to have been gibbous with upright square borders. To increase my happiness [disjunct rather], the whole flowers have been neatly pressed with hot irons and the column, anther, pollinarium, and hypochil are broken to pieces as on a field of battle. Its most surprising feature is its dimensions; the circumference is of 0.366 m.—say 15 inches. From the top of the odd sepal to the top of the lateral ones, the flower measures 5 inches! It has flowers which belong to the grandest of the family—after the *Cattleya labiata* group, *Angraecum sesquipedale*, and some giant forms of *Lycaste Skinneri*. The two latter, however, have neither rounded nor flat flowers, while *Vanda Sanderiana* is said to have flowers as flat as those of *Odontoglossum vexillarium*. The plant has broader leaves than those of *Saccolabium violaceum*. Long peduncles bear numerous flowers and buds. The odd sepals and petals are mauve, with some basilar purple stripes; the lateral sepals are yellow, washed with brown and with broad purple veins; the borders mauve, and the lip dark brown, with green sides. The column is golden-yellow. Some plants bore five peduncles at one time. One had three spikes with forty-seven flowers and buds, thirty-four being open at one and the same time, thus presenting the appearance of a giant bouquet. *Vanda Sanderiana* is as profuse in producing flowers as Mr. Sander is in offering Orchids. I presume the plant is of Asiatic origin, for Asia has treasures of that kind. I feel much pleasure in naming the glorious plant in honour of Mr. F. Sander, whose energy in introducing Orchids is great. *H. G. Rehb. f.* [The dried flower we saw bears out the Professor's description, and had a superficial resemblance to a very large flower of *Odontoglossum vexillarium*. Ed.]

CATASETUM CHRISTYANUM, n. sp.†

This has quite the habit of *Catasetum saccatum*, Lindl., originally represented in Lindley, *Sertum*, 41. It was impossible not to think at the first glance of

* *Vanda Sanderiana*, n. sp.—Habitus *Saccolabii violacei*, Lindl.; lobis latoribus, pedunculis elongatis, multilobis; sepalis ellipticis; petalis cuneato oblongis obtusis minoribus hypochilio gibboso marginibus subquadratis; hypochilio triangulo obtuso. *Esmeralda Sanderiana*, *H. G. Rehb. f.*

† *Catasetum Christyanum*, n. sp.—Aff. *Cataseto saccato*, Lindl.; sepalis angustioribus; petalis minoribus serratis; lobis trifidis laciniis refractis filiformibus; ostio callucis compresso conici oblongo transverso; articulo rectilino postice laciniis erectis emarginatis. *H. G. Rehb. f.*

this. I have never seen anything quite like it. Messrs. Veitch, however, flowered the variety I called "pliferum," and which has been described in these columns. Mr. T. Christy's plant has narrower sepals and petals, the first darkest, reddish-brown, the second much lighter, perhaps at first ochre-colored, with innumerable brown spots, now looking uniformly lighter brown. There is a tendency to produce obscure teeth on the outside of the petals. The lip is quite distinct. Its blade is much smaller, trifid, the anterior lacinia obovate apiculate, bent down both sides like the inverted two-horned hat of an Italian *carabinieri*. The side laciniae are nearly square and blunt-angled. The border is adorned by numerous long, simple, or biind and trifid fringes, now green with purple margins, now altogether purple. They stand in a most irregular manner. I am afraid Miss Drake ruined her representation by making these fringes as straight and regular as the teeth of a small-tooth comb. The mouth of the spathe is square oblong, the anterior margin straight, the posterior surpassed by two upright emarginate lamellae. The lip is not of too strong a texture, light greenish yellow, washed with red on disc. It has flowered recently with one of my most energetic correspondents, Mr. Thomas Christy, Malvern, Sydenham, London, S.E., and may bear for a long time the name, provided his gardener knows how to rest an Orchid. On the Continent it is the fashion to kill *Catasetum vexillarium*, I know; but my friend, Herr Oberhofgärtner Wendland, of Berggarten, Herrenhausen, near Hannover, can show *Catasetum* grown for more than twenty years. Is there any English place where such veterans are kept? *H. G. Rehb. f.*

ODONTOGLOSSUM ANGSTUATUM (Lindl.) STYLITES.

There is no end of variations of this curious species. Mr. B. Williams sends a fresh one that has a styliform process on each side of the callus. It is rather curious. *H. G. Rehb. f.*

ODONTOGLOSSUM PESCATOREI VEITCHIANUM.

I had believed Mr. J. S. Bockett, Stamford Hill, London, N.E., had the finest varieties of this lovely thing. There are exquisite specimens of the dark purple blotched variety, "purpuratum," and there is one of the rarest specimen plants of Europe, a strong fine *Murellianum*, whereas the first plant that appeared with Mr. Hume was a weak thing. So much is Mr. Bockett's name connected in my mind with the best *purpuratum*, that I immediately thought of this gentleman when, last year, a broken tin box with only a part of a label came in my hand, containing glorious flowers of it. I never had any news about them.

Now, a fresh champion appears in the great arena, to match everything we saw before, at least for a while, till our excitement is so much over that we are once more capable to do justice to the elder plants.

It is a wide-flowered *Pescatorei*, quite *Pescatorei*, but with broad mauve zonal bands, and blotches, two on each sepal and petal, just forming an interrupted double circle, like Saturn's rings. It is glorious. No indication of any cross. There appears to be a single plant. All those who may possess specimens of this importation from Messrs. Veitch may do well to wait till flowers appear. The name is given to keep in memory the origin of this fine excitement. *H. G. Rehb. f.*

PHAIUS TANKERVILLI (Rehb.) FOL VAR. MARIÆSI.

This is shorter and broader in its floral organs than our common garden plant, and the median lobe of the lip is more prolonged than in our actual garden plant. The colours are more vivid, especially the cinnamon inner surface of the sepals and petals. The fresh leaf at hand is more plaited than the leaves sent by Messrs. Veitch, and than those at hand in Hamburg Botanic Garden of the same Veitch actual 3p. The representation in *Soc-moo Dructs*, plate 40, appears to belong to the same. I have at hand not only fine fresh materials sent twice by Messrs. Veitch, but also good specimens dried by Mr. Mariès in Japan some years ago. There can be no doubt that we have to do with a Japanese garden plant. Lucky Dr. v. Maximowicz, to be able to decipher the hieroglyphs of *Soc-moo Dructs*.

If we look to plate 1924 of *Botanic Magazine* we must believe that a very distinct variety was then grown in England with finer colours, especially a fine yellow throat of the lip with purple stripes. My wild Chinese herbarium specimens are much narrower as to the sepals and petals, narrower than those of the actual common garden plant.

As to the name, Blume is decidedly right in leaving the obscure *Phaius grandifolius* of Loureiro an unsolved riddle, provided there does not appear a typical specimen, which scarcely can be hoped. Yet it is quite an arbitrary *car tel est mon plaisir* of his that he changes the name, writing "Tankerville" (*Mus. Lugd. Bat. ii. 177*), or "Tankerville" (*Fl. Jav., n.s., 3*). *H. G. Rehb. f.*

POWDERHAM CASTLE,

THE picturesque seat of the Earl of Devon, is situated on the banks of the Exe, between 4 and 5 miles from Exeter, and about the same distance from the most fashionable sea-side resort on the South Devon coast, Dawlish. Starcross, which is rapidly growing into a place of some importance, is but 1½ mile distant, and the village of Powderham, from which the noble Earl's ancestors are said to have taken their name, is less than fifteen minutes' walk from the Castle. Powderham is said to have derived its name from the knight who possessed it in the reign of Edward I., one William de Ow, or Ou, who, after having served William I., proved unfaithful to William II., was accused of treason, and defeated in public combat at Salisbury by his accuser. From the Powderhams it passed to Humphrey de Bohun, Earl of Essex, and as the dowry of his daughter, Margaret, devolved upon her husband, Hugh de Courtenay, Earl of Devon. He, in 1350, settled it upon his fifth son, Sir Philip Courtenay, the direct ancestor of the present owner. The Castle was

remodelled and strengthened in the fourteenth century, and still retains part of its mediæval character, but has been greatly modernised and renovated. There are four entrances, the chief of which is from Powderham, which is the route to the ancient city of Exeter. The drive from Powderham is known as the Cedar avenue, from the fact of its being margined by two beautiful rows of *Cedrus Deodora*, which are in excellent health, and, as may be imagined, have a very fine effect. There are two flower gardens, one in a box, remarkably neatly laid out, and one in grass, laid out in scroll-like beds, both of which are distinct in character, and as geometrical gardens perhaps there is less formality about them than is generally the case with gardens designed upon the same principle. These gardens are upon the north-eastern side of the Castle facing the Exe. Upon the opposite side the "shrubbery garden"—a name which rarely does justice to the plants and trees which it contains—affords considerable variety not only for undulating surfaces, but also of fine trees and flowering shrubs. Foremost amongst these must be mentioned an avenue of evergreen Oaks, and a specimen of the common Oak surrounded by a rustic seat at the southern extremity of the avenue. There are so

many well grown specimens of choice Conifers in this garden, that the title of "shrubbery garden" hardly seems appropriate. The majority of the plants are certainly not shrubs. It is, however, more than probable that it was originally a shrub garden, and that the coniferous trees having taken the lead and monopolised the place of the shrubs, are encouraged to develop themselves into fine specimens, while the familiar title of the garden is still retained. Be that as it may, the appearance of the Wellingtonias, 58 feet in height, and large specimens of *Libocedrus chilensis*, *Cryptomeria japonica*, *Taxodium distichum*, *Abies lasiocarpa*, *Thuopsis dolabrata*, *T. occidentalis pendula*, the outline of which is both graceful and pretty, does not convey much idea of a shrub garden—and yet there are shrubs, and not a few of them either. Magnolias and *Rhododendrons* intermixed with Hollies are very pretty, the purple and white of the Magnolias and the scarlet *Rhododendrons* being strikingly effective among the Hollies. Fancy a group of this kind upon a green mound, then a valley again, ascending gradually, and having a single plant of the lovely *Picea Morinda* upon the

takes in a vast area of country of matchless variety and magnificence. If this is not a paradise upon earth it would be difficult to know where to go to find one. There is Topsham-on-the-Exe scattered along the river bank for more than a mile. There is Exeter, called by the Celts *Caer Isc*, the town or fort on the waters, with the stately towers of its cathedral glistening in the sunshine, and the beautiful seat of Lord Haldon lying upon the west, literally embowered in trees; and Oston Hall (E. Fairfax Studd, Esq.) in a valley surrounded by hills and plantations of trees, and which viewed from a distance gives one an idea of one vast garden laid out by Nature in her free and picturesque style. Mamhead Park (Sir Lydstone Newman) is also within view. Yonder, too, is Nutwell Court (Sir T. Drake), sheltered by the heights of Woodberry; there is Lympstone, where the Exe widens into a broad flowing channel; and, looking to the north-west, there is Exmouth and the Haldon hills. Through young plantations of Larch and Chestnuts and natural ferneries, which crop up here and there to the admiration of the visitor, the American garden is reached—that garden of all others

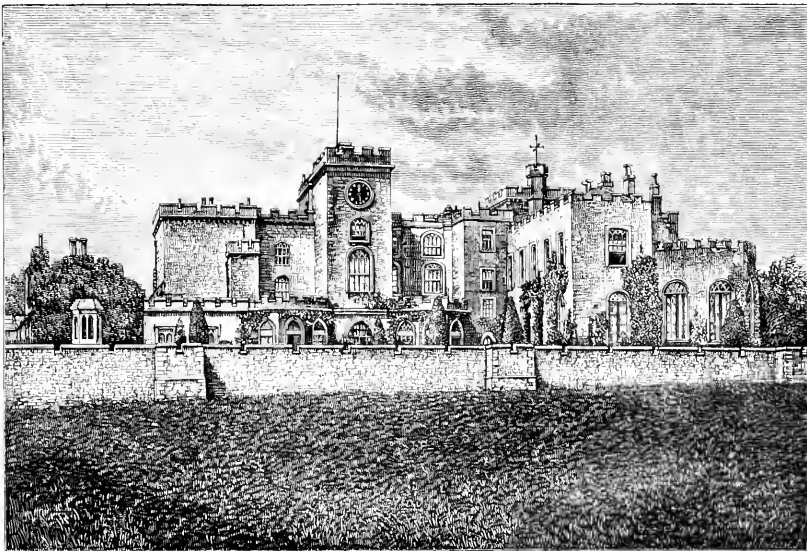


FIG. 92.—POWDERHAM CASTLE, THE SEAT OF THE EARL OF DEVON.

remodelled and strengthened in the fourteenth century, and still retains part of its mediæval character, but has been greatly modernised and renovated.

There are four entrances, the chief of which is from Powderham, which is the route to the ancient city of Exeter. The drive from Powderham is known as the Cedar avenue, from the fact of its being margined by two beautiful rows of *Cedrus Deodora*, which are in excellent health, and, as may be imagined, have a very fine effect. There are two flower gardens, one in a box, remarkably neatly laid out, and one in grass, laid out in scroll-like beds, both of which are distinct in character, and as geometrical gardens perhaps there is less formality about them than is generally the case with gardens designed upon the same principle. These gardens are upon the north-eastern side of the Castle facing the Exe. Upon the opposite side the "shrubbery garden"—a name which rarely does justice to the plants and trees which it contains—affords considerable variety not only for undulating surfaces, but also of fine trees and flowering shrubs. Foremost amongst these must be mentioned an avenue of evergreen Oaks, and a specimen of the common Oak surrounded by a rustic seat at the southern extremity of the avenue. There are so

slope, or a handsome bush of *Cephalotaxus Fortunei*, and something like an idea of the effect may be imagined, even if the image can afford but a faint indication of the reality. The planting upon this side of the Castle is in imitation of the earth's surface, irregular but not abrupt, wavy rather than formal. A peep is obtained from here of Exmouth, which was one of the principal ports in Devonshire during the reign of King John, and boasted of a fort or "castelet," designed to command the estuary of the Exe. It was also the first town on the Devonshire coast to put out of sight its fishing gear, in order to render the place acceptable to summer visitors.

From the shrubbery garden to the Belvedere Tower the walk through the deer park is delightful. The tower stands on the loftiest situation in the park, which is close upon 10 miles in extent, and was erected in 1773 by Lord Courtenay, and strengthened with a hexagonal tower at three of its angles. The deer, of which there is a fine herd, are moving about in groups upon the slope of a hill, or nesting at its base in quiet retirement, maybe shaded from the sun by a clump of Oaks just budding into leaf and giving tints in the landscape peculiarly springlike and beautiful. From the summit of the Belvedere the eye

where one is absolutely spell-bound by the great beauty and variety of the trees and shrubs.

The entrance to the American garden out of the "Grotto Garden," is bounded by two fine hedges of *Rhododendrons*, most of them of great age and of grotesque form when examined beneath the surface. At the back of these hedges fine evergreen Oaks are planted at intervals, and a tributary of the river Ken glides gently through the grounds at a few yards' distance from the walk. Presently the scene changes to something of a different character. It is true the water of the river is still of the same clearness, the herbage is of the same luxuriance, and the clear blue sky is not even bedimmed with a single cloud. Still there is a change, at which the visitor—even one who is no stranger to the beauties of a private garden—stops for a moment to admire. The hedges are left behind, and the eye has freedom to travel over acres planted with groups and specimens of rare trees and shrubs, some of which would not long exist out of the genial climate of South Devon. There are large Cedars of Lebanon, fine Tulip trees, and Douglas Firs from 80 to 90 feet high. Clumps of *Kalmias* are planted by the side of the running stream, and groups of *Rhododendrons* and hardy *Azaleas* are opening

their blossoms of many colours. The collection of hardy Azaleas at Powderham is among the finest in the country, and when in full bloom the different colours are said to give a fascinating effect—the luxuriance of foliage, and the variety of other trees and shrubs, tending in a great measure to produce an unrivalled combination of variety and colour. Magnolias grow and flower as freely as the commonest Rhododendron, some of them indeed are clothed to the ground with branches of unusually natural-like symmetry forming objects of great beauty when in flower or even leaf. I am, of course, referring to the deciduous Magnolias. Copper Beech make very handsome single specimens, and a remarkable specimen of *Abies cephalonica* is said to be the finest in England. The variety in this garden is endless, so to speak, owing to so many effects being created by arrangement. A grand clump of scarlet Rhododendron catches the eye on a slope, or a clump of *Deutzia crenata* *fore-pleno*, or it may be an established clump of *Gynerium argenteum*, or a group of *Phoridium tenax* by the brink of the river. But the startling sight to a stranger is the splendid specimen of *Eucalyptus coccifera* figured in the *Gardener's Chronicle* some years ago (vol. xii., p. 113). The colour of the bark is milky white, and the peculiar shade of the foliage upon willow-like branches is a pleasing sight indeed! The history of the plant, too, is a remarkable one. It was grown in a greenhouse as a young plant, and afterwards consigned to the rubbish-heap, from which it was taken by one of the garden labourers, and planted in its present position. The grounds have been altered since then, so that the plant occupies a worthy position, and as it has been planted over forty years and sustained little or no injury from 31° of frost registered at Powderham the year before last, its future safety may almost be accepted as a matter of fact—barring some untoward accident. There is also a nice sample of *Eucalyptus pulverulenta* (the White Gum-tree), but a very much smaller one, apparently a tender variety, and one requiring a good deal of nursing even in the climate of South Devon. Other notable attractions in this garden are the display of wild Cherries planted behind groups of green Hollies, a hardy ferny formed among roots of trees, and some of the largest bushes of Camellias in England—out-of-doors. The largest specimens are planted round the "Pavilion," from one of which (*alba plena*) Mr. Powell cut no less than 600 blooms in Easter week three years ago before the late severe winter, which it is to be regretted has seriously crippled them. A single red variety—a companion plant to the white one—measures 2 feet 9 inches in circumference at its base, but it will be some years before the plants recover themselves from the injury they have sustained.

The "Grotto Garden," located but a short distance from the walled-in garden, and leading to the grand new conservatory, is the last of the series of gardens within the private grounds. This garden is in process of being changed from a garden of geometrical nick-nacks into one more in keeping with the natural surroundings. It is overhung with splendid Beech, Limes, and Chestnuts, and margined with Hydrangeas and Camellias, some of the former of which are remarkable for size, and the colour and the profusion of their flowers. The garden is, of course, also broken up with other choice specimens, chiefly Conifers. The conservatory is upon the north side of the walled-in garden, and occupies a commanding situation. It is approached by three flights of steps, from the highest of which there are charming views of the Haldon hills, previously alluded to, Woodborough hills, and the little Haldon Hill jutting up like a black cloud. The village of Kenton nestles at the bottom of a fertile valley, and many other local objects attract the eye, but the conservatory and its occupants interest the horticulturist more than landscape scenery, however pretty. The structure is both ornamental and capacious. The central portion (the conservatory proper) is higher than the two wings which are devoted to the cultivation of stove and greenhouse plants. The structure was built by Messrs. Messenger, of Loughborough, and is designed and carried out in their well-known style, being light and ornamental as well as substantial. Circles formed out of bricks and cement are filled with choice named Camellias of all the leading kinds, which have made rapid progress and are trained into pyramid shape, but not stiffly. The two rows of circles are equidistant upon either side

the centre walk, and the remaining space is filled in with pot plants all in flower or approaching that condition. The roof is gay with *Clematis indivisa*, which has been flowering since the end of February, and upon the back wall are trained healthy and prosperous looking plants of *Luculia gratissima*, *Stigmaphyllon ciliatum*, *Bougainvillea glabra*, *Plumbago capensis*, and *Jessamines*.

To the greenhouse the show of spring flowers is of the usual kind—by usual, I do not mean of a mediocre type, for in good truth the display is a grand one. The same may be said of the plant stove, and more, therefore, need not be added, beyond naming a splendid plant of *Nephrolepis davalloides* furcans, in perfect health, and over 4 feet in diameter, and several other ornamental foliage plants and Ferns. There are 4 acres within the walls of the kitchen garden, and the south wall is covered with glass. The ranges of vineries contain fine crops of Grapes, thousands of bedding and other plants, and a magnificent stock of young Vines not much over twelve months old. Strawberries are forced in considerable numbers, and are bearing good crops, and Peaches are fine crops also, and the trees, or rather their leaves, having that ruddy bloom upon them which gardeners understand as the imprint of high cultivation. The numerous forcing structures need not be mentioned *seriatim* to convey to the reader the skill and responsibility entailed upon the cultivator who produces Pines, Grapes, Peaches, Melons, Cucumbers, and Strawberries in season and out of season, and who has to stock two flower gardens, besides growing and forcing large supplies of cut flowers. But of all the departments so ably managed by Mr. Powell none struck me more than the hardy fruit garden—such trees and such training as reminds one of the days when walls and wall trees were better attended to than they have been during the last decade. *Devonian*.

THE ROYAL ACADEMY.

THE exhibition of the present year appears to us to be decidedly below the average; there are but few pictures of great excellence or importance, and garden subjects and paintings of horticultural and floral interest are almost unrepresented. There are many good and truthful landscape pictures, and a considerable number of portraits, some of them excellent, others of no general interest. Many of the pictures call for no special notice, as they are neither uncommonly good or uncommonly bad; they are fairly correct, but show no unusual genius or inspiration. The absence of works by L. Alma-Tadema, with the exception of one superb portrait—181, "J. Whichcord, Esq., architect"—is greatly to be regretted; this portrait, however, is a most remarkable one, and well shows the great power of the artist both in drawing and colour. It is melancholy to see the number of would-be imitators of this artist's works both in the works exhibited at the Royal Academy and elsewhere; but it is pleasant at the same time to notice how easily and completely L. Alma-Tadema out-distances and eclipses his followers. Some of the latter think that by copying little bits of marble with brown joints, little objects of bronze, and a column or two with figures in what should be classic dress, that they put themselves on the same platform with Mr. L. Alma-Tadema. This is a great mistake, for the latter has an admirable knowledge of archaeology, of architecture, and of perspective, subjects in which his imitators generally fail in the most miserable manner. One represents the genuine gold coin, the other the Hanoverian counter of brass. One of the first and best portraits is 23, "Lieut.-General Sir Frederick Sleigh Roberts, Bart.," by W. W. Ouless. Near this is one of the best efforts of Mr. J. E. Millais, in 29, "Portrait of Mrs. James Stern." A very attractive picture, showing all the well known power of this artist in painting animals, is 24, "The Magician's Doorway," Britton Riviere, R.A., the tiger-guarded entrance to the house of some Eastern magician; the drawing and painting of both the animals and the architecture is very good. 71, "Wedded," by Sir F. Leighton, P.R.A., is a beautiful picture, and, like all this artist's works, shows his perfect knowledge of figure drawing. 219, "Ossian's Grave," John MacWhirter, A., is an admirable painting of a storm passing over Scottish rocks and mountains. In the foreground is a *menhir*, or "standing stone," supposed to mark a grave;

the weird solitude of the place seems to us to be broken by the presence of the sheep. 224, "In the Tepidarium," by E. J. Poynter, R.A., is a classic picture of a girl at a bath, displaying this artist's well-known knowledge of figure drawing and architectural details.

Passing 229, "Oranges and Dates," Edith Elmore, a picture which shows an advance on former pictures by the same hand, we stop to admire the superb landscape at 289, "Abingdon," by Vicat Cole, R.A., and to smile at the humours of 314, "Justice is Not Always Slow," by J. R. Herbert, R.A. 333, with some lines of poetry about a "Thick Red Flame," by Rose Marshall, is apparently a picture of Poinsettias and Epiphyllum truncatum, but the plants are so badly drawn and coloured, at any rate from a horticultural point of view, as to be hardly recognisable. 351, with further poetry, and by the same artist, is an equally unsatisfactory picture of the *Richardia*, with *Azaleas*, *Begonias*, &c. The picture close by, 339, "Winter Roses and Almonds," Harry J. Thunnell, is a much better picture of *Heliolebes* and Almond blossoms. 352, "Paeonies," H. Fantin, is a much better painting of flowers, according to our estimation, than we have seen before by this artist. 355, "From the Riviera," Annie Mutrie, shows the flower and fruit of the Lemon, whilst 367, Annie E. Hartling, shows the Shaddock. It would be far better if these pictures (and many others) were properly named. 468, "The King Drinks," Britton Riviere, R.A., is an excellent but somewhat rough painting of a drinking lion. Two of the best landscapes in the Royal Academy are to be seen in 725, "Three Counties from Whetham Hill, Petersfield, Keeley, Halswell," and 737, "In the evening there shall be light," E. W. Leader. 768, "The Garden of Bingham Rectory, Nottinghamshire," Frank Miles, is a very pretty picture of flower-beds crowded with Poppies, Lilies, Aconitum, Iris, Clematis, &c. 807, "Buttercups and Daisies," Letitia M. Parsons, shows a group of Dog Daisies with a few field Poppies, &c.

Coming now to the water-colour drawings, we have a large number of little sketches, few of which demand any remark; they are precisely the same as the other little sketches which have been so familiar to all visitors to the Academy for the last twenty years. 912, "Roses," Gloire de Dijon," Constance Lawson, every rosarian will term a pictorial libel on the grand Rose mentioned in the catalogue. 931, "Poppies," Caroline H. Norman, is fairly well done, but the leaves are ill-drawn; 999, "Christmas Roses," shows considerable artistic power; whilst 1009, "Japanese Primroses," Georgina de l'Aubiniere, is remarkable for its badness. 1093, "Sunflowers," Maud Nagel, is a beautiful little picture of Sunflowers in a garden bed, with red and yellow *Nasturtiums*. 1432, "Una," Britton Riviere, R.A., is another excellent picture of Una with the lion. 1464, "Christmas Roses," Charles Stoney, is a good picture of *Heliolebes*,—there is a flood of *Heliolebes* this year in the picture exhibitions.

One of the last pictures to be noticed is 1465, a truly admirable portrait of Charles Darwin, painted for the Linnean Society by John Collier. The Linnean Society may consider itself fortunate in possessing this really excellent and life-like picture of the man who has so profoundly modified and directed the scientific thought of the whole world. This picture will no doubt attract great attention from all visitors to the Royal Academy this season, for the great master is painted in so life-like a manner that one might almost fancy he could speak or walk from the canvas; it is most fortunate that a picture of this class was secured during the lifetime of Mr. Darwin. 1497, "Autumn in New England," representing the collection of Apples into heaps in the autumn, is an excellent landscape. 1514, "His Eminence Cardinal Newman," J. E. Millais, R.A., is one of this artist's very best works. Our space precludes notice of many excellent landscape pictures and some sea-pieces; but if our readers simply notice the pictures we have mentioned above, they will be well repaid for a visit to the Royal Academy.

CALCFOLARIA DEFLEXA is a Peruvian species, introduced to this country by Messrs. Rogers, McClelland & Co., and distributed by them under the name of *C. fuchsifolia*. It makes a good pot plant for cool-house decoration, has *Fuchsia*-like leaves, dark green above and silvery below, and large, bright yellow flowers.

COMELY BANK NURSERIES.

AMONGST various Australian plants grown in the long established nursery of Messrs. Cunningham, Fraser & Co., at Comely Bank, Edinburgh, the following kinds of Grevilleas are now in blossom:—*G. punicea*, with bright crimson flowers; *G. rosea*, shaded pink, a very dwarf kind; *G. rosmarinifolia*, shaded crimson; *G. sulphurea*, pale yellow. The leaves of these kinds are small and entire, the foliage and habit of *G. sulphurea* somewhat resembling that of a small Larch, and that of another species being still more like *Andromeda polifolia*. Prettiest of all is *G. Preissii* with shaded crimson and pink flowers, and small finely cut foliage. Even without its flowers this plant would be worth growing, but the blossoms of Grevilleas are so strange, that no collection of Australian plants, however small, should be without specimens of them.

Grevillea acanthifolia has leaves like a small *Acanthus*; its pinkish flowers grow in a long spike, instead of the round heads of flowers of most species. It is described and figured in vol. 55 of the *Botanical Magazine*, from a plant which flowered at Comely Bank in April, 1828. This plant was discovered by Mr. Allan Cunningham in peaty bogs, on the Blue Mountains, and banks of Cox's River, during Mr. Oxley's first expedition into the interior in 1817.

Acacias are well grown in this nursery, some of them, especially *A. grandis* and *A. pulchella*, with finely cut foliage, being trained into miniature weeping trees, from 1 foot to 1½ foot high, and bright with golden balls of blossom. *Acacia verticillata*, the foliage of which is verticillate and the leaves very small, has long brush-like flowers of pale yellow. Small standards or bushes of the following kinds are also grown, *Acacia armata*, *A. hybrida*, *A. hispida*, *A. Riccaana* (of which *juniperina* is probably a synonym), *Pitceca subumbellata* with a yellowish-pea flower, now out of blossom; *Leschenaultia intermedia*, an orange flower with Heath-like foliage; and *Bossia microphylla*, are good plants. Mr. Fraser grows these and various other Australian plants in a winter temperature of from 35° to 55° Fahr. *Cytisus Everestianus*, grown in the same house, is brilliant gold colour and very effective.

Rhododendrons of many kinds are grown at Comely Bank, a border of *R. procerum superbum* (now out of flower) must have been worth seeing. Some white and pale lemon varieties of *R. caucasicum* are replacing the earlier kinds. Amongst other flowering shrubs the semi-double Japanese Cherry (*Cerasus japonica*), with pale pink flowers, the double flowering Almond, and *Prunus sinensis alba plena*, are beautiful; *Magnolia conspicua* is also in full blossom, and *Daphne finlayana*, and the pale yellow *Genista procerum*. Amongst very dwarf alpine shrubs *Ledum luxifolium*, *L. thymecifolium*, and the still smaller *L. canadense* (*droseracifolium*) are but a few inches high; *L. palustre*, somewhat taller and with larger flowers, is also in blossom, and *Pernettya speciosa* promises soon to be a mass of flowers, blossoming much more freely than either *P. angustifolia* or *P. mucronata*. In the large collection of hardy Heaths there must be a succession of kinds in flower during a good part of the year, as last August there was a beautiful display of flowers—including many varieties; and now, in April, various kinds are in full blossom, and two or three kinds almost over, including the light pink *Erica carnea*, grown here as *E. herbacea*; the dark red form being grown as *E. carnea*, though Mr. Fraser considers both to be varieties of the same species, the latter being a rather later kind than the former. Every two years the Heaths are replanted and earthed up like Box, the result being that no bare stems are to be seen, and the plants flower freely when but a few inches high.

Rubus arcticus grows and flowers well, and the *May Flower* (*Epigaea repens*) grows luxuriantly, as does also the golden-rooted *Copis trifoliata*.

There is one plant of the rare *Helonias lutea*, and growing near it is *Gaultheria procumbens*, still bright with berries.

Iris obliensis vera resembles *I. pumila* in habit, but is a very deep purple in colour. *Thalictrum aquilegifolium rubrum* is a pretty and distinct variety, its flowers being dark pink. *Botryanthus Szovitsianus* (under which name it has long been grown here) resembles *Muscari racemosa pallens*, but has flowers of a rather larger and deeper blue, and outlasts the latter in bloom. Mr. Fraser grows both, but thinks the former decidedly the better variety.

The collection of alpine and other hardy plants at Comely Bank must be full of interest to any one who cares for their cultivation, as it contains many rare plants. *C. M. Owen*.

THE AURICULA.

WILL you allow me to make an addition to the very interesting lecture by Mr. Shirley Hibberd on the Auricula, which has been published in your issue of last week? I think the following will help to clear up some matters as to the flower's antiquity, more especially as regards the Dutch having brought the best over with them. It will be noted, on perusing the subjoined, that all the Dutch plants are expressly stated to be without dust, and those that are powdered all come under the heading of "Painted Ladies," perhaps on account of the fair sex of the period using paint and powder to adorn their natural loveliness. However this may be, so they are called, and here we get the first mention, as far as I know, of pure white-edged varieties. Honour and Glory is so described, and so, according to the steel plates, is also the Royal Widow and Danaë. It will also be observed that it was most unusual for an Auricula with a white eye to come from Holland, so I take it the Dutch varieties were those we now designate alpine. Mr. Shirley Hibberd, in his careful and elaborate lecture, has placed the year 1750 as the furthest date of any mention of the names and properties of this now very fashionable plant, so it is with much pleasure that I am able to carry the date as far back as 1734, and this is also the second edition of the book from which I take these notes. Many of the engravings are well done, and the descriptions are apparently truthful; also it is very interesting to know, even at that time, that one plant would fetch ten guineas.

"The Flower Garden Displayed, &c., &c. By Sir Thomas Moore, Part. Second edition. London: 1734."

"March.—The Royal Widow Auricula is one of the best of those called Painted Ladies. It brings a good truss of flowers, well powdered, and is marked with crimson streaks now and then mixed with purple and some yellow here and there in the mixed, and the centre of the cup is yellow likewise. This Auricula was raised from seed by Mr. Adam Holy, a noted gardener, and was so much esteemed, that a plant was sold for ten guineas. It is not very subject to bring increase, which is the occasion that it blows very strong, as it is the case with all other Auriculas that are small in increase. And on the contrary, those which increase much, or put forth many off-sets, bring weaker flower stems in proportion."

"This flower, as well as all others of the kind, must have fresh earth put on the tops of the pots in January, and the plants should be exposed to the sun in a place where they may be covered with mats or such-like in extreme frosty weather, or when the winds are sharp and blighting; for in January some of the flower trusses begin to appear, and are subject to receive injury by cold if they are not protected, and then you may expect a good bloom about the beginning of April—but this sort will come somewhat sooner than the rest."

"As soon as this or any other begins to open its blossoms, set them in your stand under a shelter that may remain to cover them while they are in flower, for the rain coming on them will clear or wash off their dust, and then they will lose their beauty."

"Let your stand or station or shelves be so placed as to receive only the morning sun, or else you must be obliged to have a cloth to hang before them to shelter them from the sun's heat, in order to keep them longer in flower."

"Towards the end of their flowering, you may take off their off-sets, and plant them out in small pots filled with light earth, or you may let this work alone until midsummer; remembering to set them in the shade after planting; and keep them from too much wet in the winter."

"As I am upon the article of the Auricula I must likewise direct how to raise that plant from seed. In February fill a box with the lightest earth you can get, and sow the seed on the top of it; then press it down with a board and cover it with a net to preserve it from the birds. Let this be well exposed to the sun, and water it every day till it comes up, then set the box in the shade till Midsummer, and plant out your seedlings 4 inches distance; water them well at first, and shade them in the daytime for three weeks, and the next spring you need not doubt but some of those plants will bring you fine varieties of flowers."

"The *Danaë Auricula* was raised in Holland. The flowers are of a bluish-purple striped with white. It has a very light eye, and in the middle the pipe appears of a bright yellow, which render the whole very beautiful.

Its manner of culture is the same in every respect as the Royal Widow.

"*Glory of the East Auricula* is a flower that brings large trusses; it has a good eye, and is as well powdered as any other of the Painted Ladies. It is striped with a carmine colour, and free in making off-sets for increase."

"*Love's Master Auricula*.—This is a very double flower, and brings a good truss. The flowers are yellow, striped or rather shaded with a dark buff colour, such as a Dutch Pink. It will bear the weather, for it has no dust upon it to be washed off by the rain."

"*Double Painted Lady Auricula*.—This Auricula is, like the other Painted Ladies, covered with dust, which makes the ground of the flower to appear white; this is striped with yellow and with a little carmine colour."

"*Merveille du Monde Auricula*.—This plant was received from Holland, where it was raised. It is a plain flower, but it is of so fine a colour that it looks like blue velvet. The eye is white, which is contrary to most Auriculas received from Holland, which are generally yellow eyed, without any dust upon them."

"*Duke of Beaufort Auricula*.—This is one of the strangest flowers of the list, because it is striped with blue upon white, which none others are. The Auricula which was raised by Mr. Holt, called the Royal Widow, he told me came from the seed of this. This plant should be had in good numbers, for sometimes the flowers come all white, when some among them will blossom with trusses of good striped flowers; so 'tis best to have a collection of them in a bed, and as you see them blow well take them out of the ground with earth about them, and, planting them in pots, place them in your collection."

"*Duke of St. Albans Auricula*.—This is a good trussing flower, and opens its blossoms well. It has a good eye and is well powdered, and striped with a carmine colour upon a buff-coloured ground."

"*Grand Provence Auricula* is one of the Dutch flowers. It blows with a great truss of flowers, and the blossoms are very large, of a dark red colour, and a large yellow eye. 'Tis managed in the garden like the Auricula called the Royal Widow, but it has no dust upon it. A shower or two will not make it lose its beauty. It is very subject to increase by off-sets, and makes a fine appearance in a collection."

"*Royal Purple Auricula*.—This is of a pale purple colour, striped with a deeper. It has a white eye and trusses well."

"*Semper Augustus*.—This Auricula is a good flower. Its blossoms are of a Painted Lady kind; a white ground striped with reddish-purple."

"*Shelton's Heister*.—This is a fine one, of the Painted Lady sort. The flowers are striped with yellow and crimson, upon a ground of white."

"*Honour and Glory*.—This flower has a good white eye, and the flower is striped with a dark reddish-purple on a white ground, so as to leave the edges of the flowers white."

There are thirteen sorts in all enumerated, named, and described, several of which are figured in the steel plates accompanying the book. *Harrison Weir*.

THE GALE OF APRIL 29.

THE fearful wind-storm of Saturday last has left behind traces that are too evident of its course, and its blighting and destructive influences have been widely and disastrously felt. That it was less fierce than was the too-famous storm of October last there is good reason to doubt, but if its track has been marked by the downfall of fewer noble trees, it is doubtless chiefly due to the lesser quantity of leafage on them to arrest the wind in its course. But the new and tender leafage has greatly suffered, and specially on Pear trees of various kinds the mark of the storm track is left as forcibly impressed as though it had been that of a modern destroying angel. On the windward side the foliage, young, tender, and beautifully fresh before the storm, is now blasted and seared as though with fire, whilst unsubstantial fruit germs litter the soil thickly. Plums have perhaps suffered less, because the tiny fruits offer less resistance to the wind, and the leafage is firmer. Apples, though largely in bloom, seem not materially to have been injured, except in very exposed places, where, all round, very much mischief, it is feared, has been done. Many noble trees, Elms especially, have been laid low, and giant limbs torn and twisted from their main stems as though matchwood. What a deplorable sight did gardens and pleasure-grounds present on Sunday morning! How strewn with the fallen branches and leafy debris of shrubs and trees. One beautiful ground then resembled a wilderness. Gardeners have much to be thankful for in Nature, and very much to fear, and of the latter none come with more dread than fierce

winds and blasting hurricanes. Such a visitation as that of October last was enough to make a lifetime; but Nature seems disposed to crowd phenomena now into short epochs, and just as we have in human life become accustomed to dreadful accidents as almost of ordinary course, so does it now seem that natural phenomena are becoming by their frequency commonplace and unexceptional. We will none the less hope that a quiet and prosperous season is yet in store.

— A terrific storm of wind from the south-west, accompanied with rain, passed over this part of the country on Saturday afternoon. It began in a gale at 3 P.M., and soon got up to a perfect hurricane, and was at its worst about 5 o'clock. The wind could not be travelling at less than 90 or 100 miles per hour, sweeping nearly every movable thing before it. Noble trees which had stood centuries were blown down by scores and hundreds, the Birch and Spruce being especially uprooted; but even the Beech and Oak had to give way, and the Horse Chestnut had its leaves torn to shreds; and that hardy tree, the Horn-beam, had its leaves blackened. In the garden lights were uplifted and smashed, standard trees blown down and broken off. The Pears suffered terribly, especially that delicious kind, Louise Bonne of Jersey, which looked this morning as if it had been syringed with boiling water. But even the Strawberries in the open garden had their leaves blackened, while the protecting material on the fruit walls was torn into ribbons. Such a gale at this season of the year is not remembered by the oldest inhabitant. The fruit crop has unquestionably suffered immensely. The gale was foretold from America, and if it was a day later than advised, it came with interest attached. In a garden 2 miles off, down in a valley, and well sheltered, little or no damage was done. The moral is, Landed proprietors, think twice ere you cut down the shelter of your gardens; and to those who have not sufficient, lose no time in planting for that purpose. *F. Knut, Eridge Castle, Tunbridge Wells.*

— The hurricane has left such marks behind it in this district as will be seen for the rest of the season. Vegetation has suffered terribly; that which a few hours before looked bright and full of promise being mangled and blackened beyond belief. The early Pears and Peas have suffered most; the crops on the latter in many instances are entirely lost. Those on the walls have not escaped the terrific force of the wind, the upper half of the trees on the south-west walls being in the same plight as the standards and pyramids. The forest trees have not escaped; quantities are uprooted in all parts; the Chestnuts in many places are almost denuded of foliage; the early varieties of Beech have the same appearance as the Peas—quite black where fully exposed. The rocks, too, have come in for their share of the suffering, two colonies here having lost most of their young, which may be picked up at the base of the trees not only by dozens and scores but by hundreds. The force of the wind far exceeded that of the gales of last month and October, 1881, in this neighbourhood. The gale lasted from 2 o'clock P.M. till 9 P.M. *P. Conway, Manton Court, Woking.*

— Herewith I send you evidence of the dreadful hurricane we had here on Saturday night last. On Saturday morning everything looked as green and flourishing as could be desired, but on Sunday morning—well, the evidence I send you will describe it better than I can. Gooseberries, Currants, Raspberries, and Strawberries have nearly escaped, being sheltered from the south-west by a good thickness of shrubs. Peaches, Nectarines, and Apricots will be safe as far as the fruit is concerned, but Peas and Plum trees just set with fruit look as black as the proverbial tinker. Apples are neatly as bad, but all the flowers were not open, so that some may escape. The samples of Beech, Chestnut, and Sycamore are from young trees not more than 2 feet high; near them are growing Corsican and Austrian Pines, Larch, Douglas Spruce, and other Conifers quite unharmed. The air was charged with salt, for yesterday I could scrape the salt off some iron hurdles where it was deposited. I may add that we are situated at least 5 miles from the sea in the direction the wind came from. *John Gore, The Gardens, Glenhish, Hastings.*

— On the morning after the great gale of Saturday, I found the windows of my house, situated 20 miles north-east of Portsmouth, to be entirely crusted with salt. The effect upon the young foliage has been frightful, each leaf being shrivelled as if by a hard frost. The Lime trees and Horse Chestnuts

have suffered most, being quite black, while the Oaks and Elms are but little better. The only early shoots that have escaped are those of *Abies cephalonica*, which have this year been untouched by frost. *H. K.*

— The gale of Saturday last has done an immense amount of damage in this district, everything exposed to the wind having suffered terribly; fruit and forest trees look as if they had been scorched by fire. The Potato crop in many places is completely destroyed, the haulm cut off or blackened as badly as if we had had 10° of frost. Apple trees on the windward side are denuded of leaves and blossoms, and on the sheltered side of the trees the blossom is sadly bruised, and the prospect of fruit is very slight indeed. The farmers, too, have suffered very much, Wheat and grass looking as if rolled with a hot roller, and to-day (May 3) the effluvia from injured leaves, &c., is quite unpleasant. *Charles Clark, Treverno Gardens, Helston, Cornwall.*

FLOWERS IN SEASON.

CLEMATIS MONTANA GRANDIFLORA.—Of all the hardy varieties of the Clematis family none exceed in richness and beauty the pretty little *Montana grandiflora*. In Devonshire the plant is commonly grown as a creeper for covering the walls of cottages, bothouses, and it will even cover a slate roof, and grow and flower there. Its marvellous floriferousness at Luscombe Castle, near Dawlish, is fascinating in the extreme. Trained under the ledge of the Castle roof it extends the full length of a wing of the building, producing a perfect mass of its pure white flowers, which hang in graceful festoons a distance of over 3 feet. Nor is it less useful for forming arches over basket-beds, or over walks, or for ornamenting entrances to plant-houses. It can hardly be planted amiss if there is anything to fasten it to loosely, and in most other respects it may be left to take care of itself.

HELIANTHEMUM ROSMARINIFOLIUM.—This is a distinct looking plant now in bloom on the rockwork at Chiswick. It grows in the form of an erect little bush about 1 foot in height, and produces white erect cup-shaped flowers. It is a capital plant for the rockwork or border, but needs a well-drained and rather sandy loam.

TWO EVERGREEN CANDYTUTES.—One of these is the pretty dwarf-growing *Iteira fruitii*, which blooms with remarkable freedom, and produces large umbels of well-formed pure white flowers not unlike those of *L. catifolia*. It is a capital rock plant, forming neat little tufts of a distinct character. The other is *L. superba*, which may be best described as a superior form of sempervivens with larger and better formed flowers. Both are well deserving of culture.

FRENCH HAWTHORN.—With this title London refers to *Catalpa oxyacantha*, var. *obtusata*, which is now flowering splendidly in the Cambridge Botanic Garden. It is by far the earliest of several varieties, and yields to none in point of beauty. The flowers are pure white, and the tree is graceful in habit. It is one of those varieties which differ from the common Hawthorn in the form of the leaf, and is easily distinguished from others by very obtuse lobing. The particular value of the tree is in its early flowering.

HUSTONIA CURTISIA.—This gem among diminutive plants, known as the Bluets, is flowering well on the rockwork in the Cambridge Botanic Garden. Its position is not that which would usually be accorded to it. Instead of being in a moist corner, where generally it is understood to flourish best, and to be most under natural conditions, it is here, by accident, in the driest and most exposed spot that could be found. It is flourishing, however, and forms a tuft of great neatness and beauty.

TULIPA GESNERIANA.—It is doubtful if gardeners fully appreciate the rare beauty of this superb species as a border flower. It has the advantage of being late, coming into flower after the early Tulips, and keeping up the succession of flower. Now that the somewhat unattractive late Dutch Tulips are being banished from gardens, the rich vermilion of *T. Gesneriana* can take its place, and

when planted in good soil it speedily establishes and extends itself. What a telling plant for the rock garden it makes can now be seen at Chiswick; and one of the most successful of Mr. Barron's *cups* this spring has been his judicious use of early and late Tulips. They have been objects of great beauty, most conspicuous being the finest and showiest of all the early Tulips—Keiser's Kroon, in company with scarlet Van Thol, Proserpine, White Pottebakker, the rich crimson Couleur Cardinal, and others.

HIERACIOLIE BOREALIS.—In the bog ground of the Cambridge Botanic Garden this British grass has been flowering in the most lovely manner. It is really pretty, and with cut flowers is quite charming. Its perfume is delightful. Here it grows in luxuriance along the edge of the water, and takes care of itself. It is widely distributed, though known in Britain at Thuiso only. Formerly there existed the practice in Germany of strewing it before the doors of churches on festival days.

SALVIA INTERRUPTA.—This beautiful North American species is one of the handsomest for greenhouse decoration. In the Cambridge Botanic Garden it is finely in flower, and reaches a much better development under glass than it does out-of-doors. It has lived through the last three winters on the rockwork. The flowers are pale blue-purple, and grow in large racemes. It was figured some years ago in the *Botanical Magazine*.

CORYANTHES MACRANTHIA.

Is there, can there be, a more strange looking Orchid than this (fig. 94, p. 597)? A Stanhopea is singular enough in appearance, but this is even more grotesque, and yet by no means destitute of beauty—the beauty that astonishes and captivates, because strange and widely divergent though it seems even from such out-of-the-way flowers as Orchids in general, a very little examination suffices to show that this seemingly anomalous creation has in all essentials the structure of an ordinary Orchid flower. It is strange, but the symmetry is only disguised, and it is really as normal as that of any other Orchid. In most Orchid flowers there are three sepals, three petals, one of which is modified to form the lip, and a column consisting of stamens and styles united. In this *Coryanthes* all the parts we have mentioned are present. In the illustrations (fig. 93), S, S, L, S represent the lateral sepals; U the upper sepal; P, P the petals; L the lip; C the column; PA the pollinia; ST the stigma; O the ovary. The circumstances which render this flower so very remarkable depend upon its pendulous direction, the central axis of the flower being at first bent downwards so that the tip of the column C, where the anther is placed, PA, instead of standing erect or somewhat horizontal, as it does in most Orchids, is bent downwards. From the base of the column project on either side two horns, H, H, the purpose of which will be shown further on. At the same time the lip L presents a most extraordinary series of modifications. In the first place, as to its direction, it is bent backwards, then downwards, then upwards, so that seen in section it resembles the letter C, or with the column, the letter O; there is in fact a cylindrical stalk stretched horizontally backwards, and which expands into a thick fleshy purplish-brown plate projecting backwards, called in the sketches the "basal plate of the lip"; then comes another thick stalk-like process bent downwards, parallel in direction to the column. This again expands below into a large bucket-shaped body, 1, rounded at the back like the slipper-like lip of a *Cypripedium*, and which leads to the impression when it is turned towards the observer that it is the front of the flower, when in reality it is the back. The lip is open in front to receive the end of the column, which fits closely into the aperture, and is three-lobed at the apex, the central lobe prolonged at the apex into a tooth-like process directed upwards so as to come into contact with the end of the column. A reference to our figures will do more to make this structure intelligible than words can do.

Let us now see what is the meaning of this extraordinary arrangement. From the base of the column, or as it would appear, from the inverted position of the flower, from its top, project backwards, as has been said, one on each side, two horns, H, H, which overhang the cavity of the bucket, and descend into it drop by drop a limpid fluid, as might be seen when the plant was exhibited, and which our artist has indicated by dotted lines. Insects, such as bees, visiting the flower, alight on the

thick, flat plate, and are stated by Dr. Cruger, who frequently witnessed the fact in the West Indies, to gnaw its fleshy substance and the interior lining of the labellum for food. Such attraction has this for them that they may be seen disputing with each other for a place on the plate and its vicinity, and in the contest some of them are pretty sure to be pushed off and fall into the bucket in the direction shown by the arrow ↓. To extricate themselves from their bath, the insects must crawl up along the anterior side of the bucket ↑, so as to reach the orifice left le-

dettered by its prior immersion, visits the same or another flower, goes through the same performances as before, and in its struggles to escape now deposits the pollen upon the stigma, sr. Dr. Cruger tells us he has "often seen this, and that sometimes there are so many of these humble bees assembled that there is a continual procession of them through the passage specified." The liquid distilled into the bucket is, it appears, so slightly sweet, that it does not deserve to be called nectar, and does not itself serve to attract the insects. The attraction for insects is the fleshy plate

account and compare it with Mr. Worthington Smith's accurate illustrations, quite bears out the wonderful history just given.

The plant from which our figures were taken was exhibited before the committees of the Royal Horticultural Society at one of its recent meetings by Sir Trevor Lawrence, who kindly placed at our disposal the flower from which the accompanying illustrations were made. It is difficult to over-estimate the keen interest a flower like this excites in the mind of a naturalist. He is as much struck with the weird beauty and strange appearance of the flower as h's

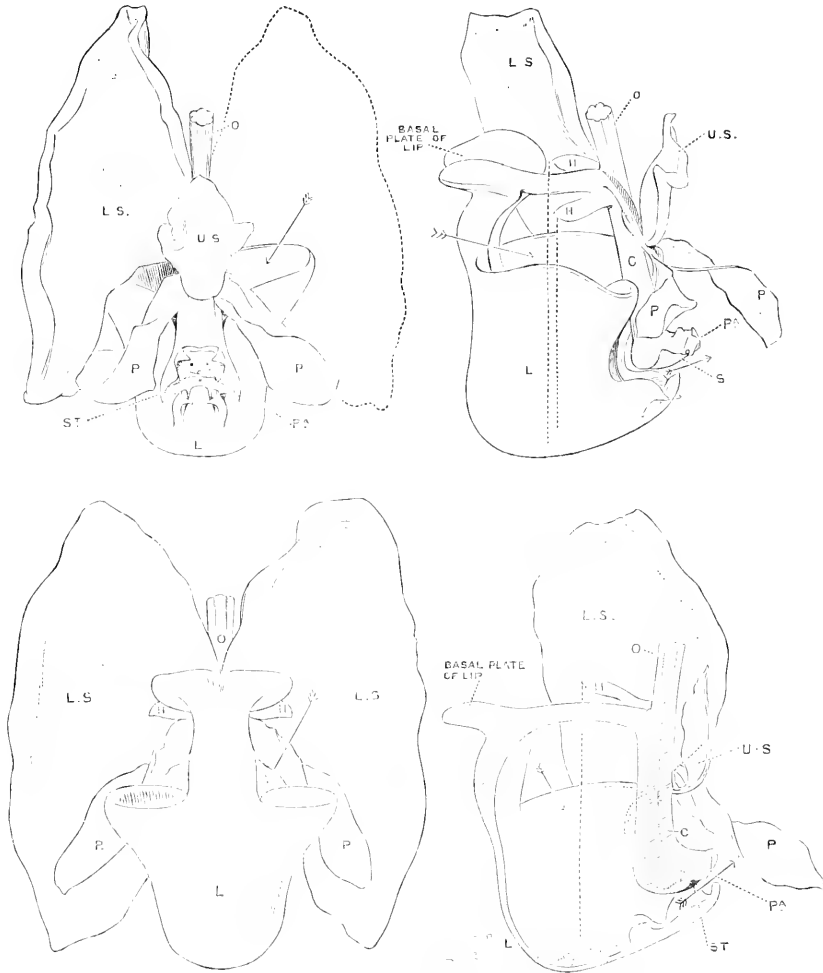


FIG. 93.—CORYANTHES MACRANTHA.

The upper flower to the left is seen from the front, that to the right from the side; the Lower flower to the left has the back of its lip turned to the spectator, the figure to the right is a section through the flower. For explanation of the letters see the text.

tween the upturned tip of the lip and the downturned apex of the column, as shown by the direction of the arrows in the cuts, and especially in the section shown at fig. 93, at the lower right-hand side. At the apex of the column—which it will be seen is bent a little horizontally as well as downward—is the anther with its pollen-masses, PA., so that when the half-drowned bee struggles through the aperture formed by the tip of the lip, L, and the tip of the column, C, it inevitably removes the pollen, PA., from the anther, the pollen remaining affixed to its back. Then the insect, un-

der the fluid secreted in such large quantities in the bucket is to wet the wings of the insects and prevent them from flying away, as they might otherwise do, were the bucket dry and empty. The attraction for the bees in the first instance resides in the smell of the flower, the same insects visiting *Coryanthes maculata*, *Stanhope grandiflora*, and *Gloxinia maculata*, all three of which have the same perfume. Such is the story narrated by Dr. Cruger and Mr. Darwin, and although in our hot-houses it may never fall to our lot to see the whole process, yet the construction of the flower, as any one may see who will read the

fellows, and he has the intense pleasure of seeking and of finding the explanation of all these remarkable modifications, and of admiring the marvellous adaptations to purpose and design which they show, and yet, when the key is found, all this apparent strangeness of form and disposition is seen to resolve itself into the ordinary Orchid-type of construction.

AMARYLLIS AT HOLLOWAY.—Lovers of these fine plants will find Mr. B. S. Williams' collection worthy of inspection just now, many good forms being in flower.

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—As external influences are now favourable for promoting healthy growth, a generous system of treatment may be adopted with safety, and the maximum temperatures should be maintained in the different houses. The East Indian-house should stand at 70° at night, and from 85° to 90° during the day. Where the *Aerides* and *Vandas* are grown in the same house, the latter should be placed in the coolest and airiest part of the structure. The Mexican-house should stand at 65° by night and 75° by day, and the cool-house from 55° to 60° at night, and ranging between 60° and 70° during the day, according to the state of the weather. If the cool-house is fully exposed to the mid-day sun it will be difficult during very bright weather to keep it down to the day temperatures given above; and when this cannot be done without admitting a greater volume of air than can be kept charged with moisture, it will be safer to run up the temperature a few degrees than to expose the plants for any length of time to an arid atmosphere. Those who are fortunate enough to be able during summer to accommodate the cool species in a house of low elevation facing the north, will find the difficulties attending their culture much lessened. On bright mornings the blinds should be run down before the sun gets fairly on the house, to prevent the temperature from rising unduly. All the *Odontoglossums* and *Masdevallias* must now be treated very liberally at the root, and all available surfaces in the house should be damped over several times daily. Under these conditions, if the material about their roots is sweet and porous, and the drainage of the plants perfect, they will now make satisfactory progress. Several of the *Odontoglossums* that have been wintered in the Cattleya-house should now be placed in the cool house. The two best of these are *O. thalassopis* and *O. naxium majus*; *O. vexillarium* and *O. Roezlii* will now be in flower or rapidly advancing towards that stage, and will take a liberal supply of water at the root. The latter is one of the most difficult to maintain in health for any length of time. Some succeed with it for a time in strong heat, but the healthiest pieces I have yet seen were at Ashton Court, Bristol, and these were growing in a cool-house facing north or north-east. When grown in heat it requires constant attention to keep it free from thrips. *Odontoglossum hastulatum* will now be throwing up its fine branched spikes, and a good form of it is a very desirable Orchid. It requires an intermediate temperature. The deciduous *Calanthes* will be commencing to root freely, and will be benefited by a gradual increase of water. Avoid overcrowding the plants, and keep them close to the glass in a high temperature, fairly charged with moisture. The *Phalaenopsis* should now be showing signs of activity at the root, for, if the old roots have been well preserved through the winter, young ones will now be coming out of them freely, and if the plants are in this satisfactory state it is the best precursor of healthy foliage. All mossing over or rebasketing of established plants of these should be brought to a close as speedily as possible, and a high degree of heat and moisture must be maintained around them; and any of the plants that are showing their young foliage must not be allowed to suffer for the want of water at the root. Some extra provision for supplying moisture to the house during summer ought now to be made. For this purpose no material is cleaner or holds moisture better than coco-dire, and a good body of this placed under the stages will be of great service during hot sunny weather. *J. Roberts, Gunnersbury.*

ORCHIDS AT HOLLOWAY.—There is a fine display of flowering Orchids just now in the Victoria Nurseries at Upper Holloway—many hundreds of spikes of *Odontoglossums*, *Masdevallias*, *Cattleyas*, *Vandas*, &c. Mr. Williams has sent us some flowers of varieties of *Odontoglossum Alexandri*, which are very large and of fine form. He informs us that they are from one of his recent importations, as an illustration that all the recent importations are not inferior to those received years ago (as we have seen so much written about lately); many of these, instead of being inferior to older plants, are greatly superior.

MASDEVALLIA ROSEA.—We are informed that this rare and beautiful species is now in flower in the collection of M. D. Massange, D'Uthoville, Belgium.

The Poultry Yard.

THE EGG TRADE.—During the first four months of the year the trade in eggs for hatching is something enormous. Thousands of sittings annually change hands, and prices range from 3s. 6d. to 42s. the sitting. Many who have fowls of high and well-known quality find it a paying concern; but, besides this, others, besides ourselves, regard it as a troublesome matter, and prefer rearing stock and selling them to selling the eggs. Some customers who understand all about fowls and the many slips between the laying and the hatching, never count their chickens until they see them; but others—and they are by no means few—count them from the day they buy the eggs, and when one and all do not “come out” on hatching day, the seller is sure to receive one or more abusive or insinuating missives. There is seldom allowance made for any mishap in transit or the caprice of the sitting hen, the whole being put down to the rogues of those they bought them from. From personal observation I can say that charges of this kind are unfounded in many cases, if not in the great majority. We have bought eggs at 21s. the sitting, and three chickens were the result; others, again, were all fertile, and in both cases we know that on the sellers' parts everything was as fair as it possibly could be; in fact, we never deal with those we cannot trust, and if we were afraid to buy eggs we should go in for the birds or nothing at all.

PRIZE BIRDS.—As soon as the breeding season is over, those who have a quantity of old birds on hand generally sell them off as soon as possible, and the present is a good time to purchase such, but those who wish to get prize fowls and are not well up in their “points,” should employ some one who knows them thoroughly to buy for them. This will be the means of preventing much disappointment in the way of getting very old birds for those supposed to be young, or others prominent in some good points and too deficient in others. Years ago we bought our experience in this way, as we had expensive pens recommended to us as having been invariably winners, when we afterwards found out that such could never have been the case.

PRIZE CARDS.—Some of these are of the most ordinary description, both in paper and print, but others are better, being most elegant in design and execution, and this kind always finds favour with exhibitors, especially young hands; and for this and other reasons we always think a little extra money expended in this way is not thrown away. Some go in for size of card, others for brightness of colour, but the most chaste we have ever seen or received were those from the Poultry Club show held in Cambridge in January last: we had one for a “cup” and another for first prize (£5 in all), and the delicate cream and gold colours are most pleasing. We would certainly advise all committees to get samples from Cambridge and present them to their patrons at their next shows.

PLYMOUTH ROCKS.—This is an American breed of fowl. They are rather Cochon in shape and cuckoo in colour. They have been highly praised lately for their many good qualities, but I fear they have been over-estimated in this way. They are not by any means so delicate on the table as many we could name, and they are very poor layers. Fortunately our stock of them is small, but some of our neighbours have been going in for them largely and they all speak of giving them up, as they are so long in laying as pullets, and they do not recompense for this as they become older.

CHICKENS IN THE GARDEN.—At the present time we have upwards of 100 chickens in our kitchen gardens. The mothers are cooped up here and there on the walks, and it is delightful in more ways than one to see how diligently they scour the vegetable quarters in search of snails and grubs. When they gain size they are liable to do harm by scratching, but then they can be moved on to the grass or into the woods, and a change of the kind benefits them more than anything.

MANDARIN AND CAROLINA DUCKS.—These are the prettiest of all our money ducks, and it is much to be regretted that they are so scarce. We are in want of several pens now, but cannot find them. Those who possess them would do well to advertise them in these pages. *Hemlock.*

The Flower Garden.

THE HERBACEOUS AND MIXED FLOWER GARDEN.—The late favourable weather, which has brought the soil of the mixed flower garden into such good condition for the sowing of annuals, &c., has also conduced to the appearance of innumerable weeds and other noxious intruders striving to attain a lodgment where they are not wanted, and as it is always best to take time by the forelock every effort should be exerted to exterminate them before they attain any size, and in this state nothing is more effective than a light, narrow, and sharp hoe, used when the sun is hot enough to kill the weeds as they are cut up; I say hot, because no greater mistake can be made than to set a man to do light work with a clumsy and heavy tool, for with the former he will be able to do double the amount of work in the same time, but if wet weather prevails it will be best to remove the largest of the weeds by hand, and then to loosen the whole surface amongst the permanent occupants, which will be greatly benefited thereby, and if during the operation a mixture of soot and lime can be worked in it will act as a fertiliser and keep the slugs in check. Neatness is now peculiarly looked for in this department, and therefore a good supply of flower-sticks of various lengths and strength should be kept at hand and applied in time to those sorts which we know will require support; for when done in time the plants themselves will help to hide the sticks, and thus avoid the bundled-up appearance which it is the object of good management to avoid, but is a sure result if the plants are left too long without support.

SPRING BEDDING PLANTS REMOVAL.—With such an early season many of the early spring occupants of the beds intended for summer and autumn display will now be ready for removal, commencing with the bulbous plants, such as Hyacinths, Tulips, Crocus, Scilla, and the like. These should be carefully lifted, with tops and roots preserved entire and laid in drills drawn across a warm south border, about 5 inches deep; the drills should be filled with sand, and the whole left undisturbed until both roots and tops have thoroughly decayed and the bulbs ripened. The Pansies and all other spring flowers necessary to be pre-erected should be carefully lifted and transferred to the reserve garden. The best plants of *Myosotis dissitiflora*, which being of such early culture should be largely distributed, not only in beds, but in small patches, should be selected in sufficient quantity, and denuded of all but about an inch of the tops, and laid carefully in drills drawn in the reserve garden, with the tops just above the surface; these in the autumn will divide into innumerable rooted slips, so that a square of about 8 or 9 yards will suffice to supply a very large garden.

PREPARATION OF THE BEDS FOR SUMMER PLANTING.—Those beds which do not lie fallow during the winter, but are kept at work most of the year by an extended system of spring gardening, become naturally much exhausted, and the work of preparation must include the addition of a certain amount of new compost or fertilising matter more or less according to the requirements of the plants made use of. Strong growers, such as *Ricinus*, *Wigandia*, and the like, whose chief beauty consists in size of foliage, as well as *Dahlia*, *Hollyhocks*, *Sunflowers*, &c., should have liberal additions of rich manure incorporated with the soil; but the generality of summer bedders, whose value is estimated by the amount of flowers they produce, should not be fed with very stimulating matter; on the contrary, a compost, partaking more of the nature of new soil will be found to suit them best, and contribute to a healthy development of both foliage and flowers.

ROSE GARDEN.—The plants should now be frequently and closely examined for the detection of the active little caterpillar, which is so destructive to the young buds; their presence is indicated by bunches of leaves rolled up together with a fine webwork, in the midst of which the young larva encloses itself, and eats out the heart of the flower-buds. A quick way of disposing of them is to pinch with finger and thumb every rolled-up bunch of leaves; but this practice, besides almost certainly leaving a portion

unpinched, very frequently bruises the young leaves, and renders them unsightly when expanded. A better plan, where time can be spared, is to unroll the bunches and catch the depreator. Should the weather become parching, the plants should have a liberal supply of water, with occasional liberal doses of liquid manure. If aphides appear, a gill of Fir-tree Oil Insecticide, mixed with 3 gallons of water, is an excellent application to keep them in check. *John Cox, Kellog.*

The Pine Stove.

ENCOURAGE fruiting plants to swell off their fruits by keeping the houses in a genial humid state. If adequate appliances are not available in the shape of steaming troughs to keep the atmosphere sufficiently moist, a few portable zinc troughs made to fit over the pipes are valuable auxiliaries, and are easily procured. The troughs should be filled two or three times a day, and not be allowed to become dry through the night. Nothing is more injurious than arid temperatures, especially when the solar heat is powerful, and when there is hard firing this should be guarded against under all circumstances. Syringe the walls and damp the paths three or four times during the twenty-four hours. Where plenty of troughs are at command much time is saved in damping. Close the fruiting houses early. A gentle dewing of the plants overhead at closing time accelerates the swelling of the fruit, and keeps the plants in a green, healthy, vigorous state. As the sun's rays are getting powerful under glass do not neglect shading. Do not syringe the plants until the houses are closed, and when water is standing in the axils of the leaves syringing should be discontinued until the water has dried up. The many small aerial roots at the base of the stems are kept healthy and active, as they greatly assist in feeding the plants. Succession plants may be syringed more freely overhead, as their leaf-axils are not so large, and the accumulation of water round their stems is not so great; but even then the water should not be allowed to remain too long. Those plants that showed fruit in October and November will be colouring in stages, and the early lot of Queens will soon come to the same stage; these may be removed when ripe to a cool house or fruit room, to make way for succession plants. This batch may be pushed on, if not so far advanced, by rising to 90° after closing, and may stand at 75° at 10 P.M., but in the present state of the weather this should fall 5° or even 10° during cold nights by morning. Give more room to succession plants, and when moving let the object be to place them in their permanent places the second shift after they are put into fruiting pots. It is a great mistake to keep moving large plants, and this more especially applies to plants that are fruiting; it twists their stems and checks the fruit from properly swelling. The succession batch should be put into their fruiting pots this month; this lot will succeed the autumn fruiting plants and fill up all available empty spaces. Nothing is gained at any time by overcrowding. It is also very desirable that the plants when put into their permanent places should be arranged in sections, when they can be attended to according to their requirements. For instance, as Queens are grown in smaller pots, they require extra watering, and as they are so prolific in producing suckers these have to be thinned out, or the suckers take the strength from the fruit. If large fruits are wanted all should be taken out, either by twisting them out, which is decidedly the best way, or in case the beds are broad and are not come-at-able for this operation a pair of long-handled iron pinners with a broad mouth is the best for screwing them out. When taking out the suckers no portion of the old sucker ought to be left, or the next progeny will increase in number. When gills appear at the base of the fruit these should be carefully pruned off by a knife, as sometimes the best varieties will freak in this way. *D. Wilson, Castle Hill, Devon.*

Grapes and Vineries.

THE earliest Grapes will now be ripe, and must have the fire-heat steadily reduced; let the laterals run, if there are any bare places on the trellis; admit air freely on back and front ventilators on bright days, giving only a little on the back when it is wet and sunless. Give the border inside sufficient water to

keep the berries plump, and if not already done, take off the shutters and old fermenting material from outside borders; leave only a few inches to prevent the summer drought penetrating, and if the border is dry, water with tepid water. Succession-houses of Hamburgs that are commencing to colour must be treated as recommended in previous Calendars; those that are swelling their fruit must have liberal supplies of tepid manure water and a brisk temperature. Admit air early in the morning, and close early in the afternoon, and let the heat gradually decline until the thermometer stands at 65° to 68° at 6 o'clock in the morning, then turn on a little extra heat if the days are dull, but if bright, the sun-heat is generally sufficient through the day until they commence to colour. Keep the latest house cool as long as possible, as there will be plenty of time to ripen them this year; but the house is better closed with a very little fire-heat on dull days, some time before they are in bloom. Early Muscats keep in a night temperature of 70°, with a rise of 10° by day, giving them liberal supplies of tepid manure-water at the roots. Of course the supply must be regulated to the nature of the soil and the way the borders are drained, for stagnant water at the roots is fatal to the well-being of Vines; our latest Muscats are now set, and it has been very sunless during that period, but it has been very sunless during that period, but it has been set well in a night temperature of 70° with a rise of 10° by day, the evaporating pans were kept dry, and a good number of the surplus bunches taken off as soon as the best were discernible; on a few of the coldest days, damping down was not done, and only very little air admitted; on bright days when air could be put on more freely the house was well damped once in the morning and at closing time, letting the thermometer rise to 90° after closing with sun-heat. Late varieties of Grapes, if they are to keep well, must be assisted with fire-heat. Keep them at a night temperature of 65° to 70°, with a rise of 10° by day. Pot Vines with ripe fruit still hanging must have plenty of clear water at the roots; those that are started for a late crop can be kept in a brisk temperature like established Vines, and after the fruit is thinned have liberal supplies of tepid manure-water. Vine eyes for next year's fruiting must be kept in a brisk moist heat, to make an early growth. *Joshua Atkins, Locking Gardens, Wantage.*

The Hardy Fruit Garden.

THE rather unsettled weather of the last fortnight will in many cases have prevented as fast a use of the garden engine or syringe on fruit walls as would be desirable for the dislodgment of insects, which seem to increase most during those chilly nights when it is scarcely prudent to run any risk of leaving the walls wet. As the weather becomes more settled, every effort must be used to make up for any headway the aphides may have obtained by repeated drenchings of tepid water, with or without the addition of an insecticide, as the state of the trees may indicate. Apricots will now require to have their rapidly advancing growth attended to. Young trees especially will require immediate disbanding; if the whole of the shoots that are not required to form the frame of the tree may be at once removed, taking care not to leave a crowd of unnecessary branches and spurs that are not required in the earlier stages of the tree's development. If any strong shoots were allowed to remain at nearly their full length, and new promise to again start strongly, and to monopolise an undue share of the energies of the tree, see that they are promptly checked by pinching, or by breaking out a less vigorous description. Established trees must now also be attended to, and a great proportion of the growths removed. Secure, in the first place, a sufficiency of shoots for extension, and for duly furnishing the interior of the tree with growths to take the place of those that are likely to be removed after bearing. Pinch back enough of the shoots to furnish the branches with spurs at regular distances without crowding, and break out entirely such as are not required. The outer portions of old and projecting growths that are carrying no fruits may have their wood to be formed for which there is neither use nor room, and which entails an amount of after-attention with the knife that is neither economical of the time of the cultivator nor of the resources of the tree, and is one of the surest preparations for an outbreak of

gum. Let all removed growths be carefully collected and destroyed to prevent the escape of the maggot that infest the growing points, and use every endeavour to destroy by pinching all those that remain amongst the leaves of the shoots which are retained. The thinnings of the fruits which have set very thickly this season must be proceeded with at once, and may be confined in the first instance to the removal of all but the finest and best placed one of each cluster, leaving the thinning-off of individuals until the second time of going over the trees some days later. As soon as the trees have been gone over apply water with sufficient force to dislodge any insects that may have escaped removal during disbanding, but which will probably be at least disturbed from their quarters, and will at this time be more easily assailed. Remove all suckers as they appear, and keep the alleys in front of the walls hoed over to prevent rapid drying and cracking during spells of bright weather. Peaches and Nectarines have set very thickly, but as yet make little progress, having been checked by the low night temperatures experienced during the middle of April. A commencement can now be made with the removal of some of the crowding shoots, especially upon the strongest and most forward branches, but it is not always advisable to push on too rapidly with the general disbanding until free growth, favoured by genial weather, gives promise of keeping the trees so active as not to feel any such check as occasionally results from a too free removal of the young foliage, practised at an early date, and followed by a relapse of cold and unfavourable weather. As Plums, Cherries, and other fruits are set, let them be thoroughly washed with the garden engine; or with the superior force of water from the hose where such a supply is available; as the colder water is not likely to injure those hardier subjects. Prepare ground as time is available for the reception of Strawberry plants that have been forced; working in some rich short manure near to the surface, and if on ground previously trenched it will be so much the better. *Ralph Crossling, Castle Garden, St. Fagan's.*

The Orangery.

ORANGE TREES IN POTS.—Sufficient cultural directions were given on p. 435 as to temperature, syringing, watering, &c. The fruit intended to be ripe in the autumn will now be considerably advanced in its growth; and in order that it may be of large size and good quality the trees should be liberally supplied with water, and if they have not been reported within twelve months it would be desirable to place a handful or two of rich compost on the surface of the soil. There is not much demand for Orange trees to grow for desert purposes, and in only a few nurseries are the trees to be obtained in good condition. It ought, therefore, to be well known that they are easily propagated by grafting. This operation may well be performed in March and April, and the best stock is the Lemon. The trees should be placed in a forcing house where the temperature is about 55° or 60° at night, and they should be kept in a rather close moist atmosphere until the scions start to grow. *F. Douglas.*

The Kitchen Garden.

SEAKALE.—The merits of this estimable vegetable, when dressed in a blanched state, are so well known and appreciated as to need no comment; but its usefulness and excellence in a green or natural condition of growth is not, in my opinion, so generally recognised or considered as it should be; for this reason I draw the attention of those interested in the matter at this period, when its condition is such as to fit it for a trial by which its merits can be fairly estimated. For several seasons past I have been accustomed to use it in this way, and find its quality all that can be desired, and invaluable during seasons when Broccoli has been killed entirely, and other winter greens materially damaged by frost. Under the modern method, by which individual roots and crowns are prepared for forcing requirements, many more roots of this subject are grown than formerly, and generally speaking a superabundant supply of these roots is provided, so that a surplus quantity usually remains in the ground undisturbed to make a natural growth and come in for the same purpose another season. These plants invariably throw up flower-stems, which is the part to which my notice refers, as affording a delicious dish, which unquestionably, in too many instances, after they are cut off, are not even thrown away, but only fit for the refuse-bowl. It is not, however, until I have seen 6 or 7 bushy plants in a garden, which should be removed, as they are not only a waste of space, but also a source of trouble. *W. Younge, Abbot.* [We endorse all that Mr. Mues has said as to the quality of the green Seakale when cooked. Ed.]

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	May 8	{ Sale of Imported Orchids, at Stevens' Rooms. { Royal Horticultural Society: Meeting of Fruit and Floral Committees, at A. N. S. Rooms, Coventry, at 4 P.M. — Intermediate Show. { Sale of Established Orchids, at Stevens' Rooms.
TUESDAY,	May 9	{ Floral Fete at Bath. { Sale of Established Orchids, at Stevens' Rooms. { Sale of Established Orchids, at Stevens' Rooms.
WEDNESDAY,	May 10	{ Floral Fete at Bath. { Sale of Established Orchids, at Stevens' Rooms. { Sale of Established Orchids, at Stevens' Rooms.
THURSDAY,	May 11	{ Sale of Plants, at Bell Green House, "Sunderland," by Frotheroe & Morris. { Sale of Plants, at Little Blike Hall, Wansford, by Frotheroe & Morris.
FRIDAY,	May 12	{ Sale of Plants, at Little Blike Hall, Wansford, by Frotheroe & Morris.
FRIDAY,	May 13	{ Sale of Plants, at Little Blike Hall, Wansford, by Frotheroe & Morris.

MELONS are now only second to Grapes in popularity and value as a dessert fruit. Since home-grown Pines have virtually disappeared from our tables, some would give to the Melon the first rank among dessert fruit; but well-grown Grapes still deserve, and it is to be hoped may always enjoy, the first place of honour on our tables. Foreign Melons are, as a rule, so inferior to English grown that they hardly compete with them. How long this state of things may continue, it is impossible to say. Nearly all foreign Melons at present seem of one type, and most of them are cut in far too green a state to permit of their developing into lusciousness afterwards. Possibly, were more of our choice strains cultivated in the South of France, Italy, and Spain, and they were cut in the more mature state, which rapid modes of transit now render practicable, foreign Melons might approach nearer to the high standard of excellence of those grown at home. Something might even be done to improve the Barcelona or green Spanish Melons by exposing them to high temperatures and dry atmospheres; though Melons cut so immature as most of these are cannot possibly ripen perfectly afterwards.

In nothing is the contrast between the Parisian markets and fruiterers and our own more essentially different than in the matter of Melons. Passing through the Centre Avenue of Covent Garden in the season, the one sight and smell is the Melon. It is the same in degree with all our provincial markets and large shops. The rich aroma of the Melon travels far and wide, and gives an aromatic dash of lusciousness to the very air. But you pass through the Halles Centrale or any of the great markets in Paris and smell never a Melon. The huge rock or water Melons, when any are present, are piled up like veritable Gourds or Marrows, and seem about as sweet and aromatic, neither more nor less. It is seldom one sees, not often one tastes, a luscious Melon on the Continent. First-class Melons seem a British institution, of which practical horticulturists have good reason to be proud. Even the multiplication of varieties, which may concern us here, affords additional evidence of the high excellence we have attained in Melon growing. For if of the naming of Melons there seems to be no end, yet the very names create an *esprit de corps* which favours careful selection and high cultivation. As so many names stand high in special branches of horticulture, such as Melon growing, for example, a variety named in their honour with their sanction is presumably a test of merit and proof of excellence. The multitude of names also reveals the fierceness of the contest in pursuit of excellence. Hardly is a first-class Melon sent out than some one improves upon it; then the improved is further improved, rechristened, redistributed.

And after all this multiplication of varieties—none of which shall we advertise by naming here—affords but scant proof of the enormous extension of Melon culture within the last few years. Until quite recently a few frames or dung pits were all that were allotted to Melons in many first-class gardens. No doubt good Melons were and are grown in such structures. They were, however, ripened under difficulties. During the early stages of the growth of Melons the moist heat for the roots provided by such

structures and the damp air were highly favourable to the rapid growth of the plants and swelling of the fruit. But the tug of war comes with the attempt to finish the fruit of the highest flavour. Who shall say how Melons were wrecked within sight of table, as it were, by the plants fogging off at the collars, the fruit splitting, or the flesh being converted into purid water during the attempt to finish them under such conditions.

But Melon culture took a new departure, and higher and safer ground, with the advent of glasshouses devoted to their culture. These as light as the lightest style of horticultural buildings can make them, with ample provision for rapidly reducing any excess of heat, and bottom and surface heat under as perfect and easy control as the winding up of a watch, brought perfect Melons within the reach of ordinary care and skill.

Some profess to make a great point of the source of their bottom-heat. There is this difference in favour of that derived from fermenting material—it is feeding as well as warming. But then the food supplies are beyond our reach of measurement and regulation. Carbonic acid gas, or ammonia, may be in excess or they may not reach the roots at all. The plants may be gorged or starved, and the cultivator be supremely ignorant of either. It seems therefore preferable to apply our heat pure—unmixed, that is, with food. It is easy to give the latter when heated and to deal it out as the plants and the crop may seem to need it. On the simple grounds of placing food supplies as well as heat under the sole control of the cultivator, we hold that heating by hot water is the most perfect for Melons as for most other plants. Further it is more indispensable for Melons than any other plant. For not only is the power of giving or withholding food more needful for this than most crops through all their critical stages, such as setting a crop, &c., but it is essential to the highest finish. Only allow the roots of Melons to feed at their own sweet will among fermenting material and a perfect set becomes doubtful, and the highest flavour at the finish impossible.

A command of a temperature of 50° top and bottom under all conditions of the external atmosphere, and this heat produced by hot water, may be looked upon as the first step to perfect Melon growing. Although the above temperature may not be always necessary, it is well to have it ever within reach. A high temperature also suits Melons from first to last, and especially at the finish. In Melon as well as Cucumber growing it is the pace that develops strength and elaborates quality, though the former requires more change of treatment than the latter.

Next to heat, Melons require food. During all their early stages they find all they want in sand, loam, and water. Melons will grow in almost any soil; they grow enormously in leaf-mould, dung, and mixtures of either with loam. But there is growth and growth, especially in regard to Melons. What is desiderated is sturdy growth from the first, and this is best obtained by sowing the seeds and growing the plants in pure loam; if it can be had of a holding character, and full of fibre, all the better. If a choice lies between very sandy loam and one approaching to clay, choose the latter, and add a little sand or crushed charcoal.

Melons are mostly sown in pots or pans, rather thickly, and potted off singly as soon as they show a "thread" or "rough," that is, their first proper leaf. The practice involves a loss of time as well as forces. It is better to sow each seed singly in a small pot. By this simple plan every root is preserved from the first, and the plant starts with vigour and consequently with a sounder collar. The importance of

the latter will be appreciated by Melon growers. The practice of potting off mature plants from seed pots or pans and burying the stems up to the seed leaves or cotyledons, is largely responsible for the breaking down of the Melons at the collar at or before the finish of the crop. The plants should never be allowed to become matted, but shifted on into 2, 3, or 4-inch pots as they require it. It is not desirable, as a rule, to exceed this size till the Melons are planted out.

For growth in houses the plants should not be stopped. The old practice, so universal, of stopping them at the first or second rough leaf, was all very well for pit or frame culture; it makes the plants break near the collar, gives the four or six shoots wanted to furnish the space an equal start. But in raising Melons for house culture the single shoot should be allowed to run till it reaches well up the trellis before it is stopped; the plants will then break with double or triple power, and produce sufficient shoots to furnish the trellis. The extension system is of doubtful utility in Melon culture, and it is far more profitable as a rule to plant rather thickly, so as to ensure from four to six fine Melons on a plant, than to aspire at cutting a dozen from one larger one.

After stopping, the next most important step in Melon culture is the setting of a crop of fruit. These are produced in the laterals. The object after stopping is, therefore, to obtain from four to six of them of as nearly equal age and strength as possible. If such can be obtained they will all open their female flowers simultaneously as near as may be: this is a vital matter in Melon growing.

The flowers should be artificially impregnated on the same day, and at the same hour if possible. Care should be taken in this matter, for perfect impregnation seems not only essential to the true and rapid swelling of the fruit, but likewise to its perfect finish. The testimony of experience is well high uniform on this point—that, as a general rule, the more perfect the seed of Melons the higher their flavour.

A few more flowers should be set than are wanted, as very often one or more of them refuse to swell. In such cases those should be cut off, and a fresh selection of flowers made. If the advanced fruit can, however, be removed in time, those that lagged behind may at times start, and in this way a crop be secured; but one or two fruits starting ahead of others will draw the supplies from the other fruits, which will quickly wither up in consequence. Some have thought, and DARWIN favoured that opinion, that the weight of the fruit swelling was in part or wholly the cause of the staving of those that were stationary; but no shading of such fruits, so as to withdraw all weight from their stems, has sufficed to send a supply of sap into the smaller fruit; besides, the same provoking symptoms were as common in growing Melons on dung beds as in houses. The great thing is to start the number of Melons desired on each plant abreast. This once done, there is but little fear of any of them dropping out of the running afterwards. Beyond this point Melon culture is simple. Each lateral should be stopped one or two leaves ahead of the fruit, and as many fine leaves left on the plants as can be sufficiently exposed to light and air.

From 6 inches to a foot in depth of good loam will grow the Melons through all their preliminary stages. As the fruit acquires size and weight, a top-dressing of a few inches of loam may prove useful. A little dung is sometimes given at this stage, but pure loam is safer. It can hardly be made too firm, and the collars of the plants should have been raised on hills sufficiently high at the first to prevent any such dressings reaching them.

The Melons will require liberal supplies of water when in full growth, and during the

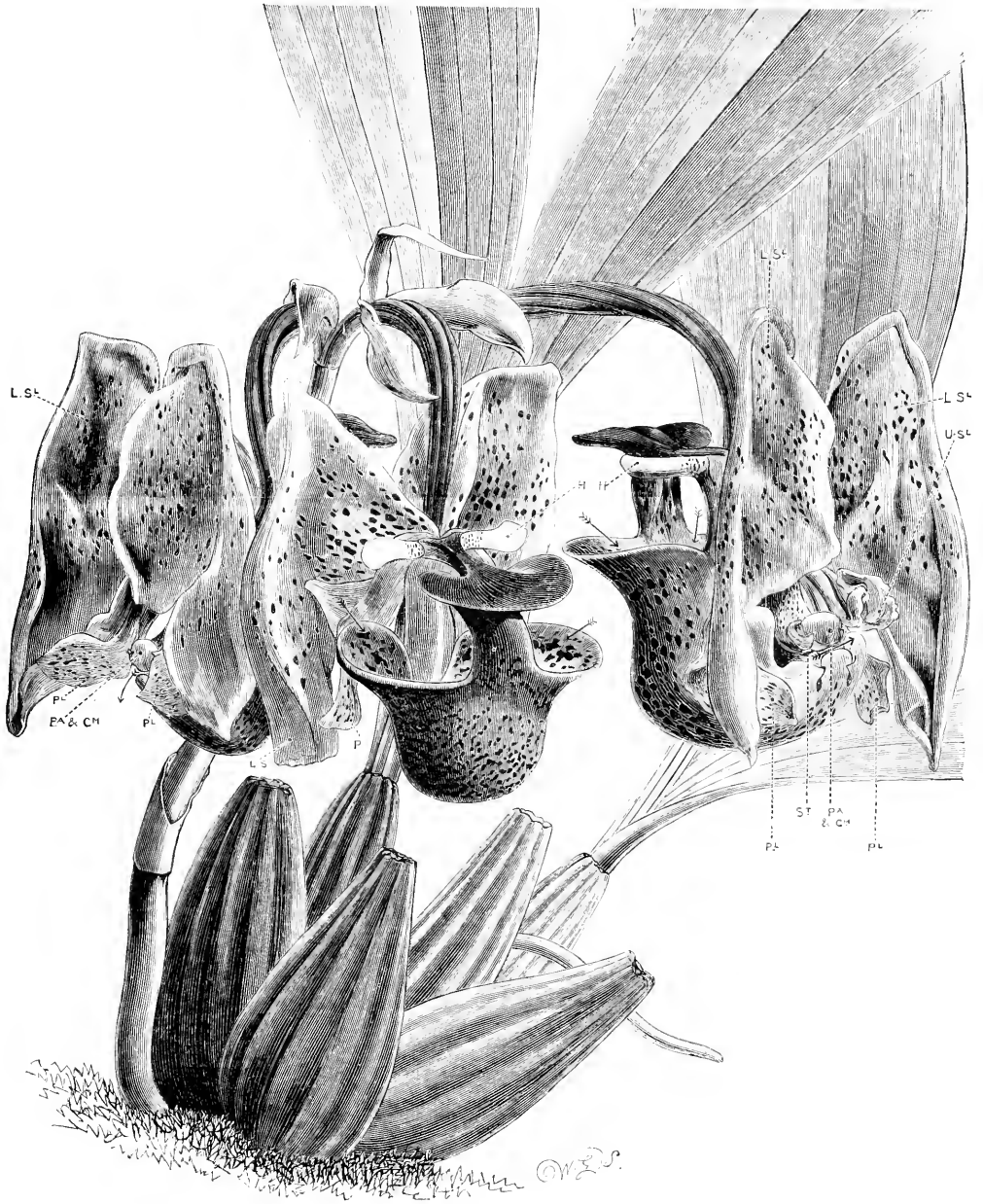


FIG. 94.—CORYANTHUS MACRANTHA.

The central flower has its back turned to the spectator. For references see p. 537.

middle periods of swelling manure-water once a week is useful. Overhead sprinkling or damping down and early closing also hastens the swelling of the fruit. The moment the Melons begin to change colour or show a tendency of cracking round the part of the stalks that abuts against the fruit a drier regimen should be

adopted. The Melons, however, must not be allowed to lose their leaves till the fruit is ripe, or the flavour will be lowered. So soon as the Melons give out a suitable aroma the fruit should be cut, and finished in a dry room or hothouse. If the latter, however, the fruit must not be exposed to the sun, or it may be

scorched, or even short of that have its flavour much impaired.

Some take a second crop from the same plants. If clean and healthy this is good practice, and it is a singular fact that old plants swell and ripen their crops more rapidly than young ones; but the semi-arid atmosphere that

helps to put the highest flavour into Melons mostly brings swarms of red-spider with it, which undermine the health and cripple the strength of the plants. But by growing Melons rapidly, and having succession plants ready to succeed the others, it is practicable to grow three or even four crops of Melons in the same house within the year, and it is doubtful if any other fruit crop would yield the same amount of pleasure or profit.

— THE PELARGONIUM SOCIETY will stand all alone in the exhibition of June 27, there being no Rose show on that date to help it out; the more need, therefore, that the cultivators of the Pelargonium should in good time consider to what extent they may be enabled to sustain the Society in its isolation. As the exhibitions have grown from year to year, we may hope to see farther growth, to the credit of all concerned and the advantage of the organisation. There are in the schedule two classes that at the present time have some scientific and very much local interest—we allude to the prizes offered for hybrids of Geranium pratense, G. sanguineum, and Pelargonium oblongatum. Should the invitation of the schedule in respect of these be responded to, how attractive will be the exhibition of this year!

— FERTILISATION OF HOYA.—We are informed by Mr. R. MCLACHLAN that the name of the fly exhibited with pollinia attached to its feet by Mr. W. G. SMITH, at the last meeting of the Scientific Committee, is *Homalomyia caucularis*, L. (one of the Anthomyiidae), the same that dances over one's head when lying in bed of a morning. The larva lives in excrement, especially human.

— HEMANTHUS SANGUINEUS.—This noble Lily-like plant is now in flower in the Exeter nursery, at the base of a wall, where it appears to be in the most vigorous health, and altogether of a distinct type from any other hardy plant coming into flower in the spring months. In the distance the large flower-truss resembles the well-known *Kochea falcata*; but there is this difference, that the flower-truss is surrounded by a ring of bronze-coloured leaves altogether distinct in colour from the rest of the foliage, which gives the plant a peculiar appearance. The leaves of the plant are not unlike those of the *Hemerocallis*, but are more rigid and larger.

— BENTHAM AND HOOKER'S "GENERA PLANTARUM."—We understand that a portion of the manuscript of the third and last volume of this valuable work is already in the hands of the printer; and it is expected that the whole volume will be carried through the press in the course of the current year.

— THE BOTANIC GARDEN OF SANTIAGO, CHILE.—Under the title of "The Early History of the Botanic Garden of Santiago," Dr. PHILIPPI describes in REGEL'S *Gartenflora* a state of things that would be amusing, were it not deplorable and of ill augury for the future of the country. Nearly thirty years ago Dr. PHILIPPI was appointed Professor of Botany at the University of Santiago, and one of the duties assigned to him was the direction of a botanic garden to be founded in the *quinta normal* or model farm of the Agricultural Society. In spite of decrees, grants of money, and all the pressure an active man like Dr. PHILIPPI could bring to bear, the garden is still an unrealised project; for, although a real start was made in 1879, the director had only got possession of a portion of the ground that had been allotted and decreed for the purpose. Dr. PHILIPPI's only hope—writing towards the end of last year—was, that the new President of the Republic would compel the Society to give up the ground. Acting under instructions, Dr. PHILIPPI more than once purchased large collections of seeds in Europe, and on each occasion the seeds were not sown owing to some absurd difficulties put in the way by members of the Board of Administration. On one occasion the boxes were not even opened for two years after their arrival.

— ANOTHER NEW INCARVILLEA.—The exploration of Central Asia has led to the discovery of many interesting hardy plants, not the least interesting of which are the new species of the herbaceous Bignoniacous genus, *Incarvillea*. One of these, *I. Koopmannii*, was recently figured in the *Botanical*

Magazine, plate 6593; another, *I. Olge*, was figured in REGEL'S *Gartenflora*, plate 1001, or possibly these two plates represent the same species, in which case the latter name has priority. The *Gartenflora*, plate 1068, now gives a coloured figure of *I. compacta*, MANIMONICZ, a most lovely plant, far surpassing anything of this affinity hitherto published. The celebrated traveller, PRZEWALSKI, discovered it in the province of Kansu, North-west China, on the northern declivity of the Tibetan Alps, at an elevation of 8000 feet above the sea, whence he sent seeds to the Petersburg Botanic Garden. Fortunately, the seeds grew, and this remarkable novelty seems to have got a firm footing in the gardens of Europe. Yet, from a peculiarity in its life-history, it might have been lost ere it had flowered under cultivation. Dr. REGEL states that when the seeds germinate only the cotyledons, or at most one pair of leaves besides, unfold, and these soon die off, leaving a small tuberous rootstock behind, which grows again and perhaps flowers the next year. In foliage and habit *Incarvillea compacta* reminds one of some species of *Onolobche* before it throws up its flowering-stem. The flowering plant has a tuft or rosette of pinnate leaves, in the centre of which is a cluster of trumpet-shaped flowers of a warm rose-red, slightly suffused with purple, passing into yellow in the lower part of the outside of the tube. Dr. REGEL designates this plant as one of the most striking and remarkable novelties of recent times. Messrs. HAAGE & SCHMIDT have the stock, except a small portion retained for distribution to some of the botanical gardens.

— CASSIOPE FASTIGIATA.—At the time when LOUDON'S *Encyclopedia of Trees and Shrubs* was published this lovely little shrub had not been introduced to British gardens, and it is still far from common. There are, however, few more interesting or graceful plants than the members of this genus when in flower. *C. fastigiata* is an erect growing species with twiggy branches (not unlike some *Lycopods* in general appearance) bearing pendulous snowy-white Lily of the Valley-like bells on slender stalks. In that charmingly written book of travel and adventure, the *Himalayan Journals*, Sir JOSEPH HOOKER, in describing a "Night on Mon Lepcha," (a mountain in Nepal) says, "The Himalayan Heather grew abundantly here, affording us good fuel; and thick masses of it, with moss (which latter hung in great tufts from the bushes) laid on the snow, famed my bed: my blankets had not arrived, but there was no prospect of a snowstorm." *C. tetragona*, a somewhat similar plant to *C. fastigiata* and *C. hypnoides*, both natives of arctic Europe, are in cultivation—though somewhat rare; the latter is a pigmy moss-like shrub with red tinted blossoms. *C. fastigiata* is now in flower at Kew.

— EARLY FLOWERING CLEMATIS IN POTS.—While it is difficult to name a group of plants so well adapted for culture in pots for greenhouse decoration as the charming varieties of the early flowering Clematis, Mr. C. NOBLE, of Bagshot, had at the Royal Horticultural Society and Royal Botanic Society's meetings last week, it is at the same time a matter for surprise that so few gardeners grow them in this way. One seldom sees a good Clematis in a pot except at a flower show, and then only infrequently. The fine summer flowering varieties have found their way into most gardens, large and small; and are used in various ways with great success: the spring flowering varieties win their way much more slowly and partially, though of so valuable a character. The plants shown by Mr. C. NOBLE made very pretty specimens, and they were well bloomed: the fine flowers well coloured and in all cases decidedly striking. It is not difficult to cultivate these Clematises in pots; they root strongly and grow freely: all they require is guidance and encouragement from the gardener; such as good food in the way of soil and water, and the necessary training. Perhaps it is the great wealth of spring flowering greenhouse plants that keeps the early flowering Clematis in the background; and people will sometimes expend a good deal of labour over subjects not nearly so successful in their results or satisfying in character as the Clematis. The leading varieties shown by Mr. NOBLE included some fine new forms, such as Daniel Deronda, violet-purple; Darwin, an exquisite double pale mauve variety; Princess Beatrice, a beautiful pale form; and such others as Lord Henry Lennox, fine mauve;

Albert Victor, Lady Londesborough, Elaine, pale mauve, double; Duchess of Albany, white, new; Duke of Albany, clear mauve; Amazon, purplish-mauve; Midge, Torriani, light purplish-mauve, very fine; Endymion, pale grey; King Arthur, and Lord Gifford, mauve-purple. The combination of puce and mauve, deepening almost to reddish-purple, which is in course of development in some of the newer forms raised by Mr. C. NOBLE, makes them specially attractive.

— HABERLEA RHODODENSIS.—The natural order to which this belongs (*Cytanodraceae*), though supplying our houses with a considerable number of beautiful and interesting plants, boasts of but few species hardy, or likely to prove hardy, in the climate of Britain. The subject of the present note is one of these. It is a neat little plant, much resembling in general habit the *Ranuncula pyrenaica*, but the flowers, instead of being saucer-shaped, are tubular; in colour they are pale purple, with darker spots, the throat being suffused with yellow. A figure, drawn from a plant flowering at Kew, will appear shortly in the *Botanical Magazine*.

— BUSH APPLE TREES.—We plant beds and plantations of Rhododendrons, Roses, &c., but why not of bush Apple trees? Mr. BARKON has a plantation of these at Chiswick that are exceedingly beautiful objects now they are in full bloom—quite toy trees in respect of size, but singularly attractive just now. There are eight rows of several varieties, twenty trees or so in a line; three lines of these are on the Down, and five on the Paradise stock. The leading sorts are Lord Suffield, Celine Pippin, Cox's Orange Pippin, Small's Admirable, which is of a beautiful colour on the exterior of the unexpanded bud; Scarlet Nonpareil, Braddick's Nonpareil, Yellow Ingestre, New Hawthornden, and Stone's Pippin. These little trees are clothed with blossom from base to tip; Cox's Orange Pippin, in particular, is flowering very freely indeed this season, on trees great and small; and Lord Suffield is laden with bloom also. Yellow Ingestre stands out from the rest with some distinctness in that the blossom is almost white. Such trees as these require to be grouped in beds and plantations if used as decorative agents, and it may be said of them that they supply blossoms in spring and fruit in summer and autumn. But it is not a wise course to put such trees in shrubberies, unless space can be allowed them so that the roots of the shrubs do not run out to and absorb the nutriment required for the Apples. Lines of them along a mixed border would be a pretty feature with a background of shrubbery. By the side of these bush trees, which average 2½ to 3½ feet in height, are two rows of larger ones, 5 to 6 feet in height—all Cox's Orange Pippin on the Paradise stock, all full of blossom, and charming as natural pictures. If the crops of fruit they will, it is hoped, bear by-and-by be at all in proportion to the blossom, then we may expect a rare Apple year.

— PEARS SETTING IN THE OPEN AIR.—Has it been noticed that the small-blossomed Pears are this season setting their fruit better than the larger flowered varieties? It is said that it is so, and it is a matter fruit cultivators might make observation of. Among our many varieties of Pears there are many with large and many with small blossoms. Do the small flowered varieties set better as a rule than the large flowered ones? What do fruit growers say?

— HIEROCHLOE EDOLENSIS.—At Kew this interesting grass is now in flower. It is a stronger grower than *H. borealis*, one of the rarest of our native plants. Though not so ornamental as many other grasses, it is worth growing in damp spots of the herbaceous border or rockwork. The plant is a native of New Zealand, where it is abundant in wet places throughout the islands; also common in Fuegia, Tasmania, and the Alps of South-West Australia.

— BIGNONIA CAPREOLATA VAR. ATROSANGUINEA.—In the conservatory at Kew this remarkable variety of the Cross Vine has long been one of the ornamental climbers. It differs from the type in its narrower and longer leaflets, and in its dark red purple blossoms. *B. capreolata* (type) is one of the loftiest climbers in the South United States, from Virginia and Florida, and westward to the Mississippi, where it clothes rocks and trees with its luxuriant foliage and orange-yellow flowers. It owes its name

of Cross Vine to the fact that a transverse section of a branch shows its wood arranged like a cross.

— **GYPHOPHILA CERASTIODES** is a pretty little rock plant from temperate Himalaya, where it is found at elevations of from 6000 to 12,000 feet. It forms a compact cushion of foliage studded with white red-veined flowers. Many years ago it was cultivated in this country, but until recently it seemed to have disappeared. A nice plant is now blooming in the herbaceous collection at Kew, and a figure from it has been prepared for the *Botanical Magazine*.

— **DAVALLIA ELEGANS** AS A PYRAMID.—It is too late in the day now to indicate to plant growers, or lovers of devices for training plants, how best to make a cone, or pyramid, or indeed any other form that one could mention, for in good truth the business is pretty well known to everybody. But there are certain plants with which every one is not acquainted which are of more value than others when trained, and which give an effect at once pleasing and artistic. In this category the *Davallia* above named is entitled to a place in the first rank. It will creep over the surface of a pyramid from the base to the vertex, and clothe it with fronds in a manner so natural as to elicit admiration. The fronds are borne upon stems from 6 to 9 inches long, which hang loosely from the framework in natural order, and it is altogether an object of singular beauty for a sitting-room.

— **CARTER'S EMPRESS ANEMONES**.—Messrs. JAMES CARTER & Co. send us specimens of their strain, which are robust in habit, bold in flower and foliage, varied and very rich in colour. If the talk is equal to the sample sent us, Messrs. CARTER may congratulate themselves on the possession of a very superior strain.

— **LILY OF THE VALLEY**.—Messrs. HAWKINS & BENNETT, of Twickenham, send us specimens of the greatest excellence. The foliage is large, ample, rich, shining green with a lustrous bloom, and with many flowered racemes and large flowers. The appearances are apparently due to copious supplies of nourishment applied during growth, and producing a magnificent appearance. The method of culture under which these fine plants are produced was given at p. 655, vol. xi., 1879.

— **ACACIA GRANDIS**.—Perhaps there is no other variety in this extensive and useful family of plants that is more striking when in flower than the object of this notice. An ordinary-sized plant in good health, and laden with its bright golden flowers, need only be seen once to win high opinions, and yet the variety is only met with here and there in private gardens, where it is most required. You may cut it almost to a skeleton, and yet the few shoots that remain will catch the eye, even if the plant is located in the most obscure corner of the conservatory.

— **MISLEADING ADVERTISEMENTS**.—Our attention has been called to an advertisement of Messrs. CLAY & LEVESLEY, in which they profess to give a quotation from a paragraph which appeared in our number for April 29, p. 506, but which contains the following sentence which nowhere appeared in our columns:—

"When it is stated that they were in comparatively small pots, and had not been reported for four years, the fact that CLAY'S Fertiliser was exclusively used as a manurial agent is of the greatest importance."

This statement emanates from Messrs. CLAY & LEVESLEY themselves, and we decline to be responsible for it.

— **BABIANA TUBIFLORA**.—This curious as well as pretty bulbous plant was first discovered by THUNBERG, and was afterwards sent from the Cape to Kew by MASSON more than a century ago. It is very distinct from the *Babiana* generally grown for ornament. It has a long tube with white segments, the three lower ones each bearing a central blotch of crimson. Now in flower in the Cape-house at Kew.

— **CYRTOCERAS REFLEXUM**.—This plant, which is seldom met with in private gardens, though not what one would call a brilliant plant, is nevertheless deserving of attention from those who do not grow plants alone because of their striking leaves, or from

some sudden fascination for the beauty of their flowers. It is what would be best termed an interesting plant—interesting in its habit and mode of flowering, and affording enjoyment as well as instruction to those who are disposed to notice the different transitions through which certain plants pass in their various stages of development. It resembles the *Iloya* in its mode of flowering, but has smaller and more pointed leaves.

— **BUCKINGHAM HORTICULTURAL AND FLORAL SOCIETY**.—The annual exhibition of this old Society is fixed for July 25, and among some decidedly original features in the schedule of prizes is one class for the best floral design of a Triumphant Arch, not to exceed 24 inches in height and 30 inches in width. These prizes are given by the Mayor and one of the Aldermen—perhaps anticipatory of some grand civic doings. The competition, however, is confined to cottagers. Perhaps it would have been better had the prizes been offered in open competition.

— **VERONICA HULKIANA**, now flowering beautifully in the temperate-house at Kew, was sent to that establishment nearly a score years ago, from New Zealand, by Baron F. VON MEÛLLER. It is a striking species, of somewhat woody habit, with large panicles of lavender-blue flowers. Like many of the *Veronicas* from New Zealand, this will flourish in the open border—in many places, at least—in this country, though under such conditions it of course does not flower quite so early as when grown in a cold frame or conservatory.

— **KNOWSLEY GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION**.—We are pleased to learn from the first report of this Association that the first session, although a short one, proved a decided success. Some very interesting and instructive papers appear to have been read by the members, and by the good attendance and lively discussions which have followed the reading of each paper it may safely be inferred that the Association bids fair to make an early start next session, and to present a still more favourable account of their doings next year. The following is a list of the subjects on which papers were read:—"The Potato," "The Peach and Nectarine," "The Brassica Family," "East Indian Orchids," "The Rose," "The Strawberry," "The Stephanotis and Allamanda," "The Croton and Draecana," "The Melon and Cucumber," "The Carnation," "Seeds and Seed Sowing," "The Grape Vine," "The Abutilon, Cineraria, Fuchsia, and Pelargonium;" "The Illebrebe and Chrysanthemum," "The Coniferæ Family and Ornamental Trees and Shrubs," "The Pine-apple," "Cool Orchids," "Bedding Plants and Bedding Out," "The Asparagus," and "Floral Decorations."

— **PYRETHRUM TCHIHATCHEWII**.—This hardy dwarf evergreen species, with the drawback of an unpronounceable name, is a valuable plant for covering the summits of rockwork and such places in an open and exposed position. In such a place it makes a very close and compact growth, and throws up numbers of pure white flowers on long stems. But it is not a plant for every spot. When brought into notice a few years ago it was placed in a position that encouraged it to make a very vigorous growth, which smothered the less robust plants about them, and then gardeners became dissatisfied with it. Let it be put on hot dry spots, and it will render good and effectual service.

— **THE YORK NURSERIES**.—A few of the most conspicuous alpine plants now to be seen flowering on the rockery in the nursery grounds, York, are *Artemisia echinoides*, with its large heads of golden-yellow flowers, spotted more or less with brownish-crimson, which is without doubt one of the most beautiful objects either for the decoration of the rock garden or herbaceous border. *Primula ciliata purpurea* has been much admired, though it is now past its best. Tufts of the white *Fritillaria*, its large and beautiful bell-shaped blossoms suspended over a mass of the deep blue flowers of *Gentiana acaulis*, have a really charming effect. As for the wild *Primrose* it seems to be everywhere, in every nook and crevice, blending in the most charming manner with the large, deep blue of *Myosotis dissitiflora*, which also appears to have almost unlimited sway. We noticed also a nice example of *Thlaspi rotundifolia*, growing in ordinary soil between two pieces of rock, where it looked quite at

home. *Anemone fulgens*, *Aubrietia greca superba* is good, hanging as it does from the rocks above. A little later there will be quite a display of bloom of the different species of *Edraianthus*; the following are the best:—*E. pumilio*, *E. pumiliorum*, *E. serpyllifolia*, and *E. dalmatica*. Here also may be seen quantities of that most beautiful of all our native spring flowers, *Gentiana verna*. *Gentiana bavarica* (the alpine *Gentian*) may also be seen unusually strong and vigorous, but it is a little later to flower than *G. verna*. *Menziesia empetriformis* is simply charming, in fact it would be difficult to give an adequate idea of its beauty. *Andromeda tetragona*, too, is very healthy, and will soon be covered with its pretty white Lily of the Valley-like flowers. Many others might be named, such, for instance, as the beautiful white and purple *Trilliums*, different species of *Saxifrage*, *Primulas*, *Anemones*, &c. There is also here a fine display of both alpine and show *Aucubas*; they are mostly grown in pots.

— **THE OXFORD ROSE SOCIETY** will hold its thirty-first annual exhibition in the famed "Lime Tree Walk," Trinity College Gardens, Oxford, on Thursday, July 6. The Hon. Sec. is Mr. W. GREENAWAY, Paradise Square, Oxford.

— **THE WEATHER**.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending May 1, issued by the Meteorological Office, London.—The weather has been very changeable, densely overcast skies with heavy showers of rain and hail alternating with frequent intervals of sunshine. Towards the latter part of the period thunderstorms occurred in many places, while snow fell in northern Ireland and at some of the central English stations. The temperature has been below the mean in all districts, the deficit varying from 3° in the North to 5° in the West. The maxima were lower than during last week, and ranged from 61° in "Ireland, S.," and 60° in "the Midland Counties," to 55° over Scotland and in "England, N.W." The minima, which were registered on various days in different parts of the kingdom, were as low as 29° in "Ireland, N.," 31° in "England, N.W.," and "Ireland, S.," and 32° to 34° elsewhere. The rainfall was about equal to the mean in "Scotland, E.," but in all other districts it has again been more than the average, the excess in England being large. Bright sunshine has been slightly more than that registered last week, the percentages ranging from 30 in "Scotland, E.," to 44 in "England, S.W." Depressions observed.—The changes in pressure have been very sudden and considerable. Some well defined and deep depressions have crossed our islands in an easterly direction, the most serious one passing over southern England on the 29th. The wind until the 27th was generally northerly and strong in Scotland; but during the remaining part of the period its direction was very variable. On the 29th a very severe south-westerly gale was felt over our southern counties, south-easterly to easterly winds and gales over northern England, and northerly gales in Ireland. As the depression passed away the wind moderated and shifted to the westward, but subsequently "lacked" again to between south and south-west on all our coasts.

— **GARDENING APPOINTMENTS**.—Mr. HUGH McLEAN, lately Gardener at Auchterarder House, has been appointed as Gardener to E. E. SCOTT, Esq., St. Catharine's, Liberton, Edinburgh; Mr. MURDOCH MACKENZIE, lately Foreman at Ballochmyle, Ayrshire, has been appointed as Gardener to T. B. LOCKINGTON, Esq., Craighalls, St. Paul's City, Kent; Mr. ROBERT ANDERSON, lately Foreman at Tarvit, Cupar Fife, has been appointed as Gardener to JOHN LAING, Esq., Granton Lodge, Aberdeen; Mr. EDWARD NICOL, from Blair Athol Gardens, has been appointed as Gardener to STEPHEN SANDERSON, Esq., The Elms, Berwick-on-Tweed; Mr. ROBERT DICKSON, lately Gardener to Miss CRAWFORD SERVICE, Cranley, Cairnairs, N.B., has been appointed as Gardener to WILLIAM ORR-EWING, Esq., Rhea Lodge, Row, Dumfriesshire; at all through the agency of Messrs. DOWDIE & LAIRD, of Edinburgh.—Mr. J. F. WILKINSON is leaving File Place, the seat of Viscount GAGE, to go into business in the fruit and cut flower trade at Bradford, and is to be succeeded as Gardener at File Place by his late Foreman, Mr. EVANS.

ORCHIDS IN BELGIUM.

A SHORT time ago I paid a visit to the Château de Bailloville, Marche, by the kind invitation of M. Massange, and I was well repaid for my journey by the grand display of Orchids I saw there. The East India-house contains a good collection of these plants, including some very fine specimens, of which I will try and enumerate a few. The *Vandas* formed the most prominent feature, and they reflect great credit on those who cultivate them. Of *Vanda suavis* there are many fine specimens, and amongst them some good varieties; also *V. tricolor*, of which there were plants from 2 to 3 feet high, and their foliage reaching down to the pot; *V. tricolor planifolia* was very conspicuous, and is one of the best of this section; and there was also *V. tricolor formosa*, and many other excellent varieties of the tricolor section. *V. Batemanii* is a noble specimen, 5 feet high, and a perfect plant. Associated with this was *V. Cathartii*, 4 feet in height, with excellent foliage—in fact, the best plant I have seen of it; also a capital plant of *Vanda cœrulea*, which had bloomed well in the autumn. *Acridies Warneri* was represented by a well-grown specimen, 3 feet in height, and in perfect health, as also was *A. Lobbi*, and many others too numerous to mention.

On the side table was a well-grown collection of *Cypripediums*, on which M. Massange prides himself, as including all the best kinds, and he intends making them an especial feature. Their foliage is mostly good, and on this account, when they are not in bloom, they form objects of attraction. Of *Cypripedium superbiens* I noted a fine specimen, and it is undoubtedly the best of the *barbatum* section; *C. caudatum* was also a fine specimen, and it is one of the most curious; *C. Lawrenceanum* was very conspicuous; *C. Stonii* seemed perfectly at home, and was showing well for bloom; *C. Lowii* was freely in flower. I also noticed suspended from the roof of this house several fine plants of the beautiful *Cattleya Dowiana*. In the *Cattleya*-house there is a grand lot of well-grown specimens in the best of health, and many of them in bloom; conspicuous among these being many good varieties of *Cattleya Trianae*. Some were pure white, while others were of a rich magenta, their lips, sepals, and petals being of various shades of colour. *C. amethystoglossa*, with very fine spikes bearing twenty-eight flowers, was decidedly one of the best plants and varieties I have seen; the sepals and petals were beautifully spotted, the same as may be seen in Mr. Warner's *Select Orchidæusæ Plants*. There are several forms of this species, and they are difficult to recognise unless one sees them in bloom. I also noticed a well cultivated specimen of *Lælia purpurata*, with very strong flower sheaths; also the rare *L. Stelzneriana*, a plant that one seldom sees; and *Cattleya Warneri*, of which there are here many fine plants, together with *C. labiata*, promising well for bloom in the autumn.

Ceoloyne Massangeana, figured in the *Gardener's Chronicle* for March 18, is represented by a large specimen which has borne nine of its long spikes of flowers, and is one of the most beautiful of the *Ceoloyne* family. There are many more plants worthy of note in this house, but time and space will not admit of my mentioning them.

In the cool Orchid-house there is a splendid display of *Ondotoglosses*, *Masdevallias*, and many other cool Orchids on either side of the house, forming a mass of flower-spikes overhanging the green foliage of the plants, and the colours being well varied a nice picture is the result. There were a good many spikes of *O. Alexandræ*, as many as 100 showing and blooming at one time; their bulbs were very fine. Among the specimens of *O. Pescatorei* there was one of the best I have seen; and good varieties of *O. roseum*, with masses of spikes of its deep rose-coloured blossoms presenting a pleasing contrast with the white *Alexandræ*; *O. Hallii*, with spikes 4 feet in length, in full beauty; *O. polyanthum* with its yellow flowers; *O. Andersonianum* had two spikes in bloom, a very good variety with enormous bulbs. The rare *O. Jenningsii* was flowering with two spikes of its white and crimson-spotted blossoms. I also noticed a very fine *O. trumphantis* of superb colour, and each individual flower 3 inches in diameter. Intermixed with the *Ondotoglosses*, the fine colours of the *Masdevallias*, such as *M. Veitchii*, *M. Harryana*, *M. Lindneri*, and others, were seen to great advantage. *Sophronites grandiflora* was in full beauty; *Oncidium macranthum* was showing well for bloom; also *Ondotoglossum bevilofium*, pushing forth two spikes of flowers—this plant blooms very freely here, but as a rule it is considered to be shy blooming. The *Epipendrum Veitchianum*, with its orange-scaled flowers, makes a splendid contrast suspended from the roof and intermixed with the other Orchids I have named. *E. S. Williams, Holloway.*



HOME CORRESPONDENCE.

African Tuberoses.—Most of those with whom I am acquainted, who have tried these Tuberoses, like several correspondents who give their experience with them, have failed. But this is evidently through their not being treated as they require. A carpenter residing in this neighbourhood, who is fond of gardening, has got a house in which he occupies his leisure hours with pleasure, and profit, in growing flowers for market. He got some of these roots early in autumn with a view to try them, and has had complete success with them. I saw them early in April, and nothing in their way could be better; the flowers were large, each stem bearing from twenty to twenty-four, the roots that failed not being more than two per hundred. They were potted in November, and at once put in a bottom-heat of from 80° to 90°; here they soon made plenty of roots, after which they were moved out of the bottom-heat, and kept much cooler, allowing them to come on slowly. In several other places, where I have seen them tried, they like these, began to grow early, and with a view to have them in bloom with as little delay as possible the growers pushed them on in a brisk heat, the flower-stems came up strong, but almost all went blind; whereas under the slow treatment, after roots had been formed, the flowering process went on in a way that left nothing to be desired. So far as I have been able to make out, there is nothing else to account for the difference in success that has attended the different individuals who have tried them. *T. Barnes.*

To Gardeners Intending to Emigrate.—Probably there are many gardeners in England who contemplate trying to better their position in another land. I hope none of them will subject themselves to the disappointment of being influenced by such advertisements as that which appeared in the *Gardener's Chronicle* of August 13, 1881, p. 222, in which Mr. Johnson, of the Metropolitan Nurseries, Rodebosch, Cape Town, generously informs gardeners that they will find it to their advantage to avail themselves of the assistance which he there asserts he is prepared to give them. This assistance, they will observe, is of no meagre kind, but such as could alone emanate from the heart of a true brother gardener, full of sympathy for his unfortunate brethren across the sea, and the proprietor of such an interesting establishment as the "Metropolitan Nurseries." Having landed in South Africa, with the view of seeking better things than I thought I could attain at home, I set out in the full assurance of not only seeing round the nurseries, but of being the happy recipient of Mr. Johnson's assistance. I arrived at Rodebosch, and had but little difficulty in finding the "Metropolitan Nurseries," and also the proprietor, to whom I briefly explained the nature of my visit. Mr. Johnson received me very kindly, and assured me that he was full up, and could do nothing for me. He had two young men in his situations. I saw the young men, and could see that Mr. Johnson was full up. I also saw the "Metropolitan Nurseries" as I stood by the office or sale-room. Unfortunately I have no descriptive power, or I might give your readers a brief sketch of them. I thanked Mr. Johnson for his kindness, and left them (the nurseries) uncharmed, and would assure any gardener that he will find it to his advantage to consider the cost before sailing for Cape Town. *William Green, Cape Town, South Africa.*

Berberis Darwinii and B. stenophylla.—In exceptionally mild winters like the one just past, *Berberis Darwinii* will not be injured anywhere, but when frosts are very severe, as in 1880 and 1881, they get sadly cut up, as was the case here, for they become so shabby that they had to be pruned considerably to get rid of the dead wood. The reason of their being so shabby is owing to the extra growth they made, as the plants are full of young shoots, and the season being favourable all these became crowded with blossoms. Where the *Berberis Darwinii* does best is in front of tall growing shrubs exposed to the sun, but sheltered from cold cutting winds—a position for which it is specially adapted, as it forms a splendid background to a herbaceous or other flower border, and looks quite at home. *B. stenophylla*, a seedling from it, is much more drooping and prostrate in its habit of growth, and forms a splendid ornament on rockwork or banks, as it arches and droops over in the most natural and pleasing manner possible. Both kinds may be readily increased by layers, and *B. Darwinii* seeds freely, and plants may therefore be quickly raised by either mode if desired. *J. Sheppard.*

The Ash and the Oak.—I have seen several allusions to the old proverb concerning the leaving of the Ash and the Oak, made in what may be called non-professional papers, and most certainly by non-professional writers, few of whom display any special knowledge on the topic of which they have written. The real point at issue, and one that might easily be decided, is this, Does the Ash ever precede the English Oak in leafing?—because, until it is shown that such a thing does at times occur, there is neither sense nor wisdom in the proverb. I must say I have never seen the Ash in advance of the Oak, let the season be what it may. The present season has been rather productive of early growth in all trees, but the Ash seems to remain generally quietest. A large Oak, never earlier than other Oaks in expanding its leaves, has had foliage for three weeks; a robust young Ash close to it has not yet burst a single bud. Both trees look stout. On a more northern aspect the Ash is a trifle earlier, but quite a fortnight behind the Oak. In this latter case the Ash is partly fed with moisture by a ditch; in the former case the soil is comparatively dry. On the other hand the latest Ash tree in this district is one growing in a low boggy meadow, close to a stream. One theory set up is, that as the Ash is a shallow rooting tree it is accelerated or retarded in its growth by moisture or drought; but assuming that such were the case, it would not unreasonably follow that if the spring were wet or dry, the summer and autumn might be the reverse. The real point of the matter is found in the "if," which in this case is to be taken in a peculiarly doubtful sense. As the Oak, in my experience, always precedes the Ash, there can be no "if" in this case, whereas "if the Ash precedes the Oak" the matter is left open to the widest range of improbabilities—a something that may but never does happen. It would be of interest to learn from various districts—especially from moist and comparatively dry ones—how the two trees behave this spring, and thus get some tangible information that may either substantiate the proverb or scotch it for ever. *A. D.*

Linum flavum and Linum arborescens.—Referring to a note of my friend, Mr. Alfred O. Walker, on p. 559, it appears that confusion still exists between *Linum flavum* and *Linum arborescens*. This is not to be wondered at, as the flowering season of the two plants is separated by some months, and it is therefore difficult to compare them. The latter known to me and commoner of the two plants, which I also raised from seed last year obtained from the same source as Mr. A. O. Walker's, is *Linum flavum*. It is well figured and described in the *Botanical Magazine*, tab. 312, where it is said to bear considerable similarity but yet to differ widely from *Linum arborescens*, the latter being a greenhouse shrub, a native of the Levant, whilst *L. flavum* is a native of Germany, a hardy herbaceous perennial, flowering in July and August, and ripening seeds out-of-doors in England. *L. arborescens* is figured and described in the *Botanical Magazine*, tab. 234, where it is said to begin to flower in the greenhouse in March, and to continue to flower more or less through summer. I recollect that thirty years ago when I used to keep it in a cold frame through winter and use it for a spring bedding plant, it would flower from April until nearly the end of June. It was introduced by Professor Silthorp in 1788, and is well figured in his *Flora Græca*. It is stated also in the *Botanical Magazine* that it produces no seeds in this country, and is with difficulty increased by cuttings. Having grown both these plants for several years, and having distributed *L. arborescens* extensively in spite of its slowness of propagation, I can confirm all that is said about them in the *Botanical Magazine*, except as regards their native countries, which I have never visited. It is probable that *L. arborescens* is hardly in mild winters in the more favoured parts of the British Islands. *C. Wolley Dod, F.R.S., Hald, Malpas, April 29.*

Spiræa confusa.—I should like to draw the attention of gardeners and others, who have to keep up a supply of white flowers during the early spring months, to this fine shrub, which is grown in nurseries under the name of *S. Van Houttei*, and which is well adapted for forcing, its lovely white flowers being produced quite freely on the previous year's growth. February is the beginning of March, by being placed in a cool Peach-house or vinery, where it will not be too much excited by strong heat. The long festoons of flowers are well adapted for making wreaths, &c.; and for planting in shrubberies I think there can be nothing prettier than when in flower in the month of June. I have sent a small spray, so that you can judge of its usefulness. *P. Island, The American, Kils.* [We can confirm your statement. *Err.*]

Tradescantia multicolor.—To say that this is infinitely superior to the older and more commonly grown *T. zebrina*, of which such large quantities are employed for decorative purposes, is to bestow upon it but a very small amount of praise, and hardly do

justice to it. As a plant suitable for an edging to baskets growing in stoves, ferneries, or conservatories, and which have occasionally to do duty for the decorating of front halls, staircases, and ball-rooms, it is unique, and has few competitors to beat it. The various colours of its foliage, some of which assume quite a brilliant and striking appearance when not shaded too much from the sun, render it a very suitable subject for intermingling with cut flowers in those small globular glass which are so extensively used for dinner-table work; it is also very effective, and is seen to advantage when planted out in narrow borders in plant-houses, or when growing in small pots with the shoots drooping over the sides of the stage. Altogether it is a most useful plant for decorating, and may be used in a variety of ways. J. H.

Alpine Auriculas.—I use these Auriculas extensively for edgings of borders, and I do not know anything more beautiful for the purpose or more suitable. They give very little trouble and afford a profusion of flowers, with unlimited varieties of colour. When the spring blossoms are over they make a quiet green edging, and do not come in competition with the other flowers; and in autumn they again produce some bloom to enliven the monotony, when a good many of the summer flowers have passed away. G. H. W., *St. Mary Church, Devon.*

The Alexander Peach.—The Alexander Peach is, I think, destined to a great future in forcing-houses; it is some years since I received it from America. I confess to having been very incredulous when I read the description given of it, but it has entirely justified the high character which accompanied the plants sent to me. I have not fruited it out-of-doors (an almost hopeless method of Peach growing), but under glass it is an admirable fruit; in a cold orchard-house it ripens a week before Early Beatrice, and is double the size. I have now in a heated orchard-house fruit ripe and ripening, the trees having been put in about the end of January. T. Francis Rivers.

Valeriana Phu-urea.—At p. 506 Valeriana Phu-urea is mentioned as being cultivated in botanic gardens. It is not confined wholly to those places, but is used in many places in the north of Yorkshire as a spring bedding plant. I have before advocated its use in your columns for that purpose, and after several years' experience I must say I do not know of another plant so telling in the spring garden. It is very hardy, and very easy of propagation. Hence, I have had four beds of the Valeriana Phu-urea, one with about 120 large plants mixed with about three times its number of bright scarlet Tulips. The beauty of this bed surpassed anything I have seen in the way of spring bedding, and I would recommend this mixture to all that grow spring flowers. The next telling bed was a large round one, with about sixty large plants of the Valeriana Phu-urea, and about twice the number of blue Hyacinths bordered with Blue King Viola. The other two were smaller round beds of Valeriana Phu-urea and red Hyacinths bordered with Cerastium tomentosum. Mixtures of this kind have a very telling effect in any garden. The Valeriana is as bright as the best yellow Calceolaria that I know. In a former volume you gave the local name of this plant in Westmoreland as Tommy Two-stabs; since then that name has become pretty well established in all parts of Yorkshire. [We are sorry for it!] William Calverley, *Thorp Perrow.*

Shrubs for Town Planting.—It is lamentable sometimes to see the poor wretched shrubs struggling for existence in towns, where the atmosphere is such that only a few kinds will succeed, and yet planters continue putting in almost everything instead of keeping to those that can withstand the dust, smogs, and smoke without showing signs of serious distress. One of the best among evergreens is the Aucuba, the leaves of which are so thick and leathery, and the surface so smooth and glossy, that dirt either does not effect a lodgment or if it does its hold is so slight that the first rain which fills washes it all off, and makes their faces smile with bright looks. Aucubas are so hardy, too, that neither wind nor frost affects them, and as to their ornamental appearance they are quite unrivalled, especially when clothed with their coral-red berries. To get them to bear these freely it is only necessary to plant one of the male kinds near by, the pollen from which will fertilise several, and to make sure of this it is worth while to do it by hand, as then a good crop may be always secured. Eucyonius, though not so hardy and trusty as Aucubas, are capital town plants, and more particularly for small forecourt gardens, as they form neat compact bushes, and may easily be kept in that state for years. Some of the gold and silver-leaved sorts are remarkably handsome, but unfortunately they are more tender than the green varieties, which not only bear the winter best, but also the heat and smoke. In the north of London, about Canonbury and Highbury, I have seen these equal to any in the country, and I have also been much struck by the fine tropical

appearance of the old Sumach, which along by the course of the New River keeps in luxuriant health. A plant with such foliage as this has is well adapted for positions near buildings, as its character is such that it does not look stiff or formal anywhere; and as it is so enduring and so handsome the wonder is that it is not made use of much more than it is. Another greatly neglected plant is the Fig, which stands a town atmosphere well, and besides its noble foliage there is the fruit to look forward to, which trees of it bear freely in hot, enclosed places. The soil which suits the Fig best is that which is poor, light and dry, as with its roots in a restricted layer the growth it makes is more solid, and therefore less liable to injury from frost. The large-leaved kinds of Box, such as latifolia, myrtifolia, and others, are valuable for town planting, as they can hold their own almost anywhere and always look well. Hollies succeed fairly where there is not much smoke, but a town atmosphere affects the variegated kinds unfavourably, and in it they invariably have a shabby look and make an indifferent growth. The large-leaved Privets are always satisfactory, and among deciduous shrubs the Lilac is one of the best, but it is generally badly managed as regards pruning, the shoots being simply cropped and shortened, instead of thoroughly thinned out, to give the young ones breathing room, and plenty of light and air to allow them to ripen. J. S.

A Fruit Within a Fruit.—I am investigating the botany of Indian Mustards, seeds having been obtained from every district in these Provinces. They

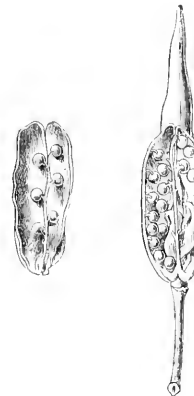


FIG. 95.—FRUIT WITHIN A FRUIT.

were sown in plots in this garden. Amongst them was a variety with pods as in enclosed drawing (fig. 95), and as it seems to correspond so nearly with an example described as "a fruit within a fruit" in a recent number of the *Gardeners' Chronicle* (January 7) I thought it would be as well to record it. All the pods of this variety appear to be similarly affected more or less. Whilst examining some of them I noticed that the inner abortive pod was open at the apex, as in the carpels of Reseda; usually, however, it is closed, terminated by a well-formed beak. J. F. Duthie, *Saharunpur, N.-W. Prov.* [Many similar instances are on record; see *Vegetable Teratology*, p. 181, and if we are not mistaken Griffith somewhere describes a similar form. Ed.]

How to Start a Rookery.—An inquirer asks, at p. 519, for information on the formation of a rookery. I have, by the following method, succeeded in starting two rookeries, one at Taplow Court, Bucks, which is now a very large one, the other at Glenapp, Ayrshire. The artificial nests were placed in the trees early in February; the rooks took possession of them very quickly, laying in them, and constructing more themselves in a few days. Collect a number of small hard-wood sticks, of the size the rooks use, such as Elm, Beech, about a foot or so long, make them into a bundle 1 foot in diameter; this quantity, with those you must break off in the locality of the nest to make a clear open space around, as the rooks themselves do, will be sufficient for one nest. Let a young man tie this to his back and climb up into the tree chosen, into the very top, far as he can safely go, and select a three-forked upright shoot, then commence to form the artificial nest by making a firm foundation in the fork with the sticks 4 or 5 inches thick, then work it round in the form of a bowl

9 inches by 12, and about 10 inches high. The inside should be made smooth and regular, the outside rough, as like the natural nests as can be, and make from four to six nests in one tree. The ultimate success of the undertaking chiefly consists in placing the nests in a branch which sways well with the wind, the nests being made neatly, which makes them more attractive to a young colony. As the rook is a very indiscriminate bird it will take fully an hour when up in the tree to make one nest properly. Also take up a little dry roughish grass in your pocket to line the inside of the nest with. [And take care lest you fall.] James Buckland, *Burnham, Bucks.*

Gentiana acaulis at Killiercranke, Perthshire.—I had the pleasure to see this beautiful spring plant a few days ago in perfection at Killiercranke. It is growing in friable sandstone, but does not make such a robust growth as I have seen elsewhere. Still it flowers very profusely, and is used as an edging to the walks in a garden near the Pass. When I saw it it was a perfect sheet of blue. I mention it in consequence of the roots having been forced down a quantity of the brickwork, and to my great surprise, in tracing the roots to their extremities, I found on one side that the leading root had run to the great length of 42 feet, and on the other side to about 15 feet immediately under the top course of bricks. To me this seems remarkable, and should any readers feel a curiosity to see it, I should be happy to show it to them. W. G. Turner, *The Rookery, Strathcan Common, Day 2.*

Remarkable Growth of a Silver Birch.—When I came here, twenty-nine years ago, I found a Silver Birch growing on the top of one of the garden walls, 9 feet from the ground, apparently many years old. During that time I never knew it in the least degree affected by the hottest season, as it held its foliage quite as well as perfect sheets of blue. I removed it in consequence of the roots having forced down a quantity of the brickwork, and to my great surprise, in tracing the roots to their extremities, I found on one side that the leading root had run to the great length of 42 feet, and on the other side to about 15 feet immediately under the top course of bricks. To me this seems remarkable, and should any readers feel a curiosity to see it, I should be happy to show it to them. W. G. Turner, *The Rookery, Strathcan Common, Day 2.*

Rhododendron eximium.—Mr. Llewellyn in his very interesting paper on Rhododendrons in your last number asks "What is R. eximium?" He will find, by referring to Hook. *Kew Journ.* v. (1853), that it is a plant introduced by Booth from Bontan, and named by Nuttall. Both it and R. venosum are now, by the highest authority, considered as varieties of R. Falconeri. I have specimens, and have seen others in several collections. Mention is made of R. eximium in *Cartwright's* v. 1879, p. 227. This plant eximium is of the interesting and suggestive fact that so many species of Sikkim Rhododendrons reappear—with a difference—in Bontan: R. Hookeri for R. Thomsoni, R. grande and longifolium for R. argenteum, R. Griffithianum for R. Aucklandii, and so on. We have much yet to learn of the varieties, if not new species, in both the above countries, as well as in the adjoining districts. J. H. Mangles, *Vallevoil, Batavia.*

The Weather and the Fruit Crops.—Since penning the favourable report of the fruit crop weather has changed for the worse, and I fear the hopes then formed will, in a great measure, be blighted, as to-night (April 29) we have a cruel, tearing wind blowing, which for violence has not been equalled since the country was visited by the heavy gale of October last year, when trees were smashed and uprooted to a most distressing degree. The injury it will do to fruit trees must be great, as they are being lashed in such a way that every leaf on the exposed side will be either bruised or torn to pieces, and the blossoms and much of the fruit now set must share the same fate. Truly the seasons are disheartening, for if we escape frosts we get wind, which is even more devastating and destructive, as nothing can stand against it. J. Sheppard, *Woolverstone Park.*

Schizostylis coccinea.—Some fourteen or fifteen years ago this brilliant Itidaceous plant was introduced from Kaffraria, and created quite a sensation, but as it is not generally known that it is hardy, it has not been so extensively cultivated as it would otherwise be. As it flowers late it is necessary to plant it in a sheltered position, not so much for the sake of the plants as the protection of the blossoms, which in the autumn are apt to get knocked about by the wind or damaged by a continuance of wet. To prevent this, the plants should be grown together in a border under a wall or fence, where they can have the desired shelter, and, if necessary, be covered temporarily with any old spare lights when the plants come into bloom. Managed in this way they yield a long succession of flowers, which are most valuable for cutting, as they are not only exceedingly brilliant, but last a long time in water. Although the height and growth of the plants greatly resemble the common Iris, the flowers are more like those of the Gladioli, and are borne in the same way on short slender spikes, which dress

well in a vase. Besides being of great value for affording cut blooms, *Scythostylis coccinea* is of equal service for pots, as in a greenhouse plants of it make a fine show, and blossoms in the winter through. The way they may be grown with the least trouble is to plant them out in a prepared piece of ground made rich and light with manure and leaf-mould, and at the end of September the plants should be lifted and carefully potted, and when watered kept close in a frame. Here, by enjoying the extra warmth and moisture, they soon emit fresh roots and quickly become re-established. If cultivated in pots during the summer, liquid manure should be given, and the pots plunged in some non-conducting material to keep them shaded and cool. *J. S.*

Late-keeping Potatoes.—It is a desirable thing to have Potatoes as good in May as in the autumn. Having a few large tubers of Matchless or Holborn Favorite left after planting was over, I cooked them to test the quality, and found they dished up as white, dry, and mealy as a good Regent would be at Christmas, and far better than any Regent would be now. That an American-raised Potato should have such first-rate quality is a novelty. The tubers are rather long, of a high level, and are now giving its kinds worth eating. Schoolmaster, though the tubers had somewhat pushed, cooks finely, and as a mashed dish was delicious. Bedford Prolific, though naturally earlier, also cooks yet superbly, its touch of yellow in the flesh helping to give that flavour we have been accustomed to in the Lapstone. Specially good is Woodstock Kidney, which, however, has not been largely inquired for, chiefly because it is far from being disease-proof. On the other hand, Magnum Bonum and Champion seem as little in request, because both are more or less disease-resisting, and therefore have so enormously increased. Both cook well, and will do so till new ones come in. Some kinds seem almost to be improved when they have been sprouted a little, but it would not do to assert this as a rule, because others become soft and sweet when so treated. I find Potatoes intended for the latest consumption kept best in boxes or tubs, and placed in a cool, not very dark, and well-ventilated, and every few weeks, and rubbed over to prevent sprouting. If tubers are sound they want neither lime-dust nor any other mixtures with them, whilst no kind of dressing will help to keep partially diseased tubers for any length of time. No doubt many other kinds than those named will keep well and late, but these few serve to show that we are not without good keeping varieties. *A. D.*

Wistaria sinensis.—One of the largest, if not the largest, Wistaria that I have ever seen is now in full beauty here (Lancome estate, South Devon), and I should be glad to know whether it has an equal and where. Its mode of growth and dimensions are as follows:—It is planted at one end of the kitchen garden and is trained against the east wall. The garden is divided into four quarters by cross walls, and is situated upon the slopes of a steep hill so that the plant rises and falls with the different elevations of the walls. The plant is 4 feet in circumference at the base and at 3 feet from the ground branches into two large stems which are placed round each other and look very curious and grotesque. The height of the wall is 12 feet. The plant travels along one wall a distance of 46 feet, crosses a walk 12 feet in width, ascends a second wall perpendicularly to a height of 12 feet, and then travels a distance of 58 feet more, or a distance of 140 feet, in all. The contortions of the stems and the journey they travel in such a peculiar fashion lend an interest to the plant especially now when it is clothed with drooping clusters of its well known lovely flowers. *H. L. C.*

Mackaya bella.—With reference to the remark at p. 566, that this plant does not flower every year either at Kew or Pendell Court, it may be of interest to know that it does flower every year in the Cambridge Botanic Garden. The reason appears to be that the roots are so restricted as to prevent a luxuriant growth which could not be ripened. Everything depends on maturity, and root confinement is an aid to this end. Some sacrifice of handsome foliage in this case appears necessary to secure flowers with certainty. *R. J. L.*

Lilies of the Valley for Forcing.—Those who are desirous of having Lilies of the Valley finer than usual next winter should borrow a leaf out of the cultivator's book in the Exeter Nursery, and plant out the stock for forcing forthwith in a heated pit facing the south. Such accommodation for forcing these favourite winter flowers is rarely to be met with, but it may be taken for granted that the system, if it would not be adopted in a nursery, is not required. It should be stated that the hot-water pipes are not needed at present but in the winter, so that the flowering period may be accelerated as there is demand for the flowers. Nor does it need the wisdom of a philosopher to state that plants that are forced in the same posi-

tion where they are established will produce a greater number of finer blooms than if they are moved immediately before forcing is commenced. But perhaps the great point gained is that the plants make early growth and are well nourished until that growth is matured under the system referred to. At all events the leaves of the sample to which reference is made are twice as large as those ordinarily seen, and are as green as Leeks—a sure sign of what may be expected next autumn. The plants will naturally ripen their growth early, and will be ready for forcing again long before plants subjected to ordinary treatment have gone to rest. The pit in which the plants are established is a low one attached to the south side of a span-house running east and west, and is heated by a flue and return 4-inch pipe. In addition to this it would be an advantage in very early forcing if bottom-heat were also provided, in which case a supply of early flowers would be a certainty. *H. H.*

The Black Italian Poplar.—This is, I believe, the fastest growing tree which we have, and I wish one could convince every landed proprietor in this country that there is on almost every estate a tree which is producing little or nothing but would grow this tree to perfection; it matters not if the situation is damp or even wet, and the soil as stiff as brick-earth, still it will flourish, and positively, so to speak, rush into timber. A friend of mine emigrated to New Zealand, and wishing to give his new residence as soon as possible an air of antiquity planted this tree plentifully, amongst others, on his estate, and soon the buildings were sheltered and the cattle ruminating under its shade. There are hundreds of purposes its wood can be put to, but I will mention three for which it is pre-eminent. The first is packing-cases; the wood does not easily split, and being very difficult to burn it is very safe for cottage and other flooring, but for railway buffers it has, I believe, no equal. There are several fine specimens on this estate, and during the very violent gales which swept across this part of the island last autumn several trees, in common with others, were uprooted. Old men on the estate assured me they remembered the planting of the tree, and that the tree must be the annual growth of the butt-end, and found sixty circular rings, and the measurement of the finest tree was 217 feet of timber. Now here was a tree as sound as a bell, which had been planted, grown, and cut down during the memory of living men; grown in soil which in winter was like bird-lime, and where it was next to impossible to drain it; and tell me, reader, if you can, what tree under such circumstances would produce half the money? *J. Kist, Bridge Castle.*

Bad Flower Seeds.—All that "Mervyn" has written at p. 538 respecting the difficulty he has experienced in raising certain purchased seeds is doubtless true, but it would be unfair because of that to promote charges of dishonesty against the seed trade. It must not be forgotten whilst "Mervyn's" testimony is that of one, purchasers of seeds from seed firms are counted by tens of thousands, and were his experience general we should long ere this have met with an universal chorus of imprecation; in fact, the seed trade must be now have gone to the dogs. All who are conversant with the seed growing business will admit that the care exercised in the sowing of not only sound healthy seed but also of the best and purest strains is remarkable, and that it is productive of good results is evidenced in the fact I have alluded to, that the mass of customers are satisfied. It cannot be too widely known that the choicer the strain of almost any kind of seed-bearing plants, (Chinese Primrose, Anemolas, Cinerarias, Pansies, and similar things, the less freely does the plant seed. Still further the less freely it is fertile. If in the case of such seeds that are literally worth their weight in gold, and which can only be sold at a profit in quantities so minute as to be absurdly disappointing to the purchaser the seedsman should add a little milled seed it is not because he wishes to deceive his customers, but because he understands how in relation to these very choice seeds the customer is unreasonable and will not be satisfied unless he gets bulk for his money. "Mervyn" found that purchased seed Auricular seed, though the bulk was great, came badly. That will surprise no one who has sown seed from really fine show kinds, for whilst the seed is very scarce, at least one half is rarely fertile, and growers of choice sorts will have read with incredulous astonishment that "Mervyn" got 100 seedlings from three pods only. His could not have been a very refined show kind, and perhaps his Chinese Primrose strain was of the same order. In any case it will not do to be too much hasty to impute dishonest practices. *A. Sed. Grower.*

Varieties of Melons.—The number of new Melons of late years has caused not a few sarcastic and ungracious remarks. No one can gainsay that good examples of Bailey's Green-flesh, Cashmere, and perhaps Golden Gem are equal to any of the new varieties, yet even allowing this to the full, the progress exhibited in the new kinds is great. In the first

place the growth, and what for want of a better term is called the "selling" qualities of the new kinds, are stronger and better. In the second place they combine size and flavour. Lastly, in appearance and keeping qualities there is a distinct advance. In the green-fleshed kinds William Tillyer has driven out Victory of Bath, Horticultural Prize, and others of that ilk, but it has already been far from unsuccessfully opposed by High Cross Hybrid. The raiser of the latter gave the public every opportunity of inspecting his seedling, and in appearance, size, free growth, and all the other good qualities of a Melon it is pre-eminent. As far as I know these two varieties are not only as different as can be from each other, but from anything that has preceded them. Through the courtesy of Messrs. Sutton and Mr. Koss I am this year growing Welford Park, which has already received a First-class Certificate from the Royal Horticultural Society; it shows the same freshness and hardihood of growth which distinguishes the other new sorts. The standard of flavour in "Best of All" is not nearly high enough. In the scarlet-fleshed varieties progress is equally positive. Until lately no scarlet-fleshed Melon took so many prizes as Turner's Scarlet Gem; now there are at least six surpassing sorts, that combine size and flavour. The caution cannot be too often repeated against growing two or more sorts of Melons in the same house when the seed is required. In the case of some new Melons every seed has come different. *William Carmichael.*

Pyrus floribunda.—The finest thing among deciduous shrubs now in bloom is *Pyrus floribunda*, the long twiggy pendulous shoots of which are laden with blossoms. In habit and character it has much the growth and appearance of a Morello Cherry; but instead of the blossoms being white, they are flushed with rosy-pink like those of the Apple, and a tree or bush of it is, therefore, an object of great beauty. For a single specimen on a lawn nothing can be finer than a standard of this lovely *Pyrus*; but as it flowers early it is necessary for it to have a sheltered situation where the wind cannot get at it to knock it about. Besides being valuable for planting on lawns, it is well adapted for shrubberies in the foreground of large evergreens; but wherever placed it should have plenty of sun, which is requisite as an aid to ripen up and harden its shoots. The way to propagate this *Pyrus* is to put in cuttings early in the autumn, and if these are made of the young wood, and inserted in sandy soil, they will root the following spring. *J. S.*

Florists' Flowers.

EARLY TULIPS AT CHELSEA.—One of the most successful illustrations of the usefulness and beauty of the race of early flowering Tulips as bedding plants in spring is now being furnished at the Chelsea nurseries of Messrs. James Veitch & Sons. If it be true that the late flowering florists' Tulips can no longer be grown in Camberwell, Peckham, Holloway, and other suburbs of London, owing to the encroachments of the builder and the rapid growth of suburban populations, it is yet quite certain that as far as the Chelsea nurseries are concerned the early Tulips bloom as finely there as in the most favoured spot in the open country. In Hyde and the Regent's Park the early Tulip succeeds well also, and it can be safely regarded as a plant much better adapted for town gardens than is generally supposed.

There are at Chelsea two oblong panels of beds of varying shapes, comprising seventeen beds each, and they are parallel to each other on either side of the broad central walk through the nursery. They are similarly planted in regard to the sorts, and they serve to suggest (with the exception of a little modification of the position of the different sorts in regard to height) how the beds on a terrace garden might be planted, and the sorts to be had for the purpose. There are in all in about two dozen varieties, and the leading idea has been to test the simultaneous blooming of these varieties, and with but few exceptions the sorts to be named may be taken as representing a collection that can be satisfactorily employed to secure a full display of bloom at a given period.

Of the varieties employed, the self-flowering shall first be noticed. Of the scarlet or crimson selfs I place La Belle Alliance at the head of the group as an effective bedding variety; it is of a rich bright scarlet crimson hue, fine in build as well as colour, and not exceeding 9 inches in height, so that a bed of it presents a very regular and even appearance. Couronne

Pourpre, or Purple Crown, is of a reddish-crimson colour, and makes a very effective display in a bed: it has one good quality, that the colour deepens to a rich crimson with age. It is a taking and distinct sort, growing to the height of 9 inches, and it goes well with Yellow Prince. Brutus is nearly a self; it is of an orange-red colour, with a slight feather of orange, and makes a nice dwarf bedding variety, of regular growth, averaging about 9 inches in height.

Of the purple and violet selfs the two darkest are Vander Neer and Wouwerman; the former has the darkest hue of colour, the flowers of fine build, large, and of almost perfect shape. It is a little early for bedding purposes; that is to say, it comes into bloom before the general body of varieties grown for the purpose. For pot culture it cannot be surpassed, and when at its best reminds one of a fine breeder Tulip of the late Dutch or florists' type. Wouwerman is a little taller in growth, about 12 inches, is of a good hue of purplish-violet, and is highly satisfactory as a bedding variety. It lacks the fine build of Vander Neer. Proserpine is of a pretty violet-rose shade, a flower of large size and superb build, growing regularly, and making a good bed. It is a little early, but cannot be dispensed with. It is one of the best varieties for pot culture. Queen of Violets is of a very delicate shade of violet, and with age it becomes flamed and tinted with white. When at its best it is of a delicate rosy-violet colour, but pales as it ages. It grows to about 12 inches in height, and is excellent for pot culture. Pot Potter is a newer variety, of a distinct shade; it is of a purplish-rose, with the purple predominating; lively in hue, rather tall for bedding purposes, and a little late in flowering; very pretty and distinct.

Of the cerise selfs, Paul Morelle is one of the best; it is of a deep cerise shade, rather small in size, a little dull looking, and white at the base of the bulb inside, but a good and effective bedder. Cramoisie Superbe is of a delicate rosy-cerise colour, shaded with bronze, a little tall, growing from 12 to 15 inches in height; very pretty and distinct.

Of the orange and yellow selfs, Thomas Moore still holds its own as a useful and effective bedder, being very regular in growth, while the flowers are of excellent shape; it is very distinct and highly attractive. Of the yellow varieties, Yellow Prince was the only one in the Chelsea trial. Nothing else comes in just at the time this does; it is at its best with Keizer's Kroon, Proserpine, and La Belle Alliance. It is of a dwarf, sturdy, and regular growth, and makes a charming bed. Chrysolara is an excellent yellow Tulip, but is too early for bedding; it does best cultivated in pots.

Of the edged Tulips, Keizer's Kroon takes the leading place. It is a tall growing variety, and quite early, looks most imposing in a bed, and is the largest in size of all the early Dutch Tulips; as a pot variety it is unsurpassed. Duchesse de Parme is later, dwarfier, and smaller in size than Keizer's Kroon, and is a good bold variety for massing. It lacks the broad edging of gold which makes Keizer's Kroon so conspicuous, as in this respect it has a much narrower edge, and it is a good pot variety also. Duchesse d'Autriche is a broken form of this, that is to say, the coloured base is flamed and streaked with yellow, and though it makes a good bed it is not so effective as the unbroken form. La Remarquable is of a lively rosy-claret ground colour, edged with white, and feathered also with the same; a little late in flowering, but very pretty and distinct. Monument has a deep cerise ground, and is edged and flamed with white; a few are nearly self-coloured, and then we get Cramoisie Superbe, as Monument is a broken form of this. It makes a very pretty bed.

Then we come to a class that might be termed variegated Tulips, in which a deep ground colour is flamed and streaked with a paler colour. There is Joost van Vondel, which is often of a rosy-crimson self colour, though its correct form is striped slightly with white. It is sometimes heavily striped in this way, and there is a pure white sport also. At its best it is of a rich bright reddish-crimson ground, slightly pencilled with pure white. It makes a very good bedding Tulip, one of the best in fact; it averages 10 inches in height and is very regular in growth. Rose Grisdelin is a very pretty Tulip, the colours are equally white and pink or delicate rose; it is very dwarf, rising to 6 or 8 inches, and there is an attractive combination of colours; it is also very regular in growth. Cottage Maid is white and pale bright rosy-pink; a very pretty dwarf Tulip and an excellent

bedder. Rose Aplatie is a remarkably attractive Tulip, white and pink—whitest when it opens, and becoming darker as it ages; very pretty and a good bedder. The three last-named, though of the same combinations of colour, are yet essentially distinct. La Respectable has a pale magenta ground flamed and striped with white; dwarf, distinct, and very tall, too late indeed to be used effectually with others. Golden Standard is red and yellow, a sport from the red and white Royal Standard; bright and effective, a good bedder, dwarf and showy.

There yet remain the white Tulips. Of the good old white Pottebakker it is scarcely necessary to treat, it is so well known and so thoroughly good for all purposes. Arms of Leyden is a good white Tulip, not so good in shape and size as white Pottebakker, or so pure, but yet a thoroughly good bedder, coming in at a good time; it is dwarfier than the foregoing. Grootmeester van Maltha is a white Tulip, but occasionally comes suffused with delicate rose like Rosa Mundi; when true, a good pure white Tulip, but rather late in flowering. Lastly comes Comte de Mirabeau, a pure white variety, having a regular habit of growth, earlier to flower than the preceding variety, coming in with Joost van Vondel; not a large flower, but of fairly good size as a bedding variety, and very useful in the flower garden.

Tulips remain longer in bloom than is generally supposed, but much depends on the character of the weather. At best the beauty of the Tulip is not greatly prolonged, and it is therefore desirable that the beds in which they are planted be carpeted with some later and more durable flower to succeed the Tulips. It is not the purpose of the writer to indicate in this relation the plants best suited for the purpose, but there are many useful subjects that can be employed.

The best nine bedding Tulips comprise Keizer's Kroon, Proserpine, Vander Neer, Joost van Vondel, Thomas Moore, La Belle Alliance, Comte de Mirabeau, Rose Grisdelin, and Yellow Prince. Add Monument, Queen of Violets, and Proserpine, and we get a dozen varieties that can scarcely be improved upon for pot culture. But let Tulips be grown in or out of pots, to have them at their best they must be grown generously. In the open air they need a good position, well drained beds, a suitable and rich soil, and such attentions as are indispensable, and the spring garden will be gay with a wealth of forms and flush of hues that will—

"Fill the garden with a joyful blazon
Of Tulips in the morning rays."

R. D.

THE CINERARIA.—Those who have followed previous directions as to the treatment of these showy greenhouse flowers will now be reaping the fruits of their care and labour in a brilliant display of colour. In order to keep them in flower as long as possible they must be kept cool by having plenty of air admitted without exposing the plants to cutting winds. They must also be shaded from bright sunshine, of which they are very impatient. When the pots are well filled with roots they take a good supply of water, and would soon suffer if allowed to become dry. If it is necessary to retard any of the plants for exhibition or other purposes, the best way is to place them in a house with a north aspect, where they get but little sun, while they have a better light than they get under canvas shading. Exhibition plants should be tied and stuck out a week or two before they are required, to produce a uniform surface of bloom. A few plants of the very best varieties should be placed aside from which seeds may be saved, as it is only by judicious selection that progress can be made. Good form and brightness of colour in the flowers, and dwarf compact habit of the plants, are the objects sought after. The named varieties that have done flowering ought now to be cut down, and the plants should be placed in cold frames behind a north wall, where they will begin to produce growths from the base of the stem. The double varieties of the Cineraria are so much improved now that they cannot fail to be admired. These must also be treated in the same way as other named varieties. J. D.

THE CARNATION AND PICOTEE.—About a month ago advice was given to have all the stock of these potted without any delay. Our own stock had been potted at that time. I find, however, that even now some growers have not yet finished potting; probably this is not because they think it best to repot late, but from inability to do so before. Our own

plants, which had been kept in frames until now, have just been turned out-of-doors, where they were exposed to more heavy showers during the last few days than will be beneficial to them; but as the pots were pretty well filled with roots the plants cannot suffer injury to anything like the extent they would if they had been potted and turned out at once. The whole stock of them had grown so much that it was necessary to place sticks to them when they were placed out-of-doors; any of the plants attacked with greenfly had the pest removed from them at the same time. The pots should be placed on a dry, hard, and level piece of ground, over which a thick coating of ashes should be placed. The perpetual flowering section are being very much improved, and are amongst the sweetest of garden flowers. The new varieties exhibited last week by Mr. C. Turner, of Slough, are certainly a considerable advance on the varieties already in cultivation. They are alluded to at p. 505. Mr. George Palfield, gr. to Horace K. Mayor, Esq., of Wincborne Hill, has also raised some very pretty and distinct varieties. Alice Duffield is quite a novel flower of considerable merit. The prominent feature in all our good new varieties should be a free-flowering dwarf habit. This has been obtained in Mr. Turner's varieties by crossing with A. Alegatière. I would like to impress upon those who are anxious to obtain fine flowers next winter that they must carefully attend to the plants now. If the cuttings were struck in January, February, or March, they will now be growing freely in cold frames, and if potted on as they require, they will be 8-inch pots by the end of September, when they will begin to flower, and continue to do so in a temperature of 55 all through the winter. J. Douglas.

Reports of Societies.

NATIONAL AURICULA (Northern Section). May 2.—This exhibition was held in the Town Hall, Manchester, on the above date, and, like its sister meeting held in London last week, was a decided success. The largest class being for six varieties, there were not the strong points of the collections of fifty and twelve plants as seen at South Kensington. The number were at times small, and it must be said of general good quality. A few flowers, such as George Lightbody, Alexander Meiklejohn, Lancashire Hero, Prince of Greens, Acme, Richard Headley &c., were conspicuously fine—the second of these was so well preserved that it was a good deal that it appeared to be Alexander Meiklejohn's specimen in the North, and some superb examples of it were forthcoming. Mr. W. Bolton, of Warrington, the Hon. Sec. to the Northern Division, was 1st in the class for six dissimilar Auriculas, six being very fine examples of Prince of Greens, Frank Simonite, George Lightbody, Alexander Meiklejohn, Lancashire Hero, and Mrs. Douglas, the fine new violet self raised by Mr. B. Simonite, Sheffield; 2d, Mr. Jonathan Booth, Falls-water, who had two fine examples of George Lightbody, A. Meiklejohn, Frank Simonite, Lord of Lords, Dr. Horner, and Colonel Taylor; 3d, Mr. H. Wilson, Halifax, with A. Meiklejohn, George Lightbody, Prince of Greens, John Simonite, Sapphire, and Colonel Taylor; 4th, Mr. S. Barlow, Stakelink, with Lovely Ann, Lancashire Hero, syde, and completely new, Erebus, and Ringdove, two fine selfs raised by the Rev. W. D. Horner; 5th, Mr. H. Pohlman, Halifax; 6th, Mr. B. Simonite. In the class for four dissimilar Auriculas Mr. H. Wilson was 1st, with Acme (Read), Ringdove, Prince of Greens, and Alexander Meiklejohn; a very good lot indeed; 2d, Mr. Shaw, Bury, with Dr. Horner, Ellen Lancaster, a conspicuous dark self; A. Meiklejohn, and George Lightbody; 3d, Mr. H. Pohlman, with George Lightbody, Acme, Topsy, and Colonel Taylor; 4th, Mr. W. Bolton, with Lancashire Hero, Acme, and George Lightbody, and Topsy; 5th, Mr. B. Simonite. In the class for the best two Auriculas, Mr. Robert Lord, Todmorden, was 1st, with Colonel Taylor and George Lightbody, in fine condition; 2d, Mr. John Bewick, Middleton, with Charles J. Perry and Traill's Anna; 3d, Mr. W. Bolton, with Alexander Meiklejohn and Ringdove; 4th, Mr. J. Booth, with Ellen Lancaster and Dr. Horner; 5th, Mr. W. Taylor; 6th, the Executors of the late Thomas Mellor.

In the class for a pair of Auriculas shown by maiden growers, the 1st prize was won by Mr. Beady, who had Charles and Traill's Anna; 2d, Mr. Shibley, with Smiling Beauty and Richard Headley; 3d, Mr. Prescott, with Mrs. Sturwell and Dr. Horner; 4th, Mrs. G. Shaw, with Traill's Beauty and Meteor Flag.

In the classes for single plants there was, as usual, a large number staged. The premier green-rose was Lancashire Hero, in its green form, from Mr. Pohlman; 1st, Mr. R. Lord, with Colonel Taylor; 2d, Mr. W. Bolton, with Talma; 3d, Mr. Rogers, with May Flower; 4th, Mr. H. Pohlman, with Laurel, a lively-looking variety, with a pale green edge; 5th, Mr. J. Booth, with George Lightbody; 6th, Mr. H. Pohlman, with Lancashire Hero; 7th, Mr. B. Simonite, with a seedling; 8th, Mr. Bolton, with Lovely Ann. The premier grey-rose was Alexander Meiklejohn, from Mr. H. Pohlman; 1st, Mr. H. Wilson, with Mrs. G. Shaw; 2d, Mr. H. Wilson, with George Lightbody; 3d, Mr. H. Pohlman, with Lancashire Hero; 4th, Mr. B. Simonite, with Samuel Barlow; 5th, Mr. J. Booth, with Dr. Horner; 6th, W. Brockbank, Esq., with Ne plus ultra; 7th, Mr.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 3, 1882.

Table with columns: MONTH AND DAY, BAROMETER, TEMPERATURE OF THE AIR, WIND, RAINFALL. Includes data for April and May.

April 27.—A fine day; overcast generally. Fine clear night. 28.—A dull, rainy morning. Fine bright afternoon, with occasional passing showers of rain. Fine clear night; windy. 29.—Fine in early morning; a dull, rainy day. A gale of wind during the day; strong wind all day. Night generally fine and clear. May 1.—Rain in early morning. A fine day; sun shining. Fine night. 2.—A very fine bright day; sun shining; passing showers of rain. Cloudy night. 3.—A very dull morning. Fine bright warm afternoon. Fine warm cloudy night.

LONDON: Atmospheric Pressure.—During the week ending April 29, the reading of the barometer at the level of the sea decreased from 29.52 inches at the beginning of the week to 29.27 inches by 9 A.M. on the 23rd, increased to 29.54 inches by midnight of the 24th, decreased to 29.19 inches by midnight on the 25th, increased to 29.28 inches by 9 A.M. on the 27th, decreased to 29.25 inches by 9 A.M. on the 28th, increased to 29.53 inches by 9 A.M. on the 29th, decreased to 29 inches by 5 P.M. on the same day, and was 29.46 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.41 inches, being 0.41 inch lower than last week, and 0.51 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 58° on the 24th and 28th. On the 26th the highest temperature was 49° 5'. The mean of the seven high day temperatures was 53° 7'.

The lowest temperature in the shade in the week was 36° 5', on the 26th; on the 23d the lowest temperature was 47°. The mean of the seven lowest temperatures was 46° 6'.

The greatest range of temperature in one day was 17° 5', on the 28th; the smallest was 9° 8', on the 23d. The mean of the seven daily ranges was 13° 1'.

The mean temperatures were, on the 23d, 50° 5', on the 24th, 49° 3'; on the 25th, 44°; on the 26th, 42° 6'; on the 27th, 43° 7'; on the 28th, 46° 5', on the 29th, 44° 4'; the two first, the 23d and 24th, were above their averages by 2° 5' and 1° 1' respectively; all the rest were below their averages by 4° 3', 5° 9', 5', 2° 4', and 4° 7' respectively.

The mean temperature of the air for the week was 45° 9', being 3° 5' lower than last week, and 2° 7' below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 122° 5' on the 28th; the highest on the 29th was 54° 5'.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 34° on the 26th and 27th. The mean of the seven readings was 35° 9'.

Rain.—Rain fell on six days, to the amount of 1.91 inch, of which 0.83 inch fell on the 25th.

ENGLAND: Temperature.—During the week ending April 29 the highest temperatures were 64° at Sunderland, 1, 62° 5' at Plymouth, and 61° 1' at Cambridge. The highest temperature at Bradford was 53° 6', at Liverpool was 54° 5', and at Hull and Leeds was 55°. The general mean was 57° 7'.

The lowest temperatures in the week were 31° at Nottingham, 33° 8' at Leicester and Bolton. The lowest temperature at Truro was 40°, at Plymouth was 39°, and at Leeds and Sunderland was 37°. The general mean was 35° 8'.

The greatest ranges of temperature were 28° 1' at

Nottingham, 27° at Sunderland, and 25° 5' at Cambridge. The least ranges were 16° 7' at Bradford, and 18° at Truro and Leeds. The general mean was 21° 9'.

The mean of the seven high day temperatures was highest at Plymouth, 57° 5', Cambridge 57°, and at Sunderland 57° 1'; and was lowest at Bolton, 50° 1', at Bradford 51° 7', and at Liverpool 51° 8'. The general mean was 54° 1'.

The mean of the seven lowest night temperatures was highest at Truro and Plymouth, 44° 3', and at Leeds, 42° 1'; and was lowest at Wolverhampton, 38° 3', at Bolton 39° 5', and at Leicester 39° 6'. The general mean was 41° 2'.

The mean daily range was greatest at Cambridge and Sunderland, 16° 7', and at Nottingham, 15° 9'; and was least at Bradford, 9° 8', at Liverpool 10° 2', and at Bolton 10° 6'. The general mean was 12° 9'.

The mean temperature for the week was highest at Plymouth, 49° 3', at Truro 48° 5', and at Brighton 47° 4'; and was lowest at Bolton, 43° 2', at Wolverhampton 43° 5', and at Leicester 44° 7'. The general mean was 46° 1'.

Rain.—The largest falls were 2.86 inches at Bolton, 2.77 inches at Bristol, and 1.04 inch at Blackheath. The smallest falls were 0.84 inch at Nottingham, 1 inch at Leeds, and 1.23 inch at Liverpool. It fell on every day in the week at Truro, Plymouth, Brighton, Cambridge, and Bolton. The lowest number of days it fell was four, at Wolverhampton; all others were five or six days. The general mean fall was 1.55 inch.

SCOTLAND: Temperature.—During the week ending April 29 the highest temperature was 58°, at Paisley; at Leith the highest temperature was 52°. The general mean was 54° 3'.

The lowest temperature in the week was 30°, at Paisley; at Aberdeen the lowest temperature was 36° 1'. The general mean was 37°.

The mean temperature for the week was highest at Paisley, 46° 7'; and lowest at Edinburgh, 44°. The general mean was 44° 9'.

Rain.—The largest fall was 0.95 inch at Aberdeen, and the smallest was 0.45 inch at Glasgow, Dundee, and Greenock. The general average fall was 0.58 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

- ARUM: J. T. C. Not at all an uncommon occurrence.
CALCEOLARIAS: H. Cannell & Sons. A strain of large flowers, very bright, with a well varied range of colours, and very effectively marked.
CINERARIAS: F. C. L. Smith. The flowers are 50-60 in form and colour, but very delicate in size.
GLASTHURP SPINACHERS: Mary Anne. Probably an error on the part of the correspondent.
HIBETUS: O. Some inquiries were made some time since 32 on this Fabian flower, which is better known than his history. George Denis Euret was a German painter, b. 1710, ob. 1770. He came to England, and was employed by Sir Hans Sloane to illustrate several Memoirs in the Philosophical Transactions. His name Sceticus was published in 1720. Further information may be gleaned from the Noctuides Biographie Générale, vol. xv, p. 751.

FRUITS TO NAME: Ph. Immel. We cannot name your fruits with certainty at this late period of the season. They are all much rubbed and discoloured. This is always the case with Apples at this season. No. 5 may be Pear's Pippin; 4, Beauty of Kent.

INSECTS: Phylloxera. Your Ivy is attacked by minute insects nearly allied to the common Acanthosyllabus, or red-spidder, having similar habits of frequenting the leaves of garden plants in vast numbers, and sucking the juices of the leaves, to which they give the appearance of being covered with minute pale blotches. It appears to be the Bryobia pretiosa, Koch, being of a dark chocolate colour with pale red head and legs. I. O. W.

MULDY ON ROSES: A. P. The spores or seeds are in the air, and are deposited on the leaves, &c., where they grow. They do not come from the roots. Dust the affected leaves with flowers of sulphur, and keep the atmosphere drier.

NAMES OF PLANTS: F. Drury. Clerodendron Balouianum.—Pala. No. 1. There are two Lichens present in the specimen sent, of which the one is Cladonia sylvatica, sterile, and the other (with scarlet apothecia) is Cladonia crocospicoides.—Anagrostis. Oncidium leucociliatum.—C. M. Tulipa sylvestris.—F. P. 1. Magnolia purpurea; 2. Spruce Thunbergii; 3. Pyrus atomata; 4. Pyrus Malus spectabilis; 5. a garden variety of Pear; 6. Davallia canariensis; 7. Celsia cretica.—E. D. 1. Epimedium macranthum; 2. E. alpinum; 3. Dondia epipactis; 4. Erythronium grandiflorum; 5. Chrysosplenium oppositifolium; 6. Pyrus salicifolia; 7. Fuchsia alpina; 8. Trillium erectum. Please pay the full postage next time.—H. F. Clayton. Rhododendron Nuttallii, not K. Aucklandii.—F. P. Oncidium sphaerulatum majus.—J. A. Robertson. Ficus rubiginosa—a native of Australia; fruit not likely to be eatable.—F. H. N. I doubt one of the roots is of Cereus cespense, but flower material too scanty to be sure.—

R. Simonite, with Garibaldi; 8th, Mr. Pohlman, with Confidencio. The premier white-edge was Acme, from Mr. R. Lord, 1st, Mr. J. Booth, with Richard Headley, very pretty indeed as a white; ad, Mr. R. Gorton, with John Wateron; 3d, Mr. Wilson, with Acme; 4th, Mr. Pohlman, with Smiling Beauty; 5th, Mr. Wilson, with John Simonite; 6th, Mr. Lord, with Catherine; 7th, Mr. Booth, with Trail's Beauty; 8th, a seedling.

The premier self was Mr. Douglas, shown by Mr. R. Simonite, 1st, Mr. J. Booth, with C. J. Perry; 2d, Mr. Booth, with Mrs. Sturges; 3d, Mr. Bolton, with Ellen Lancaster; 4th, Mr. Pohlman, with Lord of Loree; 5th, Mr. R. Lord, with Lord Clyde; 6th, Mr. Pohlman, with Mazine; 7th, Mr. Brockbank, with Metropolitan; 8th, the same, with Toppy.

The selection of the premier Auricula required some nice discrimination. Eventually it was resolved that two flowers should be declared equal in point of merit, viz., a very fine Lancashire Hero, shown by Mr. S. Barlow, and Alexander Meiklejohn, shown by Mr. H. Wilson.

There were numerous shown, and many of the shaded flowers were very handsome indeed. In the class for four varieties Mr. J. Booth was placed 1st with George Lightbody, Elcho, Queen Victoria, and Brilliant; 2d, Mr. W. Adams, with Queen Victoria, Diable, Mrs. Leaven, and Colonel; 3d, Mr. Gorton, with Neatness, Queen Victoria, and seedlings; 4th, Mr. Shaw, with Conspectus, John Leach, Diable, and Mr. Spangle; 5th, Mr. R. Gorton, Diable, Mr. Meiklejohn, Elcho, and Miss Red; 6th, Mrs. Geggie. The premier alpine, with yellow flowers, was shown by Mr. Booth, 1st, Mr. Shaw, with Diable; 2d, Mr. Pohlman, with a seedling laced variety; 3d, Mr. Adams, with Colonel Scott; 4th, Mr. Shaw, with Spangle; 5th, Diable. The best white-centred alpine was a seedling laced variety from Mr. H. Pohlman, 1st, Mr. Gorton, with Elcho; 2d, Mr. Pohlman, with a seedling laced; 3d, Mr. Gorton, with Sunset, a pretty but thin light variety; 4th, Mr. Booth, with Tennial; 5th, Mr. Gorton, with George Lightbody. The fact that shaded flowers alone can be shown at Manchester excluded from competition a large number of the fine self varieties raised by Mr. C. Turner, of St. George.

In the classes for gold-laced Polyanthus there was a remarkably good competition, and some highly-refined flowers were shown. Mr. J. Beswick, Aldridge, had the best three black ground varieties, staging the Lancashire Hero, a seedling of the Cheshire Favourite type, paler in the centre, and with a neat wide lacing; 2d, Mr. W. Bolton, with Exile, Lord Lincoln, and Zoe, a pretty seedling of great promise; 3d, Mr. S. Barlow, with Beauty of England, Exile, and Harbinger, a new and promising variety; 4th, the excusers of Mr. T. Melior, with Cheshire Favourite and two seedlings; 5th, Mr. T. Prescott. Mr. Barlow had the best three red-ground varieties, staging Model, Firefly, both his own seedlings, and very promising indeed; and the true forms of Cows Regent, ad, Mr. J. Beswick, and George IV., Laner, and a seedling; 3d, Mr. W. Bolton, with President, George IV., and a seedling; 4th, Mr. Prescott.

The premier red-ground flower was George IV. 1st, the same; 2d, Model; 3d, Prince Regent; 4th, Red Rover; 5th, Firefly. The remaining seedlings: The premier black-ground flower was Lord Lincoln, very fine indeed. 1st, Exile; 2d, Lancashire Hero; 3d, Cheshire Favourite; 4th, John Bright; 5th, Earl of Lincoln; 6th, President.

Mr. S. Barlow was the only exhibitor of twelve fancy Polyanthus, among some pretty and rare things; and W. Brockbank, Esq., was the only exhibitor of twelve fancy Polyanthus and twelve Primroses, 1st prizes being awarded in each case.

The show was supplemented by a few groups of plants of a very attractive character. Mr. Rylands, Esq., Longford Hall, Stretford, sent a group of flowering and foliage plants, foremost among the latter being such a plant of Adiantum palmatum as one rarely sees. It was admirably grown, and in the best possible condition. From T. Agnew, Esq., Eccles, came two plants of Dentaria gracilis, finely grown and flowered. From the gardens of the Society Mr. Findlay sent an attractive group of plants that greatly helped the show. Messrs. Standish & Co. sent from their Ascot Nurseries a group of Rhododendrons in pots, Lily of the Valley, &c.; &c. also a group of cut blooms of Gardenias, Niphedos Russes, &c., all in fine condition. From S. Schloss, Esq., Bowden, came handsome trusses of Rudbeckia macrophylla of snowy whiteness that were much admired. E. Rogerson, Esq., sent a group of dwarf herbaceous Polyanthus, well grown and flowered, and a first, but not best. Mr. W. Brockbank had a charming group, consisting of varieties of Primula Sieboldii, Iberis gibraltarica hybrida, Orchis maculata, Gentiana acutilis, Campanula alpina, Primula japonica alba, and excellent Ferns, &c.

Altogether the show was a great success; the weather was fine, and a number of persons filled the spacious Town Hall during the time the show was open.

Obituary.

OUR correspondent at Manchester writes:—"A mournful feeling appeared to be general among the Auricula cultivators present at the show in the Manchester Town Hall on Tuesday, for on Sunday died at Halifax Mr. THOMAS WOODHEAD, a renowned and most successful grower; and on Monday there died, at Ashton-under-Lyne, worthy THOMAS METTOS, both members of the Northern Committee of the National Auricula Society."

C. W. D. 1. Veronica Teucrium, the form called V. prostrata; 2. V. serpyllifolia; 3. Waldsteinia sibirica; 4. W. fragarioides—C. H. Coronilla Emerus.—C. M. Emmott. Staphylea pinnata, a native tree, that will do best if left alone.—L. Alouepicus geniculatus, in all probability quite as good as A. pratensis.—A. The sweet smelling grass is Anthoxanthum odoratum, the other plant Luzula campestris.

NITROGEN, AMMONIA, &c.: Practical.—1. The statement in a foot-note to my lecture that 7 lb. of nitrogen are nearly worth 15. is a misprint; it should stand "1 lb. of nitrogen has the value of nearly 15." This error has been corrected in the following number of the Society of Arts Transactions. 2. It is not denied that ammonia can act as a plant food, but it is so speedily converted into nitric acid in the soil that nitric acid rather than ammonia is practically the source of nitrogen to plants. It is mentioned in my lecture that on one occasion the drain-pipes ran forty hours after the application of ammonia salts to the land; the drainage water showed, nevertheless, a distinct increase in the quantity of nitrates present. R. Warrington.

PERLAGKONIUM CRIMSON KING.—H. Mayo. Your description of the Perlagkoniium Crimson King is by a very good one, but there are so many now in the same way that we can hardly venture to commend it as a novelty from a sight of a couple of trusses. You should show it at South Kensington.

PHALANOPSIS: R. T. A. The spots on your Phalanopsis are due to a young Collemoid Lichen, as is certain from the neck-like strings of gonimia; but how you "bodied forth" no one knows but what device. The sunk spots are a form of the well-known Orchid disease. We do not find a trace of fungi in them—nor, indeed, anything except empty cells, in which all the protoplasm has been absorbed. M. J. B.

PLANTS OF SHAKESPEARE: H. B. The articles in question appearing in the Garden, and have been republished in separate form by Rev. H. N. Elliott, compe, Bilton, near Bristol.

POSITIONS OF HOTHOUSES: H. Y. As a general rule houses for growing plants and fruits should have a southern exposure. For the earlier Grapes and Peaches lean-to houses are preferable; for later or middle crop span-roofed houses having the ends due north and south are much used. For Cucumbers and Melons low three-quarter span-roofed houses are preferred; but they will do in any form of structure. Camellias delight in a northern aspect. Give your stone walls a coating of cement 1 inch in thickness.

FRIMROSES: By an oversight we omitted to state in the report of the Articles last week that Mr. Brockbank, of Brockhurst, Didsbury, Manchester, received the 1st prize for Primroses.

RANUNCULUS: G. H. H. It is not at all an unusual fact for the double Ranunculus to produce green flowers.

RHUBARB: Fhilomela. The small red Rhubarb sent is very distinct from any other variety we know of, and very good in quality; likewise the larger seedling. You should send plants to the Royal Horticultural Society to compare with other sorts now being collected there.

ROSES AND SEWAGE: Enquirer. We cannot advise you to do as your gardener proposes—it would seriously cripple the Roses, if not kill them outright. Well dilute the liquid portion, and apply it after rain to the growing canes, or in sediments, you should put in a pit until it becomes sufficiently dry to use as top-dressing, or for mixing with other composts.

SHAMROCK: E. Tily. Medicago lupulina. Sometimes Trifolium repens is substituted.

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CATALOGUES RECEIVED.

WILLIAM POTTEN, Sissinghurst, Staplehurst, Kent—General list. JAMES FLETCH & SONS, 544, King's Road, Chelsea—New Plants, and Soil-wedding and Bedding Plants. J. C. PARMAN, Boston Spa, Yorkshire—Bedding Plants.

COMMUNICATIONS RECEIVED.—T. M.—T. K., Berlin.—J. M.—S. H.—H. C. CORNWALL, Geneva.—J. G.—J. W.—W. B.—E. J.—L. M.—S. B.—T. M.—W. C.—S. R.—D. & Co.—T. D.—H. T.—B. J.—R. B.—C. B.—R. S.—R. S. & Co.—W. H.—H. T.—W. Harrow.—J. G.—B.—J.—O.—W.—J. C.—S.—H. E.

Markets.

COVENT GARDEN, May 4.

Prices generally have been well maintained, with a steady business doing. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Fruit and Price. Includes Apples, Pigs, Gooseberries, Raspberries, Strawberries, Lemons, Peaches, Pine-apples, Chaelis, and Strawberries.

VEGETABLES.—AVERAGE RETAIL PRICES.

Table with 2 columns: Vegetable and Price. Includes Artichokes, Asparagus, Beans, Beet, Cabbages, Carrots, Cauliflowers, Celeriac, Cucumbers, Endive, Kail, Lettuce, Parsley, Peas, Potatoes, Radishes, Spinach, Tomatoes, Turnips, and Vegetables.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Flower and Price. Includes Abutilon, Anemone, Aralia, Arum, Azalea, Bouvardia, Camellias, Cineraria, Cyclamen, Datura, Eucharis, Gardenias, Heliotropes, Lappageria, Lilac, Lilies, Lilium, and Magnolia.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

Table with 2 columns: Plant and Price. Includes Aralia, Aucuba, Begonia, Calceolarias, Chelidonium, Cineraria, Cyclamen, Datura, Delphinium, Erica, Ficus, Geranium, Heliotropes, Impatiens, Lilies, Lilium, and Magnolia.

SEEDS.

LONDON: May 3.—The market to-day was thinly attended, and the transactions were unimportant. As regards values, there is no change of importance to be noted—the few small orders which come to hand being executed at late rates. Speaking generally, stocks of all kinds left over are in narrow compass. Good black Rape seed is in demand. There is a few inquiries for white Mustard, Canary and Hemp seed are dull and neglected. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

HAY.

Tuesday's Whitechapel Market report states that with moderate supplies and a quiet trade prices were as follows: Prime Clover, 120s. to 135s.; inferior, 75s. to 90s.; best meadow hay, 100s. to 124s.; inferior, 55s. to 60s.; straw, 50s. to 56s. per load.—On Thursday a moderate supply was offered. There was a dull trade at late prices.—Cumberland Market quotations.—Superior meadow hay, 120s. to 132s.; inferior, 70s. to 82s.; Superior Clover, 128s. to 136s.; inferior, 90s. to 110s.; and straw, 52s. to 58s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies keep pace with the demand, although arrivals are not as heavy as they have been. Fine samples sell steadily, but the trade otherwise is dull. Quotations.—Scotch Champions, 50s. to 60s.; Regents, 70s. to 80s.; Magnum Bonum, 85s. to 90s.; Victorias, 120s. to 130s.; Scotch Champions, 90s. to 70s.; Victoria, 120s.; flukes, 130s. per ton; German Reds, 4s. to 4s. 6d. per bag.—The arrivals in London last week consisted of 6664 bags from Hamburg, 735 from Malta, and 602 boxes from Lisbon.

COALS.

The prices current at market during the week were as follows:—Ravenworth West Hartley, 14s. 6d.; Walls End—Hawth, 16s. 6d.; Lambton, 16s.; Original Northrop, 16s. 6d.; West, 16s.; Hutton, 16s.; Hutton Lyons, 15s.; Tunstall, 15s.; Chilton Tees, 15s. 6d.; Tees, 16s. 6d.

Government Stock.

Consols closed on Tuesday at 101½ to 101½ for delivery, and 101½ to 101½ for the account. Wednesday's final quotations were 101½ to 101½ for delivery, and 101½ to 101½ for the account. On Tuesday prices declined ½ for delivery, and ½ for the account.

Primulas—Primulas—Primulas.

This month of May is the best time for sowing WILLIAMS' superb strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS same price. Package and carriage free. The above are quite equal to those I have sent out in previous years. Cash with order. JOHN STEVENS, The Nurseries, Coventry.

Grape Vines for Present Planting.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard, Gorton, Liverpool, have still on hand a fine stock of strong, well ripened GRAPE VINES suitable for present planting, consisting of all the leading varieties; also a few strong Fruiting Canes. CATALOGUES free. Trade supplied.

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TUBEROUS BEGONIAS, from the largest and best Collections, both Exhibition and Bedding. Packets of Seed (not papers), certain to produce hundreds of varieties, 2s. 6d. and 5s. Trade supplied. LIST of Hardy and other Plants and Seeds, 8d. stamp. W. WEALE, Taplow, Bucks.

DAHLIAS.—Show, Fancy, and Pompons.

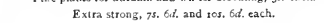
A fine strong plants of the best varieties, 4s. per dozen, 35s. per 100. Single Dahlias, half price, 2s. 6d. per dozen; single Dahlias, mixed, 6s. per dozen. Very strong plants of NEW ROSE, HELENE PAUL, 3s. each, 3s. per dozen. BEST ROSES, best varieties, 18s. per dozen. Usual discount to the Trade. LISTS on application to JOHN HOUSE, Eastgate Nurseries, Peterborough.

GILBERT'S DOUBLE PRIMULAS.

MARCHIONESS OF EXETER. (Sya. White Lady, &c.) Flowers white, occasionally striped and blotched with red. Fine plants for autumn and winter blooming, 5s. each. Extra strong, 7s. 6d. and 10s. 6d. each.

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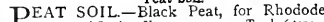
with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

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COCOA-NUT FIBRE REFUSE. 3d. per bushel; 100 for 20s.; truck (load about 2 tons), 20s.; 4-bushel bags, 4d. each. LIGHT BROWN PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 8d. each. BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.

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GISHURSTINE keeps feet dry, softens hard hoofs, preserves leather, takes a polish. In boxes, 6d. and 12s. each.

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HOSE — HOSE — HOSE.

PATENT RED-RUBBER GARDEN HOSE.

Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary Indiarubber Hose, Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."

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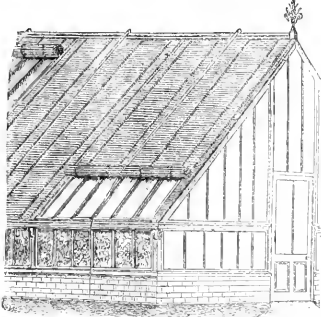
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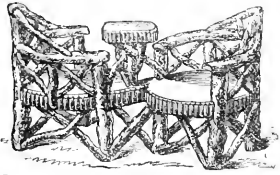


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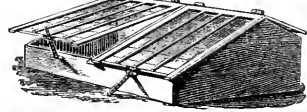
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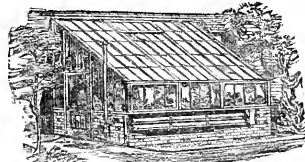
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These Frames give greater height in the centre. They are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-screws are provided for ventilating. Are made of the best hard red deal, all painted four coats of best oil colour, the lights are glazed with best extra English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales, also to Edinburgh and Dublin.

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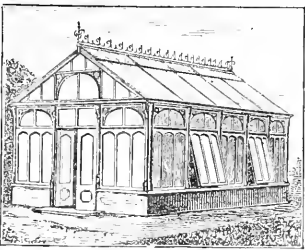
A LEAN TO or SPAN GREENHOUSE.

12 feet long by 10 feet wide, £15 7s. delivered. Made of thoroughly well-seasoned Red Deal, lights 2 inches thick, ventilators at top and in front, painted two coats and glass cut to size; door with lock and key; guttering and down pipe.

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Good Workmanship, Best Materials, LOWEST PRICES in the Kingdom. Estimates for Conservatories, Greenhouses, &c., to any Plans free of charge.

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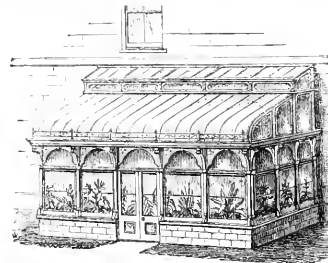
Ladies and Gentlemen waited upon by special appointment.

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HORTICULTURAL BUILDER,

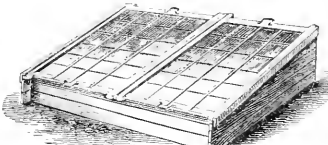
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The glass is nailed and putted in. Lights and framing for brick pits at proportionately low prices.

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The only Lawn Mower fitted with Double-edged Sole-plate, which enables the Cutting Parts to Last Twice as Long as in other Machines.

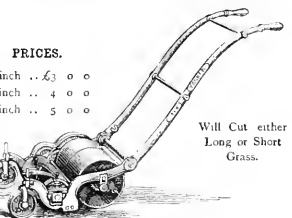
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To cut 10 inches wide ..	£3 10 0	To cut 19 inches wide ..	£8 0 0
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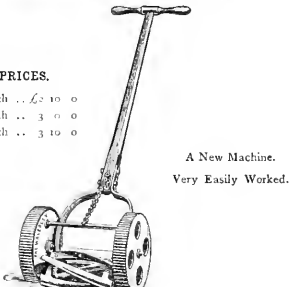


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10-inch ..	£3 0 0
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14-inch ..	5 0 0

Will Cut either Long or Short Grass.

"THE WAVERLEY" LAWN MOWER.



PRICES.

10-inch ..	£3 10 0
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A New Machine. Very Easily Worked.

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THE ABOVE and many other PATTERNS

are made in materials of great durability. The plainest sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grooved" Edgings, consequently being much cheaper.

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ORNAMENTAL PAVING TILES,

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WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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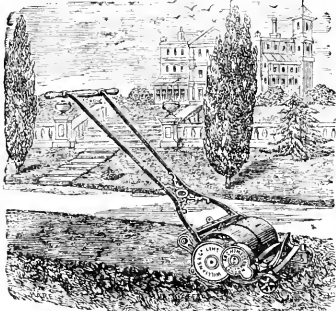
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HIGHEST PRIZE
At the **PARIS EXHIBITION, 1878**;
And the Jury, in their Report, say:—"The 'ARCHIMEDEAN' did the BEST WORK of any Lawn Mower exhibited."
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THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and," he further adds, "the use of it will, we have no doubt, become general." Price 25s.
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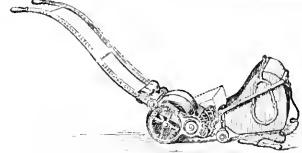
14 x 12	20 x 12	20 x 14	20 x 16	20 x 18
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18 x 12	18 x 14	18 x 16	24 x 16	24 x 18

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15 per Cent. for Cash or MAKERS' PRICES.
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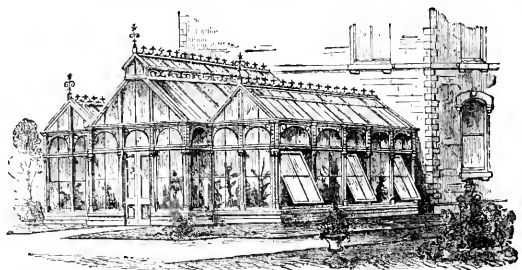
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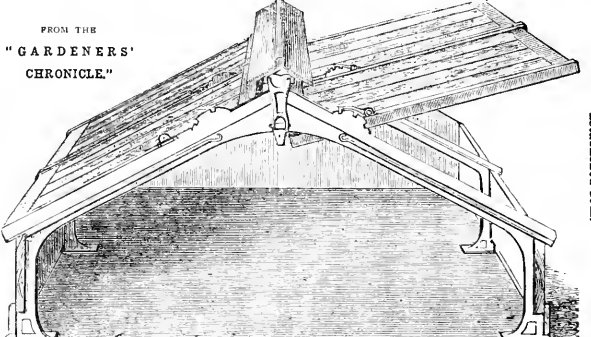
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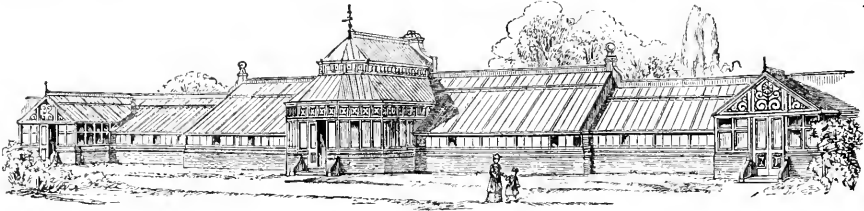
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NEW IMPROVED FRAME,
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Silver Medal by Royal Horticultural Society.
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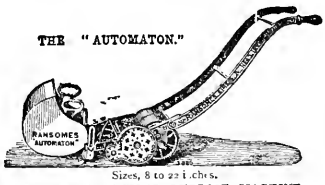
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Works: Chelmsford.
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The "WORLD" will cut wet, dry, long, or short grass without clogging, and cut off almost all the "bents." They leave the surface smoother than similar machines, and are well adapted for getting over a large amount of work with little labour.

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TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards 20s.; 4 yards wide, 6d. per yard, or 50 yards 20s.

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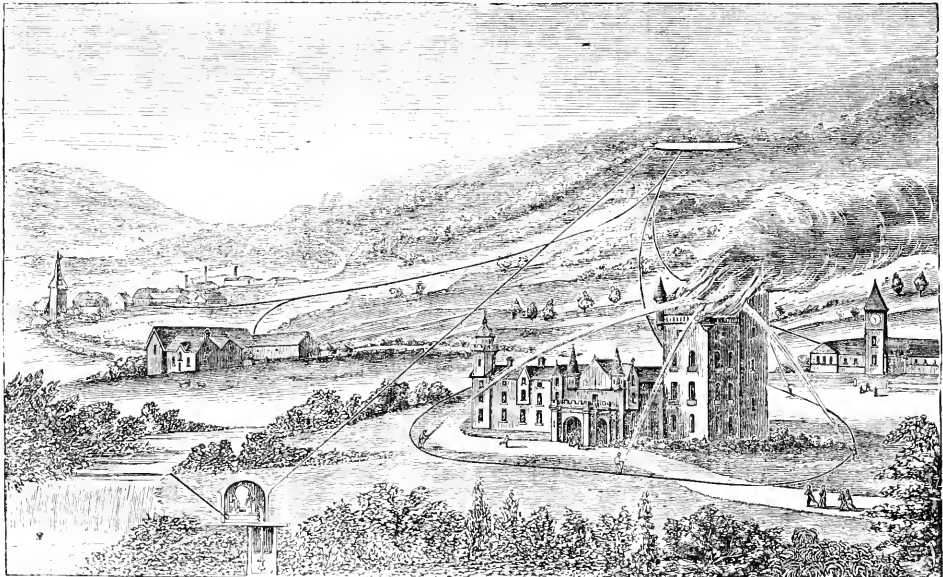
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From Mr. WILLIAM LAIT, County Surveyor, Conington, *Hampshire*, February 16, 1882.—"I have much pleasure in stating that the Patent Hydraulic Ram I had from you for the Rev. J. Cardwell-Gardner, of the Vicarage, Butlers Marston, is, I consider, remarkably successful, as indicated below. 4150 gallons of water per day are passing through the Ram with a descent of 12 feet 8 inches; one of this small quantity, 1080 gallons are sent up to a height of 41 feet; showing 78 per cent. of useful effect; and the noise of its working is so slight as to be almost inaudible.

From V. F. BENNET-STANFORD, Esq., M.P., *Pyt House, Tisbury, Wilt.*, August 29, 1880.—"I have no hesitation in saying your Self-acting Hydraulic Ram and Apparatus for Extinguishing Fire, which you laid down here, including about a mile of pipes, are very satisfactory. The Ram forces upwards of 5000 gallons per day to a service reservoir, holding 25,000 gallons at an elevation of 295 feet, being 70 feet above the roof of the house, from which reservoir the water is distributed to the house, stables, home farm, and several outcrops; and, in case of fire, four jets can be thrown on to the house from different sides at a great force and large volume. I consider the work has been done well and efficiently, and exceeds your credit."

From the Right Hon. the Earl of GRANARD, *Castle Forbes, Marick*, 1880.—"The Hydraulic Ram erected for me at Castle Forbes has answered perfectly. Considering the very small fall attainable by the nature of the ground, it is a great success, and throws up water to a cistern on the top of the tower 80 feet high. When Mr. Blake first proposed to put it up I doubted the possibility of its succeeding, owing to the nature of the ground; but I have been most agreeably undeceived."

From T. H. SHEBBOTTOM, Esq., *Etherow House, Hafield*, February 22, 1882.—"Induced by the good report of my cousin, Mr. T. A. Sidebottom, as to the working of the Hydraulic Ram he had from you, I ordered the one you fixed here a year ago, which I am pleased to say has since worked well night and day. Yet the two Rams you fixed at Snow's Hill Manor, Gloucestershire, for my brothers and myself, are I think a still more remarkable example of your success. We had a Ram fixed by a well-known firm, which proved a miserable failure, and which your Rams displaced. They are forcing the water through $\frac{3}{4}$ of a mile of delivery pipe, a little in excess of the quantity you guaranteed, to an elevation of 350 feet, and without the slightest hitch to the time of the last report from our tenant."

From the Right Hon. the Earl of ROSMERE, *56, Eaton Place, S.W.*, June 12, 1880.—"Sir.—In reply to your inquiry, I have pleasure in stating that the Hydraulic Ram which you erected for me at Gayton, does its work remarkably well, and is a great success. I think the work is especially creditable to you on account of the very small fall of but 3 feet with which you had to deal, and I shall always be glad to recommend you.—Yours faithfully, ROSMERE."

From Sir ROBERT MENZIES, Bart., of *Menzies, Rannoch Lodge, Rannoch*, August 20, 1880.—"The Hydraulic Ram you fixed for me to supply water to Rannoch Lodge and Camesswick's, two houses $\frac{1}{2}$ mile apart, is a complete success. The extreme distance the water is carried is $1\frac{1}{2}$ mile, and, though the elevations of the two houses are different, there is a regular supply of 4 quarts per minute to each house which has never ceased since the Ram was set a-going, about three months ago. Your Ram took the place of one previously tried on the same spot, and which did not succeed, and was in fact a complete failure."

From CHAS. C. CAHER, *The Cray Fisheries, Foot's Cray, Kent*, March 30, 1881.—"In reply to inquiry as to my opinion of the Patent Hydraulic Ram you fixed here, I may say that it has displaced two Rams by a reputed maker, which were so unsatisfactory that I put down a horse engine and pump, but this being a continual expense and trouble, I resolved to try your Ram, and am happy to say that my best hopes have been more than realised. The quantity of water sent up by the Ram is abundantly in excess of what I need to keep the Fisheries in perfect health, and this without any trouble."

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JOHN BLAKE, Engineer, ACCRINGTON, LANCASHIRE.

Editorial Communications should be addressed to "The Editors," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BAIRDY, AINSWORTH & Co., Lombard Street, Finsbury, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, May 6, 1882.

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GARDENERS' CHRONICLE.

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The Subscription to America, including Postage, is \$6.35 for Twelve Months.
Agent for America—C. H. MAROT, 314, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

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ENTRIES CLOSE May 13.

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or by Tickets purchased before the day by Fellows, for the First Day, 3d. 6d.; Second Day, 2d. Tickets at the usual Agents, and the Office, and entrances to the Gardens.

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THE FIRST SUMMER EXHIBITION OF PLANTS and FLOWERS will take place on WEDNESDAY, May 17. Gates open at 2 o'clock. The Bands of the Royal Horse Guards and First Life Guards will play from 3 to 7 o'clock. Tickets to be obtained by the Gardens only by Vouchers from Fellows of the Society, price 5s. each; or on the day of Exhibition, 7s. 6d. each.

ALEXANDRA PALACE.
(JONES & BARBER, Lessors). The following are the Flower and Decorative Shows fixed for the present season:—
June 10.—DECORATIVE EXHIBITION and PELAR-
GONUM SHOW.
July 8.—GRAND ROSE SHOW (GONION SHOW).
Aug. 5.—NATIONAL GOOSEBERRY SHOW.
Aug. 12.—GRAND DECORATIVE EXHIBITION and SHOW of GARDENS.
Sept. 16.—NATIONAL GRAPE EXHIBITION and POT ZONAL PELARGONIUM SHOW.
Oct. 7.—NATIONAL CUCUMBER SHOW.
Nov. 4.—EXHIBITION OF HARDY FRUIT.
Dec. 23.—EXHIBITION OF HARDY TREES.
Tickets can be obtained by application to J. FORSYTH JOHNSON, Director of Horticultural Exhibitions.

NOW READY, CARTERS' ILLUSTRATED CATALOGUE OF NEW and CHOICE PLANTS for 1882, gratis and post-free on application.

CARTERS' NEW DOUBLE MAZARINE-BLUE VIOLET, now being sent out for the first time. The Finest Ultramarine-Blue Double Violet in cultivation. Strong Flants, 2s. 6d. each, 24s. per dozen.

THE NEW DOUBLE PINK BOUARDIA, "PRESIDENT GARFIELD." JAMES CARTER AND CO. have been appointed, by FRANC NEUHER, Sole Agents in Europe for the Sale of this charming Plant, orders for which are now being booked in strict rotation. Price 10s. 6d. and 21s. each. Universal Discount Trade.

DOUBLE WHITE BOUARDIA, "ALFRED NEUHER."—First-class Certificate Royal Horticultural Society. Price, good Plants, 12s. 12. 6d., 25. 6d. and 52s. extra strong plants, 7s. 6d. each, from JAMES CARTER AND CO.

KING'S NEW COLEUS for 1882.—The splendid varieties Certificated by the Royal Horticultural Society last season are now being offered by JAMES CARTER AND CO. The Set of 6 Varieties, price 25s.

CARTERS, THE QUEEN'S SEEDSMEN. By Royal command to the Prince of Wales, 237 and 231, High Holborn, London, W.C.

HOLLIES—Grand specimens of all sizes to 10 feet high, and of the Best Variegated and green kinds. See LIST free on application. These Trees should be seen to be appreciated.
RICHARD SMITH AND CO., Worcester.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-size specimens, size and price on application.
W. HOWARD, Southgate, N.

DAHLIAS—**DAHLIAS**—**DAHLIAS**. Intending Exhibitors should send for CATALOGUE from C. R. FERK, The Cedars Nursery, Castle Bromwich, near Birmingham.

TO THE TRADE.—Show and Fancy DAHLIAS, finest kinds, true to name, 20s. per 100. Double PETUNIAS, choice named kinds, 25s. per 100. GERANIUMS, Madame Thibaut, best double pink, 12s. per 100. VIOLETS, strong roots of Victoria Regina, The Star, Neapolitan, De France, &c., 12s. per 100.
W. JACKSON, Blakedown, Kidderminster.

Tuberous Begonias.
JOHN LAING AND CO'S Gold Medal Collection is unrivalled. They have now in cultivation 100,000 Begonias, which will present to the public an unprecedented floral display this summer. Orders now booked for blooming plants middle of June. Prices, 12s. to 60s. per dozen.
CATALOGUE, free on application.
JOHN LAING AND CO., Forest Hill, S.E.

Floral Commission Agency.
NURSEKRYMEN and OTHERS having choice CUT FLOWERS for DISPOSAL are requested to communicate with W. CALE, Floral and Fruit Commission Agent, 4, Tavistock Row, Covent Garden, W.C. Flowers of first quality only required, when senders may rely on best prices being obtained. Senders please note Address.

WANTED, EUCHARIS, MARECHAL NIEL ROSES, Crimson Cole CARNATIONS, and other CHOICE FLOWERS, also TOMATOS, FRENCH PEAS, STRAWBERRIES, GRAPES, &c. WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, SOLANUM MARGNATUM, ROBUSTUM, &c.—Offers per dozen of the above, for Cash, or others of the Ornamental Foliage section, wanted for Subtropical Planting. Quote size and price free.
R. T. G. Gardeners' Chronicle Office, W.C.

WANTED, STEPHANOTIS FLORIBUNDA, large plants and best variety; large FICUS ELASTICA and DIECKMANS, in EXCHANGE for other PLANTS or Cash. Price and particulars to GEORGE GUMMOW, 114, Leoughborough Road, Brixton, S.W.

WANTED, 8 to 12 GARDENIAS, clean bushy plants, 2 to 4 feet high. Send price and particulars to T. JANNICH, Lily Nursery, Dersingham, Norfolk.

WANTED, Old or Young Plants of EUPHORBIA JACQUETLORA. TURNER, BROS., Florists, Alerton, Liverpool.

WANTED, ALTERNANTHERA AMERICA, DAHLIAS (Single and Double); also old Stocks of CHINESE, Double PRIMULAS. Particulars, &c., to H. CALE and SONS, The Home for Flowers, Swanley, Kent.

WANTED, large healthy PALMS, well furnished and clean, consisting of Seafarths, Areca lutescens, Kentias, Raphis, or any tolerably erect-growing and not too tender sorts; also Aspidistra lurida and Pandanus Veitchii, for stock in EXCHANGE for other PLANTS or CASH.
W. HOWARD, Southgate, N.

SUTTONS' CALCIFOLARIA, THE BEST. "Really grand in size, colour, and variety."
Rev. T. J. W.
Price 12. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' CINERARIA, THE BEST. "The best I have seen, both for variety of colour and size of flower."
K.
Price 12. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA, THE BEST. "The admiration of all who see them."
W. P. J.
Price 11s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA, THE BEST. "The form, size, substance, and colour of the flowers are perfect."
W. H.
Price 12s. 12. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' GLOXINIA, THE BEST. "The Gloxinias are really magnificent."
W. M.
Price 2s. 6d. and 5s. per packet, post-free.

SUTTON AND SONS, THE OXFORD ROAD, READING, BERKS.

THE ODONTOGLOSSUM-HOUSE at Mr. WILLIAM BULL'S Establishment is now a charming sight, probably unequalled. An inspection is invited. Establishment for New and Rare Plants, 536, King's Road Chelsea, London, S.W.

SHOW PELARGONIUMS—3000 Blooming and Succession Plants, fine, healthy stuff, in 48's, 50's, 75's, and 100's per 100. Leading varieties.
TURNER EROS, Florists, Alerton, Liverpool.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4 1/2-inch pots, £2 per 100, for cash.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

Tea Scented Roses on Brier.
EDWIN HILLIER'S stock of the above is now fit for distribution; fine healthy plants in 48-size pots by the dozen, 100, or 1000. CATALOGUE free.
Nurseries, Winchester.

AZALEAS, with Buds, for September—Indian, hardy Mollis, hardy Gent—£4, £5, £6, £8, per 100 plants.
CATALOGUES, with illustrations, may be had, for JOSEPH NAPOLEON EAUMANN, Nurseries, Ghent, Belgium.

NEW BEDDING TROPEOLUM, Bedford Rival (red), strong plants, 2s. per dozen. Select named ZONAL GERANIUMS, 12 single, 3s.; 12 double, 4s.; in single pots. Post-free for cash. CATALOGUE free.
W. MAYO, Florist, &c., Ferry Barr, Eirmingham.

PEAS—Canadian Wonder, also Pale Dun and Newington Wonder. Prices on application to WALKINS and SIMPSON, Seed Merchants, 12, Exeter Street, Strand, W.C.

VERBENAS—Strong and beautifully rooted little Plants of Purple, White, Crimson, Pink, Rose, and Scarlet, at 6s. per 100, 50s. per 1000; in single pots, at 12s. per 100. Package free, cash with all orders.
T. FLEICHER AND SON, Florists, &c., Chesterfield.

Verbenas—Verbenas.
Cuttings, perfectly free from disease, of White, Purple, Scarlet, and Pink, 6s. per 100, 50s. per 1000; 100 strong rooted Cuttings, in twelve most splendid varieties, First-Prize Flowers, for 2s. Terms cash.
EXECUTORS of the late H. BLANDFORD, The Dorset Nurseries, Blandford.

Pelargoniums.
DELARGONIUMS—Show, French, and Fancy varieties, strong, healthy plants, established in single pots, 12s. per 100, packing included. Cash with order.
JAS. HOLDER AND SON, Crown Nurseries, Reading.

POLEMONIUM CERULEUM VARIETY GATA, 12s. per 100.
HOWDEN AND CO., Inverness Nurseries, N.B.

French Marguerites.
CATALOGUE of the above, also Summer Flowering Chrysanthemums, in choice variety; Petential Snowflakes, Carnations, and Ficoetes, &c., may be had post-free upon application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

GLOBE ARTICHOKE PLANTS, 6s. per dozen, 40s. per 100; low prices to the Trade. Now ready.
HOOPER AND CO., Covent Garden, London, W.C.

Cabbage Plants for Sale.
S. BIDE can offer good strong Drumhead or Cattle CABBAGE, Early Buttersea, English Market, Imperial, and Nonpareil, at 3s. per 100 for Cash with Order. Packages free.

S. BIDE, Alma Nursery, Farnham, Surrey.

SALES BY AUCTION.

Wednesday Next.

14 Cases of ODONTOGLOSSUMS, received direct. MR. J. C. STEVENS will include in his SALE BY AUCTION ON WEDNESDAY NEXT, May 17, 14 Cases of ODONTOGLOSSUM ALEXANDREI, and species, received direct; also three other Cases of Imported ORCHIDS.

On view morning of Sale, and Catalogues had. Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C.

Dendrobium Brymerianum, D. Findleyanum, Phalaenopsis Amabilis, Schilleriana, Vriesea, &c. MR. J. C. STEVENS will SELL BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 17, at half past 12 o'clock precisely, by order of Messrs. High Low & Co., a large quantity of IMPORTED ORCHIDS, consisting of a grand lot of Lands Crazelias, including twenty specimens, including D. Brymerianum, D. Boxalli, D. Findleyanum, D. crystallinum, D. crassinode, D. Wardianum, D. Deontium, D. Cambridgeanum, Cattleya amethystoglossa, many hundreds; Phalaenopsis amabilis and schilleriana, many hundreds; established, also semestrahil plants of Phalaenopsis violacea and P. tigrina (sumatrana) varieties, and other choice Orchids.

On view morning of Sale, and Catalogues had.

Established Orchids, from the Collection of Sir T. LAWRENCE, Bart., M.P.

MR. J. C. STEVENS has received instructions from Sir Trevor Lawrence to include in his SALE BY AUCTION, on THURSDAY, May 18, in consequence of the Houses being required for the Exhibition of the ORCHIDS from his well known Collection; among other fine things will be found:— Odontoglossum Ruckerianum (see Plate). Epidendrum Cooperianum, fine Cattleya gignans Normali, small plant, part of original, finest variety of Cattleya gignans. Lycaste Skinneri alba, finest very rare and choice specimen. Laelia elegans Torreyi, small plant. Utricularia minoris, Barford variety, large, in flower. Cattleya lofata, grand specimen, in flower. Cypripedium insigne var. punctatum viridatum, very rare, specimen plant. Bolla Lawrenceana (Rehb. f.), most lovely Orchid, in this collection only (see Plate).

On view morning of Sale, and Catalogues had. Auction Rooms & Offices, 38, King Street, Covent Garden, W.C.

Thursday Next, May 18.

PHALÆNOPSIS AMABILIS. MR. J. C. STEVENS has received instructions from Mr. F. Sander, St. Alban's, to SELL BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 18, at half past 12 o'clock precisely, some of the above Phalaenopsis, also a grand lot of VANDA LAMELLATA BOXALLI, AKRIDES QUINQUEVENERUM, DENDROBIUM SUPERBUM, GIGANTHEUM, SACCOLALIUM VIOLACEUM, and many other species of ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.

LÆLIA JONGHIANA. MR. J. C. STEVENS will include in his SALE BY AUCTION ON THURSDAY NEXT, May 18, by order of Messrs. High Low & Co., a grand lot of LÆLIA JONGHIANA, This has been imported as, and believed to be, the true JONGHIANA; splendid masses, in the finest possible condition.

May be viewed morning of Sale, and Catalogues had. Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C.

Thursday, May 25.

PHALÆNOPSIS SCHILLERIANA. CATTELEYA SKINNERI (collected in flower). MR. J. C. STEVENS has received instructions from Mr. F. Sander, St. Alban's, to SELL BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 25, at half past 12 o'clock precisely, very extensive importations of the above, consisting of several thousands of plants.

On view morning of Sale, and Catalogues had.

Earlwood Nurseries, Redhill, Surrey.

MESSRS. PROTHEROE AND MORRIS. MR. JOHN LEES is instructed by W. Wells to SELL BY AUCTION, on the Premises, as above, on WEDNESDAY, May 17, at 11 o'clock, 600 Fine Specimen and other MAIDENHAIR FERNS, 400 Double White PRIMULAS, 1000 White CHRYSANTHEMUMS, 1000 (Coloured) plants, 100 Specimen and other EUCARIAS AMAZONICA, 12 Specimen GARDENIAS, 200 BOUARDIAS, 200 Specimen and other AZALEAS, 1000 BEDDING PLANTS, &c. The Nurseries join the Earlwood Station, and 1 Mile from Redhill Junction, London, Brighton and South Coast and South-Eastern Railway. Catalogues may be had from W. WELLS, or the Auctioneer, Reigate, Surrey.

Teddington.

SALE OF SURPLUS STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. H. Page & Sons to SELL BY AUCTION, on the Premises, The Great Nursery, Teddington, on TUESDAY, May 23, at 12 o'clock, about 15,000 BEDDING PLANTS, of the usual varieties; 400 Double Geraniums, a large assortment of CHRYSANTHEMUMS, BEDDING PLANTS, to suit the Trade and Private Buyers; including Begonias, 200 Gardenias, 2 to 3 feet, well set; large plants of Imantophyllum, 2000 to 3000; various Pelargoniums, 1000 Tree Carnations, Eucharis amarantha, Camellias, Azaleas, &c.

Catalogues had on the Premises, and of the Auctioneers, Estate Agents, and Valuers, 8, New Broad Street, E.C.

Streatham Hill, 8 W.—Great Unreserved Sale. MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Porter to SELL on the Premises, the Paragon Nurseries, High Road, Streatham, on THURSDAY, May 18, at 12 o'clock precisely, 50,000 BEDDING PLANTS, GERANIUM, of the usual varieties; a choice assortment of STOVE and GREENHOUSE PLANTS, and other Miscellaneous STOCK, 1000 numerous to mention. Full description in Catalogues, to be had on the Premises, or at the Auctioneers' Offices, 8, New Broad Street, E.C., and Leytonstone.

Leytonstone.

ANNUAL SALE of beautifully grown GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL BY AUCTION on the Premises, American Nurseries, Leytonstone, adjoining the Railway Station, on THURSDAY, May 25, at 12 o'clock precisely, about 25,000 BEDDING and GREENHOUSE PLANTS of the usual assortment, Hardy Rhododendrons in pots, choice Carnations, Peonies, Cloves, &c.

May be viewed the day prior to the Sale. Full particulars in Catalogues, which may be had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C.

HammerSmith.

Near the Broadway, St. Paul's Church, and a few paces from the Metropolitan Metropolitan District, and South-Western Railway Stations.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & BUDGETERS, & OTHERS.

MR. J. A. SMITH has received instructions from Mr. Herriote to SELL BY AUCTION, on the Premises, The Nursery, Fulham Road, HammerSmith, W., on THURSDAY, May 16, at 12 o'clock, about 30,000 PLANTS, well selected for Bedding and Greenhouses, in solid condition, comprising 13,000 GERANIUMS, very choice, including Princess of Wales, Maid of Kent, Miss Herriote, Gladys, Golden Eye, Lady Plymouth, Madeline, Duke of Spring, Eglon, Madame Vaucher, Master Christie, Duke of Wellington, Rose Rendatler, L'Elegante, Lucius, Venus, and others; many other varieties, in pots ready for sale; 5000 CALCEOLARIAS, Golden Gem, &c.; 2000 Mesembryanthemums, Irises, Alternanthera, Pyrethrum, and Celery; 4000 LOBELIAS, Illinois, and others; 2000 FUCHSIAS, and others of the best varieties, splendid growth, and most approved selection.

On view morning of Sale, and Catalogues had on the Premises, and at Mr. J. A. SMITH'S Auction, Land and Estate Offices, 58, King Street East, HammerSmith, W.

Wednesday Next—West Drayton.

FOR OCCUPATION OF SECULINARY SETTLEMENT. Highly valuable FREEHOLD MARKET GARDENS, for many years in the successful occupation of the late Mr. Gen. Bagley, together about 17½ Acres, and fully stocked with every variety of VEGETABLES and FRUIT TREES, both in the open grounds and on the walls. There is a capital RESIDENCE, Range of Stabling, Outbuildings, Packing Shed, &c., every convenience for working a large business. The property possesses extensive frontages to high roads, and a large portion is immediately adjacent to the railway station, in two lots and minutes' walk, with frequent service to the City, and considerable building operations having been commenced in the immediate neighbourhood. Possession will be given on completion of the purchase.

MESSRS. FAREBROTHER, ELLIS, & CLARK & CO. will offer the above improving

WEDNESDAY, May 17, at 12 o'clock, precisely.

Particulars may be obtained of E. S. CAVELL, Esq., Solicitor, 11, Waterloo Place, S.W.; J. C. ASPREY, Esq., Farmway, Isle, W.C.; WILLIAM HERCKY, Esq., Solicitor, Waterbridge; Messrs. FLICK and SON, Lead Street, Strand, W.C.; and of Messrs. FAREBROTHER, ELLIS, & CLARK, 5 and 6, Lancaster Place, Strand, W.C., and 40, Old Broad Street, E.C.

LAND WANTED.—About 3 Acres, within

a radius of 9 to 15 miles of Charing Cross; must be good soil, suitable for Nursery purposes. Send particulars to R. H. ROCHFORD, Esq., Nurserymen, Tottenham.

FOR SALE, A FLORIST AND JOBBING

BUSINESS, near London; 10 roomed House, Seed Shop, 6 Span-roof Greenhouses, and show-house, Lease 2½ years. Ground-rent, 26 per annum. Price for the whole, £4150. 2450 can train. G. P. 118, Messrs. Deacons, 154, Leadenhall Street, E.C.

West Kensington High Road.—Immediate Possession

TO FLORISTS and JOBBING GARDENERS.

TO BE SOLD, The Connection, with LAW, MEALS, and GARDEN TOOLS, HOUSE with Seven Rooms, Rent 45s. For money. Apply to Mr. J. A. SMITH, Auctioneer, 58, King Street East, HammerSmith, W.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDENS AND ETTING

AND VALUERS, 8, New Broad Street, E.C., and at Leytonstone. E. Monthly Horticultural Register had on application.

LADY EMILY, best single Pink GERANIUM, 12s. per 100; MADAME THIBAUT, 12s. per 100.

ROSE DE AZUL, 12s. per 100—all strong plants in single pots. Packages free. Terms cash. GEO. POULTON, Fountain Nursery, Edmonton.

ASPARAGUS.—The finest roots that money

can procure, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred. For directions for planting, see our LIST, free on application. RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

SEEDLING DAHLIAS.—From the beautiful

Single White, strong plants 4s. per dozen, 25s. per 100. Post or package free. Cash with order. RICHARD SMITH and CO., Nurserymen, Bowdon.

CAULIFLOWER PLANTS.—Fine strong

healthy plants, Autumn-sown. Price per 1000 on application. JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY OF LONDON. THE GRAND NATIONAL HORTICULTURAL EXHIBITION of 1882, will OPEN on May 26, at 2 P.M. Admission, first day, 5s.; second day, 3s. 6d.; Third Monday and remaining days, 2s. 6d. BRUCE FINDLAY, Curator and Sec. Royal Botanic Gardens, Manchester.

HITCHIN ROSE SHOW, JUNE 28.

The Schedule of Prizes may be obtained of the Rev. F. H. GALL, Hon. Sec., Hitchin.

N.B.—Open to Residents in or within a radius of 20 miles of Hitchin.

LIVERPOOL HORTICULTURAL ASSOCIATION.

THE FOURTH GRAND FLORAL and HORTICULTURAL EXHIBITION will be held in Sefton Park, Liverpool, on SATURDAY and MONDAY, August 5 and 7, 1882. And the THIRD GRAND FLORAL and HORTICULTURAL THEMUS, PLANTS, and FRUITS will be held in St. George's Hall, Liverpool, on TUESDAY and WEDNESDAY, November 21 and 22, 1882.

The dates are fixed according to the Assizes being held. If the Hall is not available for these dates due notice will be given. Schedules may be had by applying to JOHN GLOVER, Secretary.

Wood Lane, Gateacre, Liverpool.

WITNEY HORTICULTURAL, POLY-TECH. Sc., 5H/0W will be on TUESDAY, August 15, 1882, at which PRIZES are offered, open to all England, for STOVE or GREENHOUSE PLANTS (not Adiantums, Fuchsias, or Geraniums). Nine varieties, 1st Prize, £10; 2nd Prize, £5. Last day of entry, August 7. Schedules from R. B. HOBBS, Secretary, Witney, Oxon.

SHROPSHIRE HORTICULTURAL SOCIETY—GREAT SUMMER SHOW, August 15 and 16, 1882. SCHEDULES and full particulars may be had from the Hon. Secs. MESSRS. ADMITT and NAUNTON, Shrewsbury.

CALCEOLARIAS, for Bedding—Strong

Autumn-struck Plants of Golden Gem, and other varieties from Cold Pit, £8 per 100, 60s. per 1000. Packages free for cash. S. ELDE, Alma Nursery, Farnham, Surrey.

DAHLIAS.—Plants in pots, 300 sorts.

PYRETHRUMS, in fifty varieties. Catalogues had on application. KELWAY and SON, Landseer, Somerset.

MANGEL WURZEL SEED.—Lowest

prices for the Trade for home-grown Seed. JOHN S HARPE, Bardney Manor, Lincoln.

STRAWBERRIES.—Strong roots for fruiting

this year, 4s per 100. Descriptive LIST on application. RICHARD SMITH and CO., Nurserymen, Worcester.

TO THE Trade.

HARTLEY'S SUPERB SHORT-TOP SWEDE.—Superior stock. Price on application. EDMUND PHILIP DIXON, 57, Queen Street, Hull.

Exhibition Plants.

W. G. CALDWELL and SONS have the many of the above selected EXHIBITION PLANTS to offer, many of which are well known at all the other large Shows, having taken many First Prizes. All are in excellent condition, and fit for competition this season.—ERICA CALDWELL, 15, Abchurch Lane, London, E.C. 4. Schedules, specimens, well set with bloom.

ERICA TRICOLOR SPECIOSA, 4 feet by 4 feet through, well set with bloom; many other varieties of Ericas in all sizes.

ALLAMANDIAS, APHELEXIS, BOUQUINVILLEAS, CHRYSANTHEMUMS, CHRYSANTHEMUMS, CYCAS, GLEICHENIAS, LANATANIA, RONDELETIAS, FORTIATHAS, STEPHANOLIS, SWAINSONIAS, VINCAS, &c.

Prices, names, and sizes on application. The Nurseries, Knutsford.

Australian Orchids, &c.

THE NEW PLANT and BULB COMPANY beg to advise the safe arrival of Rare Australian ORCHIDS of the following families, viz., Diphys, Thyrsimira, and Malvacea; also of other Australian Orchids, consisting of Cattleya gigas, Odontoglossum vexillarium and O. Roezlii, Cypripedium Schlimi var. Masdevallae, &c.

PRICE LISTS on application. Lion Walk, Colchester.

PANSIES.—PANSIES.—The very finest

newest, and best only of Show and Fancy sorts; 25, 25s. per 100. Free with Descriptive LIST. Trade supplied. S. SHEPPERS, Florist, Prospect House, Belper.

Bedding Plants.

THOMAS PEKINS and SONS have the pleasure in offering strong plants at low prices of GERANIUMS, CALCEOLARIAS, AGERATUMS, CHRYSANTHEMUMS, FUCHSIAS, DAHLIAS, LOBELIAS, SALVIA, VERBENAS, &c.

CATALOGUES on application. 34, Drapery, Northampton.

TO THE Trade.

SHOW PANSIES, from the best varieties in cultivation—our selection, 25s. per 100. JAMES CUCKER and SONS, The Nurseries, Swanpary, Aberdeen.

HENDERSON'S NEW FUCHSIA, EDELWEISS.

The best pure double white corolla ever offered. Flowers large, sepals well reflexed, strong growth, and short-jointed, coming into bloom when very young; 4 to 6 flowers at a time. HENDERSON'S DOUBLE FLORET DAHLIA.—Awarded three Certificates of Merit for its new form, each flower having another of smaller size within it, giving the flower a peculiar appearance. Colour deep crimson. 2s. 6d. per 100. HENDERSON'S PERUIS.—Grand new Zonal; enormous trusses. 1s. 6d. per dozen. HENDERSON & SONS, Nursery, Plymouth.

CRANSTON'S NURSERY and SEED CO.'S SPRING CATALOGUE

(Free on application) contains a List of all the

NEW FRENCH and ENGLISH ROSES,
TEA-SCENTED and NOISSETTE ROSES

In great variety, now ready for planting out:

STANDARD TEA-SCENTED and NOISSETTE ROSES,
Established in Pots;

HYBRID PERPETUAL ROSES

For Greenhouse Culture;

BEDDING and HERBACEOUS PLANTS

Of all the Leading Varieties;

CLEMATIS, DAHLIAS, &c.

KING'S ACRE, near Hereford. - May, 1882

CARNATIONS. - CARNATIONS.

HEATH & SON
Are now booking orders for the following, for delivery
in August:-

PRIDE.—The best white, 3s. per 100.
PRINCE OF ORANGE.—Yellow Flower, 4s. per 100.
DR. ABERCROMBIE.—Yellow Flower, 5s. per 100.
MISS JOLLIFFE.—The finest Pink. Now ready in 3-inch
pots, 5s. per 100. Spring plantings, layers for autumn
delivery, 3s. per 100.
WHITE SWAN.—Spring piping, in 3-inch pots, 5s. per 100.
ayers for autumn, 3s. per 100.
Special prices per 100.

HEATH AND SON, EXOTIC NURSERIES, Cheltenham.



**SEVENTY-FOUR ACRES OF FRUIT
TREES.**—Apples, Pears, Plums, Cherries, Peaches,
Nectarines, Apricots, and other Fruit Trees, as Standards,
Dwarfs, Pyramids, Bushes, Cordons and Trained Trees in great
variety, all full of view and warranted true to name. Descriptive
Price LIST, containing a sketch of the various forms of
Trees, with Directions for Cultivation, Soil, Drainage, Manure,
Pruning, Lifting, Grafting, Treatment under Glass, also their
Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour,
Use, Growth, Duration, Season, Price, &c., for 1d. stamp.

TWELVE ACRES OF ROSES.—Standard,
Dwarf, and Climbing, all the popular sorts; also 8,000
choice Tea-scented and Noisette Roses in pots; extra strong
Roses in pots for immediate forcing.

See Descriptive Price LIST, free for 1d. stamp.

**TWO HUNDRED THOUSAND HERBA-
CEOUS and ALPINE PLANTS** for Borders, Rock-
work, &c. See Descriptive LIST, giving colour, height, time
of flowering, &c., free by post for 1d. stamp.

R. S. & Co.'s selection of 100 good show varieties for 2s.

**GRAPE VINES and ORCHARD-HOUSE
TREES in POTS.**—GRAPE VINES, extra strong,
short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each;
extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. **ORCHARD-
HOUSE TREES.**—Apples, Pears, Plums, Cherries, Peaches,
Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs.
Descriptive Price LIST for 1d. stamp.

LIST of all the EVERGREEN FIR TRIBE,
suitable for Britain, giving size, price, popular and
botanical names, derivations, description, form, colour, foliage,
growth, timber, use in arts, native country, and size there,
situation, soil, and other information, with copious index of
their synonyms. Free by post for six stamps.

**LIST of STOVE and GREENHOUSE
PLANTS,** comprising the best selections of Camellias,
Azaleas, Ericas, Epacris, Ferns, &c., free for 1d. stamp.

**LIST of EVERGREEN and DECIDUOUS
SHRUBS, RHODODENDRONS, STANDARD
ORNAMENTAL TREES, CLIMBING and TWILING
PLANTS,** with their generic, specific, and English names,
native country, height, time of flowering, colour, &c., and
general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first
quality. BULBS, MUSHROOM SPAWN, TOBACCO
PAPER, ARCHANGEL MATS, and other GARDEN
REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing,
2s. 6d. per dozen, 1s. 6d. per 100.



PELARGONIUM EDWARD PERKINS

is one of the most distinct and best winter
bloomers yet introduced. Coloured Plates, or
Bunch of Flowers, 6d. each, returnable to
Customers.

Strong Plants, 5s. to 10s. 6d. each.

FREDERICK PERKINS,
NURSERYMAN, REGENT STREET, LEAMINGTON

WHITE VIOLAS.

HEATH & SON

are now prepared to offer their beautiful WHITE VIOLA,
THE CHAMPION, in any quantity. It is the hardest Viola
grown, and a most profuse bloomer. Many blooms measure
3 by 2 inches.

4s. per dozen, 25s. per 100, £10 per 1000.

Two plants will be exhibited at the Summer Show, South
Kensington, on Tuesday, May 23 next.

HEATH AND SON, EXOTIC NURSERIES, Cheltenham.

GRASS SEEDS

FOR LAWNS,

Of the finest close-growing Evergreen kinds, 12. per lb. Special
preparations for all purposes, soils, and situations. Advice gratis.

Unsolicited Testimonials:—

"Knowing how difficult it is to obtain pure stocks of grass
seeds, even when price is a secondary consideration, I write to
say the supply I obtained from you for our new terrace lawns
has given the greatest satisfaction.

"Please send me three bushels of the very best Lawn Grass
seeds, suitable for an exceedingly hot upland soil. The
seed I have had of you has been the only kind which has
been able to resist the influence of the sun and drought upon
my th, gravelly soil."

FARM SEEDS

Of all kinds, which have given unqualified satisfaction. See
Illustrated and Descriptive LIST, free on application.

RICHARD SMITH & CO.,
SEED MERCHANTS and NURSERYMEN,
WORCESTER.
(ESTABLISHED 1804.)



This Design was invented by Messrs. SUTTON &
SONS, in July, 1881, and is their property.

Messrs. Suttons' Customers are hereby cautioned
against imitations.

THE QUEEN'S SEEDSMEN, READING.

SEEDS: VEGETABLE, FLOWER, and FARM.

RICHARD SMITH & CO.

Spare neither expense nor trouble in obtaining
the finest quality, and they invite a comparison
of their prices with those of any other firm.

LISTS free on application.

RICHARD SMITH & CO.,
SEED MERCHANTS and NURSERYMEN,
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Ferns a Speciality.
EXOTIC AND BRITISH FERNS,

In great number and variety, suitable for
Stove and Greenhouse cultivation, for Outdoor Ferneries
and other purposes.

Intending Purchasers before buying elsewhere should
send for our SPECIAL LIST of CHEAP FERNS,
which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near
Manchester.

ORCHIDS.

The Largest and Best Stock in Europe of
good Established Plants.

Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Pleas to intimate that his Orchid-houses are always
quite a sight, from the large number of plants in flower,
and he will be pleased to show them to any one inter-
ested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses
gay with Orchid flowers, to purchase good established
well-cultivated plants, which bloom well, are far more
satisfactory, and comparatively cheaper than newly
imported or semi-established plants.

Establishment for New and Rare Plants,
536, KING'S ROAD, CHELSEA, LONDON, S.W.

New Descriptive Catalogue for 1882 of Plants in Pots or by Post.

W. M. CROWE,

BOLEYN NURSERY, UPTON, ESSEX.

BORDER CARNATIONS.—Twelve Fine
Varieties, including the true old Crimson and White
Clives, 6s. 6d.; per 100, 65s.; 12 splendid newer
varieties, 9s. and 12s.

TREE CARNATIONS.—Fine Flowering
Plants in best varieties, 16s. 6d. dozen; extra large,
showing buds, which will average many flowers each,
the best in the trade, 25s. dozen. Well-rooted plants,
in six best varieties, by post, 4s. in pots, 5s. dozen.

PINKS.—Six best Forcing Varieties, strong,
in 60 pots, 7s. 6d. dozen; by post, 4s. 6d. dozen.
Show Pinks in good variety, 6s. dozen.

TUBEROUS BEGONIAS.—Splendid mixed
varieties from my celebrated strain, 3s. 6d. and 5s.
dozen; selected Sorts of fine quality, for bedding or
pot culture, 9s. dozen; named, see Catalogue.

DAHLIAS.—Best Show, Fancy, and Bouquet
varieties, 3s. 6d. and 4s. dozen; mixed Single varieties,
4s. dozen; named, see Catalogue.

ZONAL GERANIUMS for Pot Culture.—
Twelve grand Double varieties, 4s. and 5s. newer varieties
of 1880 and 1881, 9s. and 12s.; 12 grand Single varieties,
3s. 6d.; 12 newer varieties of 1880 and 1881, 9s.
and 12s.

IVY-LEAF GERANIUMS.—Twelve grand
New Single and Double varieties, 6s. and 9s.

FOLIAGE GERANIUMS.—Twelve Gold
and Silver Varieties, 5s. and 7s. 6d. Twelve Golden
Bronze varieties, 4s. and 6s. Marchal McElhann,
best bidder, 3s. 6d. per dozen, 25s. per 100.

FUCHSIAS.—Miss Lizzie Vidler, strong
plants, 9d. each, twelve finest Double varieties, 2s. 6d.
by post, 3s. 3d. in pots. Twelve New Double varieties,
6s. 9s. and 12s. Twelve finest Single varieties, 2s.
and 2s. 9d. Twelve New Single varieties, 6s. and 9s.

FERNS.—Twelve easily-grown Stove and
Greenhouse Ferns, 4s. 6d., 6s., and 9s.; per 100, 32s.,
40s. and 50s.

STOVE and GREENHOUSE PLANTS.—
Miscellaneous Flowering, Foliage, and Climbing.

Also New ABUTILONS, BOUVARDIAS, COLEUS,
CHRYSANTHEMUMS, CYCLAMEN, GLOXINIAS,
DOUBLE PETUNIAS, SALVIA, PALMS, &c. Also BED-
DING PLANTS in great variety. Catalogue of above has
been sent post-free to all old customers, and will be sent free to
all applicants.

W. M. CROWE.

BOLEYN NURSERY, UPTON, ESSEX.

GAILLARDIA GRANDIFLORA.

Now is the time to plant this lovely Perennial, which
produces myriads of blossoms from early summer till late in
autumn. 9s. per dozen, in pots.

MATRICARIA INODORUM, FL.-PL.
Pure white, and exceedingly double. 6s. per dozen, in pots.

GEUM COCCINEUM, FL.-PL.
Brilliant scarlet, magnificent for cutting, and always in
flower. 6s. per dozen.

CATANANCHE BICOLOR.
Flowers blue and white, produced on stalks 2 feet long
invaluable for cutting purposes. 6s. per dozen.

Trade price notes apply to all cutting plants.

HEATH AND SON, EXOTIC NURSERIES, Cheltenham.

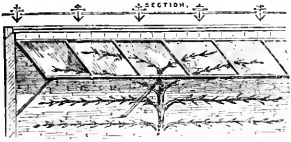
POLYANTHUSES, PRIMROSES,

HEPATICAS, and AURICULAS.

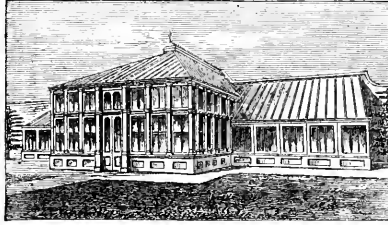
Apply to

MR. COOPER, F.R.H.S.,
CALCOT GARDENS, NEAR READING, BERKS

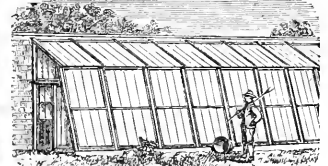
W. PARHAM, NORTHGATE WORKS, BATH; and 411, OXFORD STREET, LONDON, W.



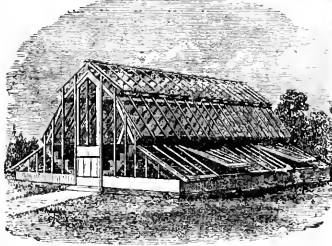
Farham's Patent Glass Wall Coping of 21-cz Glass, in Wrought-Iron Framing.



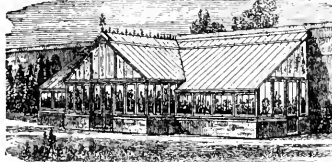
Farham's Patent Glazed or Putty Glazed Ornamental Centre Conservatory, with Wings suited for Orangerie, or for Tropical or Water Plants, &c.



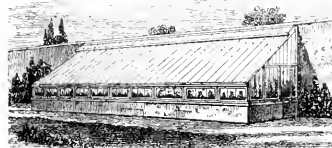
Farham's Patent Glazed or Putty Glazed Casings for Fruit Walls. See also Orchard Houses, No. 55 in Catalogue.



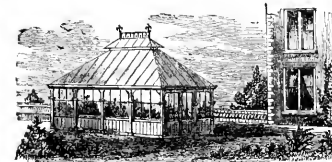
Cranston's Patent Gardeners' Greenhouse, with Line of Pits along each side.



Farham's Patent Glazed or Putty Glazed Combined Span Central Plant House with Wings for Stove Plants, Ferns, Grapes, &c. No. 146 in Catalogue.



Farham's Patent Glazed or Putty Glazed Lean-to Vine or Plant House, &c. See No. 61 in Catalogue.

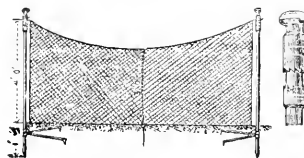


Farham's Patent Glazed or Putty Glazed Independent Conservatory for wood or brick base. No. 150 in Catalogue.



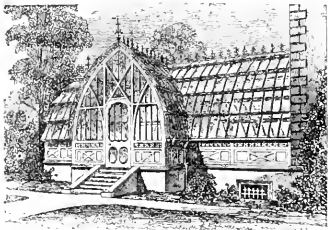
Farham's Registered Acme Plant Preserver.

Long. Wide.		Prices.		Long. Wide.		Prices.	
6 ft. by 4 ft.	..	£2 15	0	12 ft. by 4 ft.	..	£1 15	0
6 ft. by 5 ft.	..	3 15	0	12 ft. by 5 ft.	..	6	10
6 ft. by 6 ft.	..	4 15	0	12 ft. by 6 ft.	..	7	10

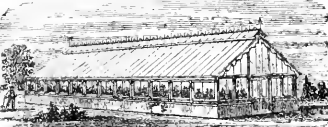


Farham's Iron Tennis Posts.

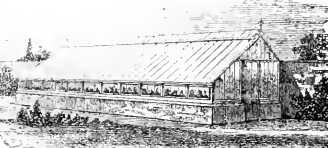
(Over Five Thousand in use.)
With Ratchet Winder and Underground Stay.
No Pegs or Guy Ropes.
For pair, 22s for Lawns; 42s for Asphalte.
Strong Iron Pegs to keep net 3ft. in centre, 2s. 6d. each.



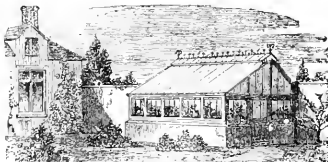
Cranston's Patent Glazed Conservatory with Central Transept.



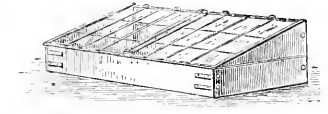
Farham's Patent Glazed or Putty Glazed Ornamental Span Plant and Flower House. No. 124 in Catalogue. For Plain Span House, see No. 97 in Catalogue.



Farham's Patent Glazed or Putty Glazed Quarter-Span Flower or Forcing House, &c. See No. 83 in Catalogue.



Farham's Patent Glazed or Putty Glazed Quarter-Span Show House for erecting near Residence.



Farham's Extra Strong Garden Frames.

Long. Wide.		Prices.		Long. Wide.		Prices.	
4 ft. by 6 ft. (1 light)	£2 2	0	16 ft. by 6 ft. (4 lights)	£6	7	6	
8 ft. by 6 ft. (2 "	3 7	6	20 ft. by 6 ft. (5 "	7	10	0	
12 ft. by 6 ft. (3 "	4 17	6	24 ft. by 6 ft. (6 "	10	10	0	

Patent Glazed Lights as above, with Sills for Brickwork.

W. PARHAM,

Northgate Works, Westmoreland, Bath.

(Adjoining Great Western Goods Station)

London Office: 411, Oxford Street, W.

None but the best quality, thoroughly seasoned Archangel and St. Petersburg Red Deal is used in these Houses.

DESIGNS and ESTIMATES prepared for Ornamental Conservatories, and for every description of Horticultural Building. Also for Hot-water Apparatus for the same, and for Churches, Mansions, Hospitals, &c.

W. Parham will be happy to visit any locality to take measurements and advise as to the most suitable arrangements, charging only his out-of-pocket expenses should no order ensue.

Illustrated Catalogues and Price Lists free by Post. Carriage paid to any Station, as per Price List.

Inventors and Sole Manufacturers of
PARHAM'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY.

on Channelled Wrought-iron or Wood Rafter's - the only practically imperishable system of roofing.

Its other special merits are Freedom from Drip; Economy in Repainting; Lightness with Strength; Perfection of Ventilation; and the Extreme Facility with which Broken Glass can be Replaced.

Sole Proprietor, by Purchase, of
CRANSTON'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY.

W. P. also builds Greenhouses with Rafter's prepared for Putty Glazing when preferred; retaining for them the great advantage of his Patent System of Protected Top Ventilation.

Specimens of these Structures will be exhibited at the ensuing Bath and West of England Agricultural Show at Cardiff; at the Royal Counties' Agricultural Show at Brighton; and the Royal Horticultural Gardens, South Kensington, from May 23 to July 5, embracing all that Society's Principal Shows.

Specimens may also be seen at W. P.'s Office in London, and at his Works in Bath.

HORTICULTURAL BUILDER, HOT-WATER ENGINEER: IRON FENCING and STABLE FITTINGS.

DAHLIAS.—Show, Fancy, and Pompons, fine strong plants of the best varieties, 4s. per dozen, 30s. per 100. Single Dahlias, named varieties, 9s. to 12s. per dozen; single Dahlias, mixed, 6s. per dozen.

Very strong plants of **NEW ROSE, HELENE PAUL**, 3s. each, 3s. per dozen. Tea-scented **ROSES**, best varieties, 12s. per dozen. Usual discount to the Trade.

LISTS on application to **JOHN HOUSE**, Eastgate Nurseries, Peterborough.

Seeds.—Extra Choice.—Seeds of the largest and best Collections, both Exhibition and Bedding. Packets of Seed (not paper), certain to produce hundreds of varieties, 2s. 6d. and 5s. Trade supplied. LIST of Hardy and other Plants and Seeds, 2s. stamp.

W. WEALE, Taplow, Bucks.

Grape Vines for Present Planting.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard, Garston, Liverpool, have still on hand a fine stock of strong, well ripened **GRAPE VINES** for present planting, consisting of all the leading varieties; also a few strong Fruiting Canes. CATALOGUES free. The Trade supplied.

Primulas - Primulas - Primulas.

Thirtieth Year of Distribution.

WILLIAMS' superb strain, 1s. 6d. per dozen, 12s. per 100. **CINERARIAS** same price. Package and carriage free.

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

JOHN STEVENS, The Nurseries, Coventry.

Preturians, Double-flowered, in Pots.

ROBERT PARKER begs to announce that he can supply the above named by the dozen, 10s, or 1000, in nearly 100 named varieties, fine selections, at 6s., 9s. and 12s. per dozen.

Descriptive LISTS forwarded to applicants. Exotic Nursery, Totting, Surrey, S.W.

DAHLIAS and VERBENAS.—Our celebrated collections of the above are now ready. Descriptive CATALOGUES free on application. The Plants are very fine and early this season. Orders respectfully solicited.

KEYNES and CO., The Nurseries, Salisbury.

Verbenas - Verbenas.

WILLIAM BADMAN offers the following **VERBENAS**—Purple King, Crimson King, Le Grand, Double de Neige (White), Lady Cowley (Pink), strong well-rooted Cuttings, 1s. per 100, 20s. per 1000; or established in pots, 10s. per 100, 20s. per 1000.

100 in 12 choicest Show varieties, 12s.; in 25 best sorts, 40s. per 100.

DAHLIAS, best sorts, good plants, 12s. per 100. Terms Cash, Packing included. General Nursery, Gravesend.

CATTLE CABBAGE.—Robinson's Champion Oshcart Cabbage, good strong plants, 2s. 6d. per 1000.

W. C. PERKINS, Feton, near Northampton.

To the Trade.

SWEDE, large, Purple-top.—The undersigned offer for Cash about 250 Sacks of the above, and of a first-class Stock, grown under his own supervision, from carefully selected Stock Seed. Large buyers treated liberally. Samples and prices, apply.

W. W. JOHN SON and SON, Seed Growers and Merchants, Boston, Lincolnshire.

NEW ROSES of 1882, in pots.—Seller's Selection, 20s. per dozen; Purchaser's, 6s. per dozen. The above comprise all the best English and French named Hybrid Perpetuals, Perpetual Polyantha, Tea, Hybrid Tea, and Perpetual Moss.

ROSES of 1881, of above-named classes, 18s. to 24s. per dozen, in pots.

CHOICE ROSES.—Tea-scented, Hybrid Tea, Noisette, China, and Bourbon, 18s. to 24s. per dozen, strong plants in pots.

Descriptive LIST on application.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Dahlias.

CORK and SON, Florists, Brunswick Road, Norwich, beg to offer the following, all of good growth plants well established in pots, to the Trade and Public generally:—

Single **DAHLIAS**, Show, Fancy, and Pompon.

PELARGONIUMS, Show and French.

ZONAL GERANIUMS, superb collection, in 5-inch pots. Send on receipt of Post-office Order, with plants to compensate for carriage. Prices on application.

LAPAGERIA ALBA.—Best variety, well established Plants for 10s. to 15s. each. Many of the above have flowered freely during the past season. Cultural Instructions will be sent (when required) with each order. Trade price per dozen on application.

R. H. VERTIGANS, F.R.H.S., Chad Valley Nurseries, Birmingham.

CARNATIONS, PICOTEEES, and PINKS.—We offer the above, very fine stuff, in 60-pots, of the best varieties. Carnations and Picotees, at 12s. per dozen pair; Pinks, 5s. per dozen pair; true Old Crimson Glaze Carnations, 3s. per dozen, 4s. per 100 plants; Pinks of Scotch Glaze, 4s. per dozen, 20s. per 100 plants. List of varieties on application. Package free for cash with order. Same kinds as above, from 40s. grand, 100s. per 1000 plants. Cash with order on receipt of value and upwards. Special quotations to the Trade.

ISAAC BRUNNING and CO., Great Vauxhall Nurseries.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well-furnished and well budded **RHOODENDRONS** of the best and most popular kinds.

Hardy **AZALEAS**, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.

AZALEA MOLLE, seedling, and best named varieties, covered with buds, many thousands.

Keep Hill Nursery, Woking, Surrey

Carter's HIGH CLASS PURE SEEDS THE WORLD

IN-USE THROUGHOUT

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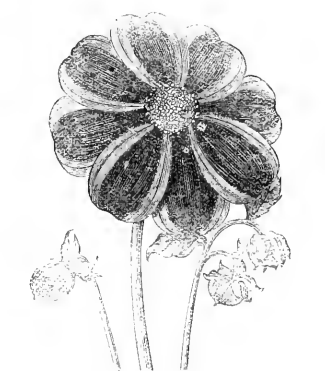
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Gratis and Post-free.

THE QUEEN'S SEEDSMEN, } Seed-men by Royal Command } H.R.H. THE PRINCE OF WALES

237 High Holborn, London, W.C.

DAHLIAS,



DOUBLE and SINGLE.

All the Finest Prize Varieties

PHLOXES, PENTSTEMONS, ANTIARRHINUMS, DELPHINIUMS, CHRYSAETHIUMS,

AND ALL OTHER

CHOICE FLORISTS' FLOWERS.

HARDY PERENNIAL PLANTS,

HERBACEOUS and ALPINE PLANTS,

SPRING BEDDING PLANTS, &c.

Illustrated CATALOGUE now ready. Post-free.

J. CHEAL & SONS,

CRAWLEY, SUSSEX.

HYBRID GREEN HOLLY,

"Pyramidal"—

6 to 7 feet, 6s. each; 60s. per dozen.

7 to 8 feet, 7s. each; 75s. per dozen.

The above are vastly superior to the ordinary Green Holly, and will remain fresh and green for weeks.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

CARPET BEDDING PLANTS.

- Well established from Stores. Price 100—s. d.
- ALTERNANTHERA**, magnifica, ambaliba, paronychioides major, paronychioides major aurea (new), versicolor, spatulata 7 0
- ANTENNARIA**, tomentosum and candida 5 0
- IRISINE**, Linden 6 0
- COLEUS**, Verschaffelti 10 0
- LEUCOPHYTON**, Browni 8 0
- LOBELIA**, longiton, or West Brighton Gem, the best of all as a compact and profuse bedder 5 0
- other varieties 5 0
- MELIOTHES**, paucifloro-gibbericarpa 5 0
- MESEMBRYANTHEMUM**, cordifolium variegatum 8 0
- PEVETHRUM**, or Golden Feather 3 0
- SEDUMS**, in variety 3 0
- VERONICA**, reversa 3 0

LIST of Carpet and General Bedding Plants gratis. **W. MILLS**, West Brighton Nurseries, Hove, Sussex.

New Colors 'Crimson Velvet.'

EDWIN COOLING has much pleasure in presenting attention to the above selected variety. The colour of the leaf is bright crimson, veined with darker crimson, and remarkably rich and velvety in appearance. The habit is very free and compact. As a pot plant for the decoration of the greenhouse it is unequalled, and in warm situations will take a high rank as a bedding plant. Strong plants now ready, 3s. 6d. each. A specimen leaf will be sent to any address on receipt of a stamped and directed envelope.

EDWIN COOLING, Mile-End Nurseries, Derby.

SPECIAL CHEAP OFFER.

- LOBELIA SPECIOSA** and **BLUE STONE**, from cuttings, 2s. 6d. per 100; 20s. per 1000; 8d. per dozen.
- GERANIUMS**, Scarlet and Rose, 7s. per 100; 7s. 6d. per 1000. Sample of **TRICOLOR**, Italian Unity and Glen Eyre Beauty, 16s. per 100, 2s. 6d. per dozen.
- IRISINE**, 6s. per 100, 1s. per dozen.
- MELIOTHES**, 6s. per 100, 1s. 2d. per dozen.
- COLEUSES**, eighteen new varieties, 12s. per 100, 2s. per dozen.
- CHRYSAETHIUMS**, best varieties, 12s. per 100, 12s. 9d. per dozen.
- FUCHSIAS**, all the leading varieties, 6s. per 100. newer varieties, 8s. per 100, 1s. 2d. and 1s. 6d. per dozen.
- VERBENAS**, Purple, White, Scarlet, Crimson, Pink, Rose, and Scarlet, 6s. per 100, 20s. per 1000.
- GOLDEN FEATHER**, 2s. 6d. per 100, 20s. per 1000.
- Sample dozen post-free, other package free. Cash with all orders.

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

Wholesale Prices.—Special Offer.—Wholesale Prices.

WOOD AND INGRAM

have pleasure in offering:—

PELARGONIUMS, Show, French, Spotted, and Early Flowering (Market), various, robust plants, in bloom and coming into bloom, in 5-inch pots, 12s. per doz.; 75s. per 100.

PELARGONIUM, Mrs. Pollock, fine plants, in 3-inch pots, 2s. 6d. per 100; 20s. per 1000. Package extra.

Special Trade offer of **BEDDING PLANTS** on application. The Nurseries, Huntingdon, and St. Neots.

SPECIAL CHEAP OFFER

- For Cash with Order:—
- PELARGONIUM GERANIUMS**, strong plants, in pots, bushy, in fruit of the best leading varieties, 60s. per 100.
- ZONAL GERANIUMS**, Pearson's varieties, in fifty of the best leading varieties, 25s. per 100.
- DAHLIAS**, Show and Fancy, fifty varieties, good plants, 25s. per 100.
- PANSIES**, Show and Fancy, thirty choicest varieties, 25s. per 100.
- BEDDING VIOLAS**, Blue and Purple, 10s. per 100.
- DOUBLE TROPÆOLIUMS**, 4s. per dozen.
- SINGLE DAHLIAS**, 6s. per dozen.
- CARNATIONS**, mixed varieties, 3s. per dozen.
- PINKS**, mixed varieties, 2s. per dozen.
- PEVETHRUMS**, in twelve varieties, Double, 6s. per dozen, in pots.
- PHLOXES**, Herbaceous, in twelve varieties, 4s. per dozen.
- FUCHSIAS**, twelve Show varieties, 4s. per dozen.
- Apply to **ISAAC MATTHEWS and SON**, The Nurseries, Milton, Stoke-on-Trent.

Verbenas, Pelargoniums.—Special Offer.

WILLIAM BADMAN offers the below-named Plants, of which he has a large healthy stock:—

VERBENAS, Purple, White, Scarlet, Crimson and Rose, only best leading sorts. Well rooted cuttings, 6s. per 100, 50s. per 1000. Show varieties, 100 in 12 very best, 8s.; or in 25 60s. pots.

PELARGONIUMS, *St. Augustus*, 8s. per 100 or 75s. per 1000.

Jean Sisley, 10s. per 100; *Madame Vaucher* and *Virgo Marie*, best whites, 12s. per 100, or 60s. per 1000;

Master Christian, fine pink, and *Mrs. W. Paul*, 10s. per 100; *Mrs. G. Smith*, salmon, and *Waltham Seedling*, crimson, 10s. per 100; *White Vesuvius*, Dr. Penny, New Life, Bonfire, The Shah, and many others, 12s. per 100.

- TRICOLORS**, Mrs. Pollock, 12s. per 100; *Sophie Dumasque*, *Lady Cullum*, Mr. R. Napier, 20s. per 100.
- BRONZE DAHLIAS**, 6s. per dozen. Double the best bedders, 12s. per 100, or in 12 choicest sorts, 25s. per 100.
- SILVER VARIETATED** May Queen (Turner's), Princess Alexandra, Princess Silverwings, Little Tort, Flower of Spring, all at 12s. per 100.

- GOLD-LEAF**, Crystal Ball Gem, 10s. per 100; *Happy Thought*, 12s. per 100.
- DOUBLES**, *Madame A. main Ballet*, finest white, 15s. per 100; *Madame Thibaut*, market pink, 12s. per 100.
- TROPÆOLIUM** Vesuvius and *coccinea elegans*, good bedders, 12s. per 100.
- IRISINE** Linden, 6s. per 100.
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- LOBELIA** *Elizabetta* (new) and *pumila magnifica*, the best of all, from cuttings, 2s. 6d. per 100, 20s. per 1000.
- HELIOTROPIS**, dark and light, 6s. per 100, 50s. per 1000.
- CENTAUREA**, *Alba*, best, 10s. per 100.
- FUCHSIAS**, in 25 choicest sorts, rooted cuttings, 6s. per 100, 50s. per 1000.
- CHRYSAETHIUMS**, best sorts only, 100 in 25 varieties, 10s. per 100.
- Packing included. Terms cash. Cemetery Nursery, Gravesend.

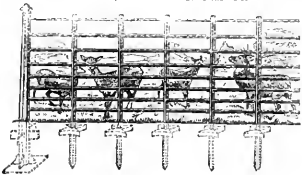
BAYLISS, JONES & BAYLISS,

MANUFACTURERS OF

PATENT TUBULAR AND SOLID BAR FENCING,

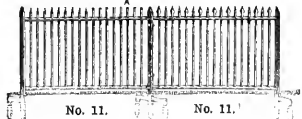
WROUGHT IRON HURDLES, WIRE FENCING, ENTRANCE and FIELD GATES, TREE GUARDS, ORNAMENTAL HURDLES, GARDEN SEATS, VASES, FOUNTAINS, RICK STANDS, &c.

PATENT WROUGHT IRON CONTINUOUS FENCING, FOR DEER PARKS.



With Patent Earth-Plates, which are far superior to Feet.

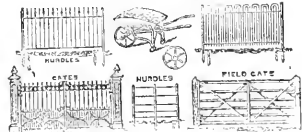
UNCLIMBABLE HURDLES.
Price from 3s. 10d. per yard.



ORNAMENTAL HURDLE.
No. 6A. No. 5A.



IRON HURDLES, GATES, &c.



PATENT STEEL BARB WIRE.



BARBS 5 INCHES APART

Supplied in 500 yards lengths on Wooden Reels.



This Wire neither rusts, stains, decays, shrinks, nor warps. It is unaffected by fire, wind, or flood, and is a complete barrier against the most unruly stock. Twelve thousand tons have been erected in the United States alone during the last year.

Price, in quantities of not less than 500 yards, 12s. per 100 yards; smaller quantities, 12s. 6d. per 100 yards.

IMPROVED POULTRY FENCING.
No. 306P.



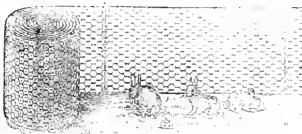
MATERIAL FOR WIRING GARDEN WALLS.



PRICES—GALVANISED.

14 B.W.G., 2s. per 100 yards. EYES, 7d. per dozen. TERMINALS, with Winders attached, 7s. per dozen.

GALVANISED WIRE NETTING.



Prices per lineal yard, 24 inches wide

Gauge No.	20	18	16	14	12	10
3/4 inch mesh	0 8	0 9	0 11	0 12	0 13	0 15
1 inch ditto	0 8	0 9	0 11	0 12	0 13	0 15
1 1/4 inch ditto	0 8	0 9	0 11	0 12	0 13	0 15
1 1/2 inch ditto	0 8	0 9	0 11	0 12	0 13	0 15
2 inch ditto	0 8	0 9	0 11	0 12	0 13	0 15
2 1/2 inch ditto	0 8	0 9	0 11	0 12	0 13	0 15

Special quotation for large quantities.

LAWN TENNIS FENCING.



MOVABLE CRICKET GROUND FENCING.

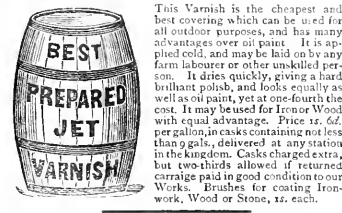


THE "DOUGLAS" PATENT RABBIT TRAP.

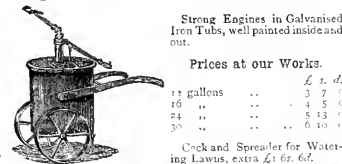


It will not capture anything but that for which it is set, so that dogs, pheasants, sheep, &c., will not be taken and suffer for weeks with broken toes and feet. There will be no more three-legged fowls, and no more one-legged pheasants. It is particularly adapted to meet the New Act of Parliament, as it can only be set in a rabbit hole, not in a rabbit run.
Price 18s. 6d. per dozen at Works.

SUPERIOR JET VARNISH. FOR PRESERVING IRONWORK, WOOD, OR STONE.



IMPROVED GARDEN ENGINE.



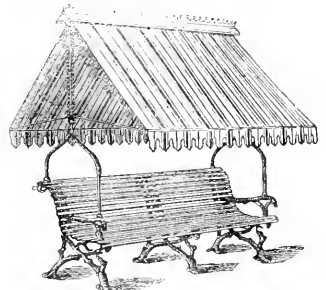
Strong Engines in Galvanised Iron Tubs, well painted inside and out.

Prices at our Works.

	£	s.	d.
12 gallons	3	7	0
16 "	4	5	0
20 "	5	13	0
24 "	6	10	0

Crack and Sprocket for Watering Lawns, extra 1s. 6d.

DERBY GARDEN CHAIR, WITH AWNING. No. 112.



Price, 6 feet 6 inches long .. £5 0
If with zinc top to protect the Awning when wound up, 11s. extra.
Price without Awning .. £2 10
" " and with arms .. £2 15
Delivered free at most railway stations.

THE BRADGATE PARK SEAT.



This seat is well suited for placing under a tree. It is 6 feet external diameter, and will fit round a tree with a trunk not exceeding 30 inches in circumference.
Price £5 2s. 6d. complete.
Delivered free at most railway stations.

GARDEN ROLLER.

ENTIRELY NEW PATTERN.
With Balanced Handle and Double Cylinder.



These Rollers are of a new and improved construction. The Cylinders are cast in two parts, and are made to revolve freely on the axis, which affords great facility in turning.

PRICES.

No. 1—18 in. wide by 16 in diameter	£	12	6	Delivered free in London, or within 500 miles of works.
" 2—20 " " " "	3	0	0	
" 3—22 " " " "	3	10	6	
" 4—24 " " " "	4	2	6	
" 5—26 " " " "	4	15	0	

TREE GUARDS. No. 88B.

DOG KENNEL RAILING.



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MESSRS. JAMES VEITCH & SONS' NEW AND GENERAL PLANT CATALOGUE FOR 1882,

Is now ready, and will be forwarded Post-free on application.

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For Present Planting. CELERY PLANTS.—Splendid transplanted stuff can now be supplied of Wright's Giant or Cole's superb Red and White, 1s. 6d. per 100 of six score (4d. per score, post-paid), 10s. per 1000 of 1200.

CABBAGE PLANTS (F. Gerr's superior stock), magnificent stuff, can now be supplied at reduced prices, in any quantities, of all the leading kinds, at 2s. and 2s. 6d. per 1000 of 1200; fine Red, 4s. per 1000 of 1200.

Also BRUSSELS SPROUTS, SAVOY, and SCOTCH KALE.

LETTUCE PLANTS, fine Old Brown Cos and Hammer-smith, at 4s. per 1000 (cheaper in large quantities). Terms cash with orders.

BEANS, Scarlet Runner, excellent yearlings equal to new, 10s. per bushel.

GENUINE BEDFORDSHIRE-GROWN SEEDS and PLANTS, of all kinds, cheap and good.

CATALOGUES on application to FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

WALLFLOWERS.—Assortment of ten fine Double Varieties, 100 seeds of each, 1s. 3d. Splendid, 1st. mixed, Extra Double, 7s. 6d. per ounce; 1000 seeds, 1s. 6d., 3d. per packet. Splendid Dwarf, Extra Double, mixed, 1s. 6d. per ounce; 1000 seeds, 1s. 6d.; 4d. per packet.

My Wallflowers gained the First Prize at Magdeburg.

FRIEDR. ROEMER, Seed Grower, Quetlinburg, Germany.

Dutch Bulbs, &c. E. H. KRELAGE and SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland, beg to offer—

HYACINTHUS CANDICANS (Galtonia candicans), first size, 5s. per dozen, 25s. per 100, 240s. per 1000; second size, 3s. 6d. per dozen, 20s. per 100, 180s. per 1000; third size, 2s. 6d. per dozen; 15s. per 100, 22s. per 1000.

The bulbs of all three sizes are sufficiently large to give flowers.

DOUBLE AMERICAN TUBEROSES, the Pearl, 20s. 1st. 100.

TUBERIE ITALIAN TUBEROSES, 15s. per 100.

NEW DUTCH DOUBLE TUBEROSES, FLOATED BEGONIAS (see advertisements in Gardener's Chronicle, February 4 and 11 last), the set of ten varieties, one plant of each, 6s. 6d.

Besides general and largest collections of bulbous and tuberous-rooted plants (more than 18,000 sorts and varieties cultivated), of which Catalogues are issued in due time, and special offers of named articles will be given on application. Established 1821.

Discount or special terms for the Trade.

THE VERY CHOICEST STRAINS.

FRIMULA, CALCEOLARIA, CINERARIA' BEGONIA, CYCLAMEN, and AURICULA, in packets, 1s. to 5s. each, post free.

Extremely showy Coloured COWSLIP SEED, 1s. per packet, post-free.

The best Evergreen LAWN MIXTURE (sow now), 128s. per cwt., carriage paid.

SEEDS and PLANTS of every description, of best qualities, at the most moderate rates.

Price CATALOGUES post-free.

JAMES DICKSON and SONS, "NEWTON" NURSERIES, CHESTER.

TWO SPECIALITIES WORTHY OF EXTRA NOTICE.

The best Zonal Pelargonium in Cultivation for Summer Bedding is undoubtedly

MILES' WEST BRIGHTON GEM.

After five years' trial it still holds the first position as the most floriferous, compact, and effective variety yet introduced.

Awarded Three First-class Certificates.

Price, in 6-oz. pots 4s. to 6s. per dozen.

" 4s. " " " 1s. to 1s. 6d. each.

Special quotations for large quantities.

MIGNONETTE.

No variety ever introduced has been found to equal

MILES' NEW HYBRID SPIRAL.

Its beautiful, robust, compact and floriferous habit is the admiration of all who see it.

It is far more fragrant than any other variety.

Price of seed (in sealed packets only), 1s. per packet.

Established plants, in single pots, 6s. to 12s. per dozen, or 1s. 6d. each.

Liberal Discount to the Trade.

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The best Zonal Pelargonium in Cultivation for Summer Bedding is undoubtedly

Miles' West Brighton Gem.

After five years' trial it still holds the first position as the most floriferous, compact, and effective variety yet introduced.

Awarded Three First-class Certificates.

Price, in 6-oz. pots 4s. to 6s. per dozen.

" 4s. " " " 1s. to 1s. 6d. each.

Special quotations for large quantities.

Mignonette.

No variety ever introduced has been found to equal

Miles' New Hybrid Spiral.

Its beautiful, robust, compact and floriferous habit is the admiration of all who see it.

It is far more fragrant than any other variety.

Price of seed (in sealed packets only), 1s. per packet.

Established plants, in single pots, 6s. to 12s. per dozen, or 1s. 6d. each.

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W. Miles, West Brighton Nurseries, Hove, Sussex.

All the Season.

Henry Cannell and Sons most respectfully invite all intending Purchasers of Bedding Plants of every description to inspect their stocks, which they will find to be probably the finest, choicest, and cheapest ever offered, and will be pleased to quote prices for large or small quantities.

See H. C. & SONS' CATALOGUE, which contains the most complete descriptions, together with Col. Diagrams and Key, with what and how to plant the same, and will be found the best Guide for the above ever published.

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MESSRS. JAMES VEITCH & SONS THE UNDERMENTIONED SPLENDID NOVELTIES:—

ARE NOW SENDING OUT

Table listing various plant varieties and their prices. Includes: AMARYLLIS "AUTUMN BEAUTY", DUCHESS OF CONNAUGHT, ASPARAGUS PLUMOSUS NANUS, TENUISSIMUS, BEGONIA SOCOTRANA, CROTON BRAGAEANUS, CRONSTADTII, CYPRIPEDIUM ALBO-PURPUREUM, DAVALLIA ELEGANS POLYDACTYLA, GLOBBA COCCINEA, IXORA WESTII, LEEA AMABILIS, NEPENTHES MADAGASCARIENSIS, MORGANIE, RAJAH, RHODODENDRON "DUCHESS OF CONNAUGHT".

Full Descriptions and Woodcuts are given in their NEW and GENERAL PLANT CATALOGUE for 1882.

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Is now ready, and will be forwarded Post-free on application.

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ORCHIDS A SPECIALITY.

HUGH LOW & CO.

HAVE ON HAND, IN EXCELLENT CONDITION, MANY THOUSANDS OF

PHALÆNOPSIS

AND

ODONTOGLOSSUM ALEXANDRÆ (CRISPUM).

Amongst the plants are many of unusual size and very varied in appearance, giving promise of good varieties. The stock of these lovely Orchids is, without any exception, the largest hitherto seen in Europe, and the same remark applies to the General Collection of Orchids, which is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

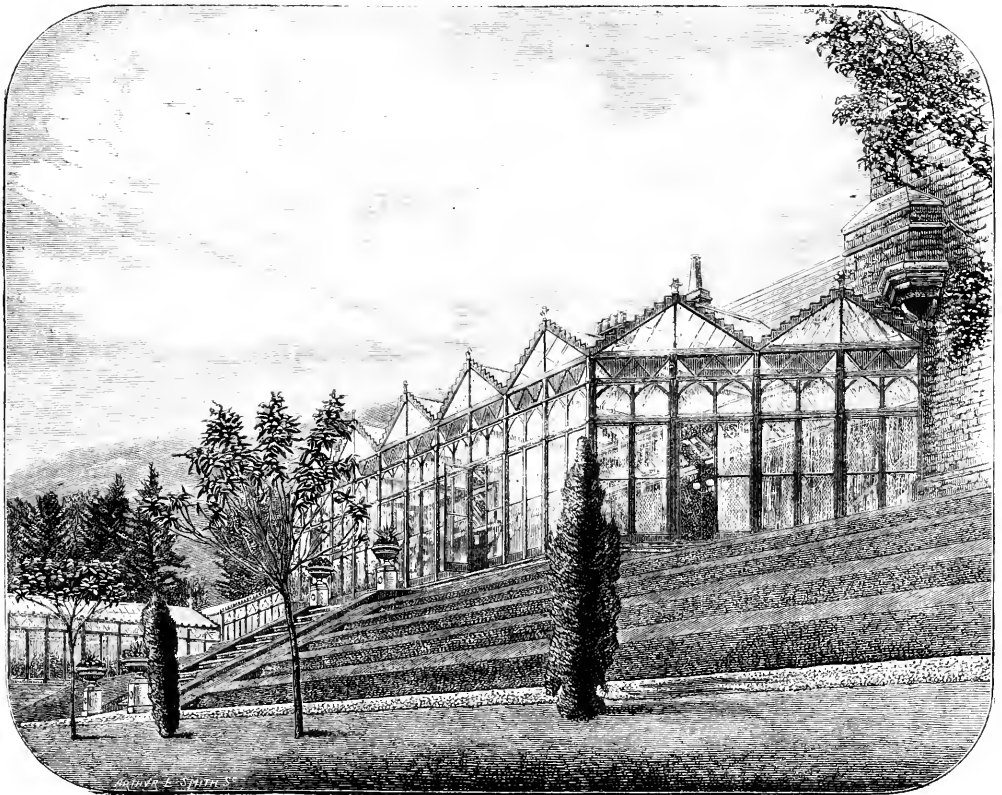
HUGH LOW and CO. very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

CLAPTON NURSERY, LONDON, E.

WILLIAM BARRON,
 HORTICULTURAL BUILDER, GARDEN ARCHITECT, &c.,
 SKETTY, SWANSEA.

NEW AND ELEGANT DESIGNS,
 SPECIAL, PRACTICAL, and APPROPRIATE for all purposes.

WINTER GARDENS, CONSERVATORIES, VINERIES, FORCING HOUSES, &c.,
 Heated and Fixed Complete in all parts of the World, in Wood or Iron.



CONSERVATORY AT CRAIG-Y-NOS CASTLE, BRECON: THE RESIDENCE OF MADAME ADELINA PATTI.

From the "Gardeners' Chronicle," April 8, 1882.

DESIGNED AND CONSTRUCTED BY
W. BARRON, HORTICULTURAL BUILDER, SKETTY, SWANSEA.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited,

The Vineyard, Garston, near Liverpool

The Company having recently made large and successful importations of Orchids from India, beg to offer Twelve DENDROBIUMS, in pots and baskets, just starting into growth, including package, for 42s., as follows:—Dalhousianum, Parishii, Heterocarpum, Falconeri, Wardianum, Chrysanthum, Formosum, Devonianum, Thyrsliflorum, Primulinum, Calceolum, Crassinode.

The Company offer the following specialities:—

TEA ROSES—Twelve finest varieties, package included, for 12s., 18s., or 24s.

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FLOWERING PLANTS—Twelve finest varieties, for GREENHOUSE Decoration, for 12s., 18s., or 24s., package included.

The Company have a fine general stock of STOVE, GREENHOUSE, and ORNAMENTAL FOLIAGE PLANTS.

The Company beg to announce that their young VINES, from eyes *this season*, are now in fine condition for planting Vineries, and also that they have still on hand a few good Canes of most varieties suitable for fruiting in pots and planting Vineries.



The Company beg to call special attention to Thomson's Vine and Plant Manure, which is manufactured by them, and is the Manure used for producing the splendid Grapes grown at Clovenfords.

Though this Manure has only been offered to the public during the past four months, the Company are already receiving the strongest testimonials in its favour from those who have used it, and its grand effects are at once apparent to all who see the Vines and Plants in the Vineyard and Nurseries here.

Price. Bags of 1 cwt., 20s.; $\frac{1}{2}$ cwt., 10s. 6d.; $\frac{1}{4}$ cwt., 6s.; $\frac{1}{8}$ cwt., 3s. 6d. Tins of 7 lbs., 2s. 6d.; $\frac{1}{2}$ lb., 1s.

To be had of all Nurserymen and Seedsmen.

HORTICULTURAL BUILDINGS of all kinds erected and heated in the best manner and at moderate cost.

All Letters to be addressed to

THE MANAGER,
THE VINEYARD and NURSERIES,
GARSTON, near LIVERPOOL.



EXHIBITION OF ORCHIDS.

B. S. WILLIAMS

has much pleasure in announcing that he has determined to make a grand show of his flowering ORCHIDS, during the next two months, at home. The Exhibition will include, in addition to the usual stock of young Flowering Plants, all the grand specimens that he has been in the habit of including in his Collections, which have obtained the leading prizes for many years both at home and abroad.

Patrons of Horticulture are especially invited to inspect this Exhibition.

The Exhibition will contain large and small specimens of ODONTOGLOSSUMS, CATTLEYAS, LÆLIAS, ONCIDIUMS, CYPRIPEDIUMS, MASDEVALLIAS, VANDAS AERIDES, SACCOLABIUMS, and other rare and showy ORCHIDS.

**AN EARLY INSPECTION IS RESPECTFULLY INVITED.
NO CARDS TO VIEW REQUIRED.**

A hearty welcome will be given to all who honour us with a visit.

CARRIAGE ROUTE.

Carriage Route from the West End is through Albany Street, Regent's Park, Park Street, Camden Town, Kentish Town, and Junction Road.

The North Metropolitan Tramway Cars, in addition to the Street Tramways Company's Cars, arrive at and start from the Nurseries, for the City and West End, every few minutes.

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TUBEROUS BEGONIAS.

JOHN LAING & CO'S GOLD MEDAL COLLECTION IS UNRIVALLED.

They have now in cultivation 100,000 Begonias, which will present to the public an unprecedented floral display this summer. Orders now booked for blooming plants middle of June.

Prices, 12s. to 60s. per dozen. Catalogues on application.

Address—FOREST HILL, S.E.

NEW SINGLE DAHLIAS.

The grandest collection extant, including

**ZIMAPANI—The Black Dahlia, and
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Catalogue post-free upon application.

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Commencement of the Sixth Volume. *THE JOURNAL OF*

FORESTRY AND ESTATE MANAGEMENT.

Monthly, One Shilling. Post-free, 12s. per annum.

The Editor has the pleasure to announce that for the new volume the sixth, which commences with the May part (now ready), he has been able to arrange for such a number of interesting and valuable articles on the various branches of arboriculture and the management of estates, by well-known practical writers, as will effectually uphold this Journal in the high position which it has now obtained as a practical guide for landowners and country gentlemen.

Increased attention will also be devoted in the forthcoming volume to descriptions of sylvan scenery, pleasantly written and beautifully illustrated, sketches of remarkable trees, visits to celebrated woodlands, tree-lore and facts and fictions of the forests, and other pleasant reading for lovers of trees, which has done so much during the past year to popularise the Magazine.

The following is an abridged List of the Contents of the May part:

Curious and Historic Trees (Illustrated).	The Teaching of Forestry.	Woods and their Management.	Queen Mary's Tree.
Thinning and Pruning Forest Trees.	The Australian Bug.	An Australian Mammoth Tree.	Beech versus Horbeam Hedges.
Beauty of Forest Trees.	Ravages of the Pine Saw-fly.	The Fine Tree of Alliaz.	Editorial Notes—Reviews—Chips and Higs, &c.
	Wild Flowers in Hants.		
	Profitable Planting.		

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THE LARGEST ROSE GARDENS IN ENGLAND.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

SPECIALITIES FOR AUTUMN, 1882.

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Awarded over 120 First Prizes for Rose blooms in 1880 and 1881, being the largest number obtained by any one establishment in two seasons.

FRUIT TREES—Thousands of APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., including all the most desirable varieties, trained in every variety of form; a large collection also in pots for Orchard Houses. STRAWBERRIES, an extensive collection, true to name.

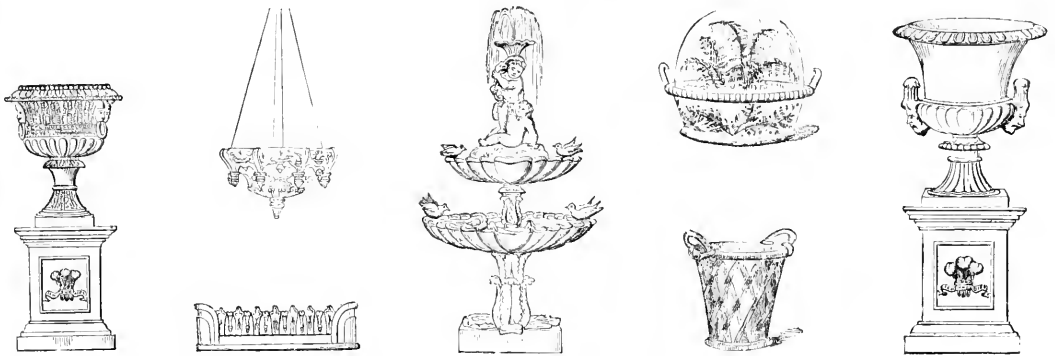
FOREST TREES—Millions of Extra-transplanted LARCH, SCOTCH, SPRUCE, ASH, CHEST-NUT, SYCAMORE, OAK, BEECH, POPLAR, HAZEL, ALDER, &c., &c. HAWTHORN QUICK for hedging.

CONIFERÆ—CEDRUS DEODARA, CUPRESSUS LAWSONIANA in variety, THUYA GIGANTEA, THUYA LOBBII, PICEA LASIOCARPA, PICEA NORDMANNIANA, and all other varieties worthy of cultivation.

FLOWERING and ORNAMENTAL SHRUBS in great variety.

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JOHN MATTHEWS,
ROYAL POTTERY, WESTON-SUPER-MARE,

MANUFACTURER OF

TERRA COTTA GARDEN VASES, FERN PANS, ORCHID BASKETS AND PANS,
BORDER TILES, WINDOW BOXES, &c.

GARDEN POTS from 1½ to 30 inches dia., Square and Round SEED PANS, RHUBARB and SEAKALE POTS.

All of unequalled quality. Price List free. Book of Patterns, 1s. Sheet of Patterns, 6d.

New Catalogue of Seeds and Plants FOR 1882.

WM. CLIBRAN & SON,
THE OLDFIELD NURSERIES,
ALTRINCHAM,

Invite an inspection of their stock, or a personal and comparison of their CATALOGUES by all requiring Seeds or Plants. *The most complete Catalogue of Greenhouse Plants published.* All classes of goods required for In or Out-door Gardening. All the following are Package Free for cash with order.—

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THURSDAY NEXT, MAY 18.

PHALÆNOPSIS AMABILIS.

MR. J. C. STEVENS has received instructions from **Mr. F. SANDER,** St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 18, at half-past 12 o'Clock precisely,

SOME THOUSANDS OF THE ABOVE PHALÆNOPSIS.

The plants are in splendid condition.

Also a grand lot of **VANDA LAMELLATA BOXALLI, AERIDES QUINQUEVULNERUM, DENDROBIUM SUPERBUM GIGANTEUM, SACCOLABIUM VIOLACEUM** and many other species of ORCHIDS.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN,
LONDON, W.C.

THURSDAY, MAY 25.

PHALÆNOPSIS SCHILLERIANA.

CATTLEYA SKINNERI

(COLLECTED IN FLOWER.)

MR. J. C. STEVENS has received instructions from **Mr. F. SANDER,** St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 25, at half-past 12 o'Clock precisely,

Very extensive Importations of the above, consisting of several thousands of plants.

On view the morning of Sale, and Catalogues had.

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LONDON, W.C.

DENDROBIUM BRYMERIANUM, D. FINDLEYANUM, PHALÆNOPSIS AMABILIS, SCHILLERIANA, VIOLACEA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY, May 17, at half-past 12 o'Clock precisely, by order of Messrs. HUGH LOW & Co., a large quantity of imported ORCHIDS, consisting of a grand lot of **VANDA CÆRULESCENS, DENDROBIUMS,** twenty species, including **D. BRYMERIANUM, D. BONALLI, D. FINDLEYANUM, D. CRYSSTALLINUM, D. CRASSINODE, D. WARDIANUM, D. DEVONIANUM, D. CAMBRIDGEANUM; CATTLEYA AMETHYSTOGLOSSA,** many hundreds; **PHALÆNOPSIS AMABILIS** and **SCHILLERIANA,** many hundreds; established, also semi-established plants of **PHALÆNOPSIS VIOLACEA** and **TIGRINA (SUMATRANA),** varieties, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

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HEATH AND SON

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The "GARDENERS' CHRONICLE" of October 1, 1881, says:—"From Heath & Son of the College Road Nurseries, Cheltenham, we have been favoured with a bloom of this noble Orchid, measuring 5 3/4 inches across, from a new district in Northern Burmah. The lip is 2 inches broad and the yellow blotch very bright."

The plants from this locality flower twice a year—in the autumn from the new growths, and in the spring from the old, with two to four spikes and from two to five flowers on a spike. The bulbs are very large and many measure 3 feet long.

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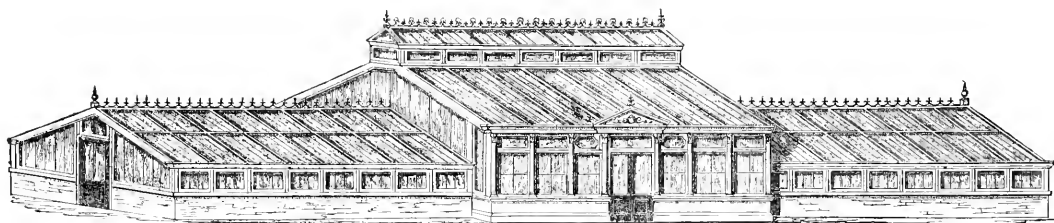
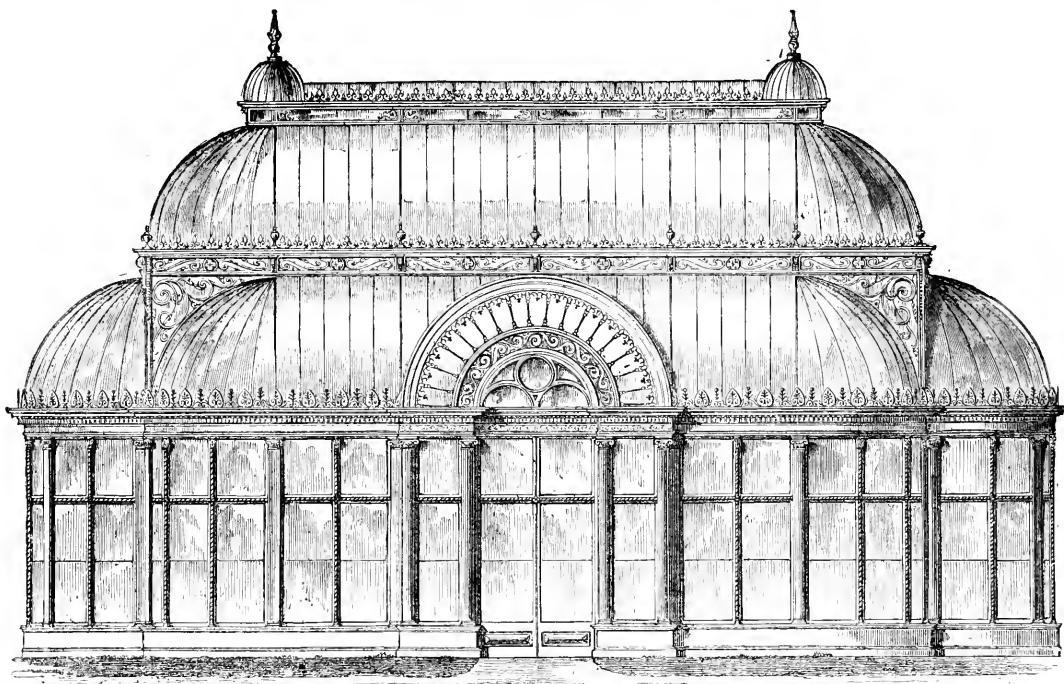


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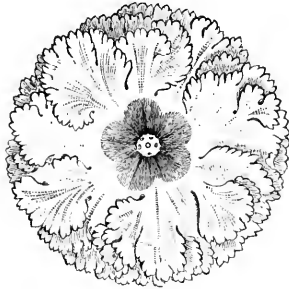
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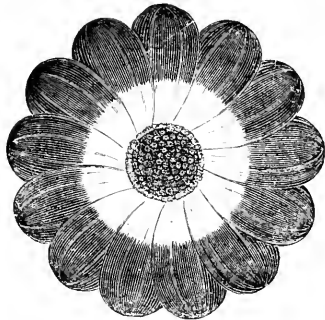
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- NEW VARIEGATED-LEAVED PELARGONIUM,
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- TEN NEW FUCHSIAS, of sorts.

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Unnamed sorts of various colours; good flowering bulbs,
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MR. WILLIAM BULL'S Exhibition will
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THE
Gardeners' Chronicle.

SATURDAY, MAY 13, 1882.

THE GALE.

THE gale that swept over the greater portion of the kingdom on April 29 has left its traces on the vegetation in a manner more impressive than agreeable. To say nothing of the damage done to the fruit trees, the showers of blossoms and embryo fruits scattered broadcast, the effects of which we shall feel more directly by-and-by, we are, for the moment, more concerned with the injuries inflicted on the deciduous trees. Just as they were bourgeoning forth in all the delicate beauty characteristic of the English spring their beauty has at one fell swoop been destroyed by one of those capricious accidents no less, we regret to say, characteristic of the season. But, however great our dismay and disappointment, we are at least supplied with some sources of interest in the examination of the different effects produced on different trees by the gale in question. Speaking broadly, those effects are due either to laceration of the tissues of the leaf or to bruising of their substance, or to both. It is an open question whether the rapid lowering of the temperature may not have produced the same effects as would have resulted from the action of severe frost—whether, in fact, the living tissues of the leaves were not for the time better indicators of the severity of the destroying agent than the thermometer itself.

Again, in some places, no doubt, saline particles borne inland from the surface of the sea may have had their part in the general havoc. In truth, many of the specimens forwarded to us have exactly the appearance of the foliage of deciduous trees directly exposed to the briny blast. But to whatever extent this may be true, in regard to trees at a comparatively small distance from the sea and in the direct line from that source of mischief, it certainly does not apply to trees at a greater distance inland. In the latter case only the causes we have mentioned are adequate to the observed effect. In some cases, as in some of the broad-leaved Maples, the leaves have been simply cut into ribbons by the force of the gale and by the violent friction of the leaf and branch. In these cases the leaves are cut into fragments, leaving little but the fibrous portions of the leaves intact, and the small portions of the cellular substance are, or were, at first, left comparatively without discoloration. In other cases the whole tissue of the leaf is discolored and reduced to pulp, almost as if it had been parboiled or subjected to the action of strong acid. Sometimes this bruising and pulping affects the whole or the greater part of the leaf, at other times it is confined to the tips or the margins, and when this is the case the check to growth at the margins, while the central portions or disc of the leaf have been unaffected, has caused a remarkable effect in the raising of the centre of the leaf in a convex (dome-like) manner, the growing portions being, as it were, tied down by the bridle of dead tissue along the margins. The cell walls have been burst, and the protoplasmic contents bruised and turned brown, as is so generally the case when this essential part of the organism is in any way injured.

Botanists and anatomists are familiar with the different ways in which leaves grow, the chief activity of growth being in some species manifested chiefly or entirely in one region of the leaf, in other species at another. Under ordinary circumstances, these phenomena are not obvious, except to the microscopist; they do not jump into the eye, as the French proverb says; they are not visible to the untrained or unaided vision; but if any ordinary observer will now examine a sufficient variety of trees that have suffered from this rude blast, he will have no difficulty in seeing with the unaided eye where growth has been going on most actively, and where, in consequence, the injury has been most felt. In the Horse Chestnut, for instance, it is clear that while the tips and the margins have been irretrievably damaged, the injury, as shown by the browning of the tissues, has also proceeded in directions parallel to the direction of the main nerves of the leaf, and suggesting the inquiry whether the conducting and sheathing-cells which encircle the vascular bundles have not been especially damaged.

While this is a matter for the patient microscopist to determine there are other points more within the scope of the practical gardener, such as the observation of which trees undergo conditions of exposure have been least affected, and, again, which trees of the same species are latest in their development; for it is abundantly clear that, among individuals of the self-same species, some are much more precocious than others, and these would of course be the first to suffer—while others, whose course of development is more tardy, would be the more likely to escape the effects of such visitations. It will also be a matter of much practical import to watch the course of events in these trees in the coming summer, to see which have recuperative power and in what degree, and thus estimate the real amount of the damage inflicted, not only for the moment, but for the coming season. By observations of this kind a disaster may be turned to good use; and, although we may not be able to retrieve the damage, we may yet gain such information as shall be of service in various ways in the future.

New Garden Plants.

MASDEVALLIA ROSEA, Lindl.

(See *Rebh. l.* in *Gard. Chron.* 1880, May 1, p. 554, and May 22, p. 645; *Gard. Chron.* 1880, May 29, p. 680, 681, two woodcuts, and a note p. 681.)

IT flowers! It was sent me from Sir Trevor Lawrence's garden on April 29, twenty-three months after the sale. Mr. O'Brien, of Maiden Vale, sent flowers on May 3, grown by Mr. R. P. Percival, Clevedon, Birkdale, Southport. Mr. Percival's plants have so many flowers, that these are most obligingly offered to me *in dissection*. Herr Hofgatterer, Kiehof, of Donauwörthingen in Baden, the skilful and enthusiastic gardener to Prince Furstenberg, long since told me that he would send me flowers when open. Finally, the last number of the *Gardeners' Chronicle* informs us that M. D. Massange de Louvres, Bailleville près Marche, Belgium, has this rare and beautiful species in flower.

No doubt the plant will flower at other places and it would be useful if the successful growers, who share the great honour of having had the plant in good condition, would tell us how they managed to bring it to perfection. If we compare the flowers with the wild ones there is no doubt they will improve a good deal, the best ones at hand not being more than two-thirds the size of the native Andine specimens. Knowing the immense difficulty of bringing this plant through the hot regions, the great trouble my friend F. C. Lehmann had taken in carrying out his plan, when other excellent collectors had simply given way to despair, I hoped in May, 1880, to see the traveller well repaid. This was not the case. After all the efforts I had made, and for which I now see myself justified, there came, two days before the sale, the remark, "Suffice it to say that it resembles a rose-

coloured *M. Harryana*." Those few words have decidedly cost Mr. F. C. Lehmann more than a hundred guineas, for no doubt very few amateurs felt disposed to pay a high price for a plant that was only like a rose-coloured *Masdevallia Harryana*, and the more so as the importation could not be in the strongest health. Then came one of the most celebrated Orchid growers, who said he believed the plant was not to be grown, and the *etches* was decided.

I remember that when Mr. Williams first brought his glorious North Australian *Dendrobes* to Mr. Stevens the word passed round that they were altogether rubbish. I also remember that Mr. James Veitch told me that having as a beginner succeeded in introducing a very fine *Tropæolum*, the whole thing was spoiled by the operation of a "friend," who declared that it was not very fine, and that he could grow it much cheaper: finally both *Tropæola* proved quite distinct, but Mr. James Veitch had irreparably lost the advantage he had hoped to gain. A similar accident was endured with a *Tropæolum* at Berlin, by Professor Karsten. Many such cases could be quoted, where the traveller, after all the risks he has incurred, has seen his well-grounded hopes destroyed by the detractors.

I believe that this is the reason of the opinion of many, that it pays far better to bring old than new plants. I am afraid, if more experiences of this kind occur, collectors will prefer to take their novelties first to New York. The demand there is far less than in Europe, but much higher prices are paid.

The best flower at hand reaches in greatest length $7\frac{1}{2}$ centimetres. The short ovary itself is light greenish in Sir Trevor Lawrence's flowers, dark blackish in those of Mr. Percival, fine green in Mr. F. C. Lehmann's picture.

The botanical characters of the plants are that the compressed tube is equal to the free limb of the sepals, and that the peduncles are so short that the flowers do not stand much above the leaves. Hence it is a totally fresh type, not comparable with *Masdevallia Harryana*. The limb is exceeding unequal. The side sepals broad obtuse-angled, with short tails, and the odd sepal may merely be said to be nothing but a tail, there being only a very short triangular base. There is a white blotch at the base of the tube over the ovary and some orange at the sides. The tube itself is of deep crimson-purple on the side of the odd sepal, and of the finest rose-lilac on its other parts outside. The lateral sepals have the short tails of crimson-purple colour, but their blades have inside a light hue of mauve-rose: this, at least, is the impression on my eye, and for me nearly the most charming quality of the plant.

It is quite curious how small the inner parts of the flower are. The ligulate petals, with a blunt apex and a little point on it, are unusually hastate at the base. The lip is nearly heart-shaped at the base, recurved and oblong ligulate, ciliate at the border, from numerous small stiff acute papillæ, and with a dark blackish-purple cushion from numerous long papillæ at the top. There are some small purple spots on it, and the sides at the base are ochre-coloured. The anther has two falcate anterior processes, which nearly embrace the tail-like square rostellum. The column and petals are white. *H. G. Rehb. f.*

CATASETUM CHRISTYANUM (*Rehb. f.*) CHLOROIS.

Take *Catasetum* into your stove, and you are pretty sure to become more or less bewitched, earlier or later. This is actually the case with Mr. H. Christy. With him another plant has produced its flowers, and in lieu of being equal to the first plant's flowers they have frog-green sepals and petals, all standing together, and a dark green, much smaller flanged lip with an immense spur, whose mouth has a callous border, the superior not quite so much developed as in the first plant, the anterior one reddish. The outline is pentagonal. This forms a transition to some of the smaller *Myanthoid* sexes. *H. G. Rehb. f.*

PHALANOPSIS SUMATRANA (*Rehb. f.*) PAUCI-VITATA.

Messrs. Veitch appear to have a large quantity of these plants. A variety we hope to see a second time flowered in June last year at the same time as the lovely gem *Phalanopsis maculata*. Now comes a genuine *sumatrana* of peculiar features. It has very fleshy leaves, and the flowers have on the usual ground of milk colour a few cinnamon-purple bars—three or four. The stripes on the lip are very fine mauve. *H. G. Rehb. f.*

RHODODENDRON HOOKERI.

Among the less known species of *Rhododendron* lately shown by Mr. Mangles at the Scientific Committee of the Royal Horticultural Society, has been the species above named (fig. 96). Its general character is shown in the illustration, wherein the peculiar arrangement of the scales in scattered tufts along the nerves on the under-surface of the leaves, and nowhere else, is shown. The flowers have something of the blood-red colour of those of *R. Thomsoni*. Mr. Mangles' specimen came, we believe, from the garden of our excellent correspondent, Mr. Anderson Henry. The species was first discovered in Bootan by Booth, and described by Nuttall in Sir W. Hooker's *Journal of Botany*, vol. v. (*Gard. Chron.* 1858, p. 129). In its native country it is described as a shrub 12 to 14 feet in height, forming thickets on the mountain sides at an elevation of 8000—9000 feet, where in the winter season it is exposed to severe and continuous frost and snow. The plants associated with it more particularly are *Pinus excelsa* and *Rhododendron eximium*.

AMONG THE HARDY PLANTS.

ON my return from a short but most enjoyable run with my son among some hardy plant gardens, I cannot resist the pleasure of sending you a few notes on what we saw. I was anxious that my son—who I hope will carry on my gardening work when I am gone—should see some of the celebrated gardens where hardy plants are grown with success, and should be introduced to their owners. A business engagement taking me to Cheshire we began there, and having some spare time went to the nursery of Messrs. James Dickson & Sons, of Chester, in quest of the double *Primroses* which have been noticed in the gardening papers. The rain was too heavy (it was the stormy Saturday) to allow us to go round the garden, but there were many interesting plants in the houses, among them a number of hardy Bamboos from Japan, new to me, and likely to be attractive hereafter in shrubby borders. Mr. Shortt, the able and much-travelled foreman of hardy plants, gave me the benefit of an hour's chat over plants not easy to grow, and I at least got some valuable hints.

From Chester we proceeded to Edge Hall, Malpas, pronounced "Morpus" by the natives. The notes of the proprietor, the Rev. C. Wolley Dod, in the gardening papers, especially those on rockwork, had prepared me for an interesting garden, but much more had been done than seemed possible in the time. When a powerful mind, trained in habits of accuracy and observation, in full vigour, with leisure and means, brings its full force to bear on such objects as hardy plant collection, cultivation, and arrangement, great results may be expected; at Edge Hall they have certainly been achieved. I cannot attempt to name all or even a selection of the plants here got together. One important feature is that Mr. Dod has collected many interesting native plants and grown them so as to show them in their proper character and full beauty. There is a very great deal of rockwork, the stone for which has been carefully studied and selected; some is set apart for small and difficult alpine, where every chance is given them, but in large nearer the drive, and therefore more in view, rich flowering masses are allowed to luxuriate over the great stones with a beautiful effect. On one border there is a plant I could appreciate, having lately been working upon it—*Gentiana verna*; a patch not as large as a hand was simply all blue, with more than a hundred flowers expanded. The plants I most wished to see were of a family I have especially studied. Mr. Dod had told me of his *Lilium pardalinum*, in height and number of flowers much finer than I had ever succeeded in growing in the open border; there they were, more than justifying his description, their huge heads not much above the soil, but high enough to tell unmistakably what they would be; the soil is practically what I have been recommending for many years, and the situation as to shelter little different from ours. Whether the climate, cooler and moister than ours, is the cause of the stronger growth, remains to be proved, and shall be, if I can do it.

Several reflections force themselves upon one in a garden like this. Friends often say, "What an amusement your garden must be to you!" Amusement it is, and a very delightful one, but they never think of the amount of thought and hard work it

takes to make grow and keep up a large collection of hardy plants, especially alpinists. Then as death makes gaps in the ranks of our fraternity and we lose enthusiastic gardeners like Mr. Joad, and more recently like that great gardener, the Rev. J. G. Nelson, of Aldborough, it is pleasant to think that newer men come up to fill their places. And then how impossible it is for nurserymen to compete with amateurs in many plants, unless, indeed, like Mr. Backhouse, or the late Mr. James Veitch, they have places of their own which are kept sacred otherwise—specimens have to be sold or broken up.

Then how well it is that there are workers upon the same plants under different conditions of soil and climate in many parts of the country; plants easy to grow in one place are often difficult to cultivate in another,

had left their mark in places, but few gardens can bear losses better than Bitton, with its wealth of interesting plants, such as hardly any, if any, garden in the country possesses, and certainly no one can be a more charming guide round than the owner. Our next resting place was Clifton Down, with my kind old friend, Mr. Saunders. Sutton House garden is of a different school from the others we had seen, but perfectly suited to its situation; herbaceous plants and bulbs are not neglected. I have never seen *Pentstemon* or *Trifolium aureum* finer than in his side beds, but the strength of the front garden is in its bedding plants; these are perfectly selected and arranged, and filled in so as to keep up a constant most beautiful display. In the numerous plant houses he is very successful with *Orchids*; there

observer, so the flower was a great puzzle. At both of these gardens were many wonderful Ferns, some raised by Col. Jones had almost the character and soft beauty of *Todea superba*. The Clifton Zoo has benefited by his labours, as he has planted instructive beds each with the different varieties of the same species of Fern as a background for *Frimroses* of different colours, but each colour kept distinct. On our way home we stopped at Reading and looked over Messrs. Sutton's nursery; there were not many of the plants in which I am most interested, but the houses well repaid the visit, the perfect way in which they are kept and the many clever contrivances pointed out by our intelligent guide, the seed saving arrangements, the accurate pedigrees, and last, but not least, a house full of *Calceolarias* beautifully grown, and some with richer colours than I ever re-

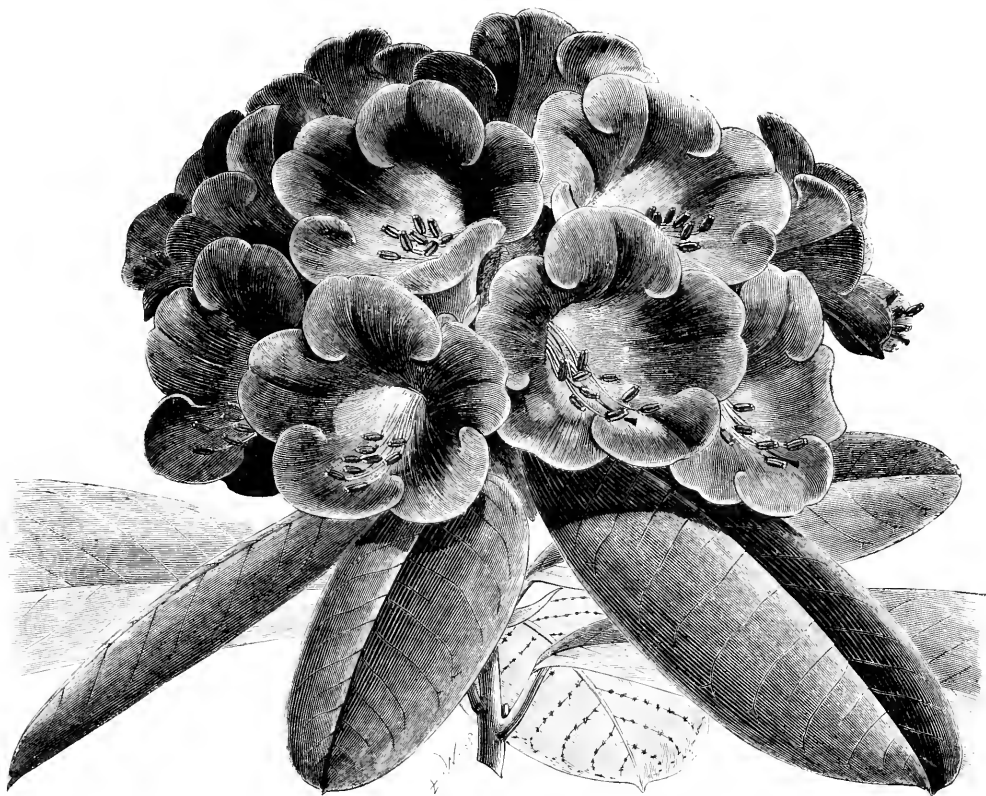


FIG. 96.—RHODODENDRON HOOKERI: FLOWERS DULL CRIMSON. (SEE P. 628.)

but seeing them under the different circumstances teaches the best mode of cultivation.

From Malpas we proceeded through a beautiful country to Bitton; I had not seen Canon Ellacombe's garden for some years, though "Bitton" on labels often told of valued past benefactions; it was a great pleasure to be again in a place which has had no dark ages—some sixty years of continuous hardy plant growing without a break. It is, as is well known, a wonderful garden; you come upon treasures in all sorts of places. It is quite different from Mr. Dod's, where "order reigns supreme," but the plants seem to like being left a good deal to themselves, and certainly look most happy. *Choisya ternata* on a wall, a fine large plant covered with white blossoms, filled the air with the sweet orange scent, and a *Eurybia*, with its white star flowers, a smaller though fine plant, was scarcely less sweet. The late hard winters

is a good collection of *Cypripediums*, beautiful varieties of *Masdevallias*, and many other species in bloom. In the mixed house Sikkim *Rhododendrons* were in perfection, the garden anywhere near their windows being scented by them. While with Mr. Saunders, Col. Jones, the great Fern authority of the district, took me to his aid to Mr. Fox's garden; a friend of his who accompanied us, and who seemed to know many plants and was a considerable traveller, told me of a *Lilium longiflorum* he had seen in Bermuda with seventy-two flowers on one stem. I pointed out how utterly out of character this was with *L. longiflorum* as we know it, but could not shake him; he said he knew *L. longiflorum* before he went out. Can any of your readers suggest any plant likely to grow in Bermuda with the flowers of the character of *L. longiflorum*. He hoped to find a photograph of the plant; as far as I could see he was an accurate

member to have seen before, were well worth seeing. Here our pleasant week's run ended.

While looking over the gardens we visited I naturally noticed the labels used. Some seemed very good, but still not perfect. As in fly-fishing the favourite fly most used is always considered the most successful, so in each garden the label adopted is found to be the best. I was glad to find that the label discussion, whether it discovers a perfect label or not, is considered to have been useful from having drawn attention to labels which were not generally known. *George F. Wilson, Hosterbank, Weybridge.*

HINT FOR SEED GROWERS.—Dr. Aitchison, in his paper on the *Flora of the Karam Valley*, tells us that the leaves of *Edwardia mollis* and of *Adhatoda vesica* are largely collected and mixed with the grain in the rice nurseries to hasten the process of germination by the heat generated during their decomposition.

GROSVENOR GALLERY.

ONE always experiences a sort of relief on visiting the Grosvenor after the Academy. There are fewer pictures in the former, there is some space between the frames, and the works of art are seldom either so high or so low as to make inspection almost or quite impossible. There are fewer lukewarm mediocrities at the Grosvenor than elsewhere; no doubt there are frequent failures, but even in the failures there is generally some evidence of a very serious effort towards success. Many of the Grosvenor pictures are peculiar, but then they are selected with peculiar views; they are like "peculiar" wine—nectar suitable to those who have a sufficiently cultivated taste, but poison to those long accustomed to old port and Bass' Bitter. Sir Coult Lindsay is apt to afflict his visitors with symphonies, harmonies, notes, nocturnes, and scherzos; but if a cultivated gentleman like Sir Coult can see or hear music in these things, they demand some sort of attention even from such enlightened beings as can often only perceive in them slate-coloured panels out of old street doors; the latter persons perhaps suffer from mental "nocturnes," and cannot distinguish a divine harmony or lively musical scherzo from the grindings of a street organ or the cat-call of a street whistler. No. 2 in the Grosvenor Gallery is a "Nocturne, in Blue and Silver," J. M. Whistler. This work is lead-coloured; towards the top there are a few white spots, these are the silver; ten minutes would possibly be sufficient to print (or play) this nocturne, ten hours to paint the lead-coloured ornaments on the gold frame.

Passing portraits by Sir Coult Lindsay, H. Herkomer, F. Hole, S. Hodges, and R. Lehmann, we come to the excellent sea piece by H. Moore, 24, titled "Diary Weather." Though very rough, this is a really admirable picture of a stormy sea under a heavy sky. In 30, "The Storm Cloud—West Lynn, North Devon" (as well as in 9, "On the Road to Montev, from Mentone"), Mr. Cecil Lawson appears to us to show a marked advance on his previous works. 33, "Shooter's Hill, Pangbourne," is a good and notable landscape. 35, "The Shulamite," by R. Spencer Stanhope, is a "peculiar" picture, reminding the spectator of some of the early Italian masters; there appears to be good work in it, but the flowers, of which there are many, are all badly done, and this makes one lose confidence in the other part of the work. 42, "Christmas Roses," by W. J. Mackley, is an excellent picture of pure white-blossomed Hellebore resting on snow, with a heavy wintry sky for background. 48, "Harmony in Flesh-colour and Pink—Mrs. H. B. Meux," J. M. Whistler. We suppose it is possible to have a harmony in flesh-colour and "pink." This "harmony" is a full-length and good, though very rough, portrait of a lady in a phenomenal frame. 54, "Early Attentions," a small figure subj. et, by L. Alma Tadema, R.A., notable for the background of garden Poppies, which are admirably painted. 55, by the same artist, is a life-size portrait of Ludwig Barnay as Marc Antony. Other pictures by this artist are 59, "Hans Richter;" 63, "A Torch Dance," remarkable not only for the figure and its treatment, but for the bronze covered gates. 61, "An Audience," a picture containing several faces excellently drawn and painted; the silver armet of one of the figures is well worthy of notice. In 56 and 58 we have decorative panels by W. Hughes, termed "Pomegranates" and "Oranges." These, though decorative in one sense, are natural in another, and we consider this to be wrong in Art. A decorative panel should be entirely conventional. Mr. Hughes' pictures are conventional so far as the background of gold and artistic curves (different from Nature), are concerned; but otherwise, in the perspective of the leaves and fruits, the panels are purely natural. Both plants are made to differ essentially in habit from the plants they are meant to represent, and we consider this cannot be right. To make branches stick up when they ought to hang down, and to put a graceful curve to a plant which is naturally rigid, must be wrong. We make these remarks in reference also to two other pictures, by the same artist—287, "Golden Pippins" and "Cob-nuts." To make even an Apple stick up when it ought to hang down is in every way as bad as making a bunch of Grapes stand up perpendicularly from a Vine. The chief character of a plant, as a decorative object, rests in its habit, whether prostrate or climbing, rigid or lax, and to alter or invert these habits is as wrong in principle as to paint

figures and trees upside down, or an Oak climbing round a Convolvulus. In the best days of Art these points of habit were strictly attended to. 62, "Danaë at the Brazen Tower," E. Burne Jones, is rich in colour, and displays Mr. Jones' knowledge of the figure; the perspective, however, is incorrect, for the heads of the distant figures should be on a level with the head of the figure in the foreground; the ground is clearly meant to be level, and we can see no excuse or necessity for the perspective being wrong. 67, "Scherzo in Blue—the Blue Girl," J. M. Whistler; this is another life-size figure, not of a wood-painted ancient Briton, as might be inferred from the name, nor a picture of a girl dressed wholly in blue. It is a "scherzo," or "blue-girl" (?) in another phenomenal frame.

The next subjects, No. 68, "Mrs. G. Whitley," by J. E. Millais, R.A., and 73, a portrait, by H.R.H. Princess Louise, are not "scherzos," but admirable pictures, both worthy of close inspection and study. Mr. Richmond, in 77, sends a portrait of Mr. W. E. Gladstone, M.P., which is by no means a success. 86, "Mrs. John Pitt Gardner," by E. H. Corbould (an artist whose works are now seldom seen in exhibitions), is an excellent portrait picture, full of well-drawn and correct architectural and decorative details. 89, "Miss Flamborough," W. Holman Hunt. This picture is so hard, staring, crude, and raw, that Miss Flamborough really looks ready to fly out of the frame. If this elaborated obtrusively coloured picture is Art, what can Mr. Whistler's shadowy "scherzos" be? It would be well for the visitor at this point to compare the adjoining pictures by H.R.H. Princess Louise, Mr. Millais, Mr. Whistler, and Mr. Hunt. 106, "Nocturne in Black and Gold—Entrance to Southampton Water," J. M. Whistler. The black colour, we suppose, is midnight, and appears to be very truthful; the few yellowish spots towards the top of the picture may be the bad gas of night-hidden Southampton; the meaning of this remarkable work is, however, not immediately obvious, we will look at it again. 127, by the same gentleman, is another life-sized portrait, a "Harmony in Black and Red," with very little red. In this room, the East Gallery, there are several works by Mr. E. Burne Jones, all of a mystic ununderstandable character. 139 is "Earth." 144, "The Tree of Forgiveness," a large, important unpleasant picture of a muscular but livid nude man and woman embracing, the latter squidding herself out of a crack in a tree-trunk. 145, "Perseus and the Graie"—the three sisters—who dwell at the world's end, but had only one eye between them. Perseus is shown in the act of meanly taking away this single eye. 157, "The Feast of Peleus."

The most remarkable of all is 175, "The Mill;" the "mill" itself is so subordinate in this work that the picture might with equal appropriateness be termed "the sky"—or "the grass"—it is a grim dance of solemn sisters in rainbow clothes; in the distance are a number of nude men bathing; we should like to learn the meaning of this work. The portrait of "Cardinal Manning," 166, G. F. Watts, B.A., suffers greatly when compared with the superb portrait of the same gentleman by Mr. Millais in the Royal Academy. 179, "After a Storm—Calm," H. Moore, is an excellently painted view of the sea from a long sandy beach; the work in this picture may be instructively compared with the "nocturnes" hang in the adjoining room; if this view of the sea is Art, where is the art of the nocturnes? In 208, "Autumn," Mr. W. J. Mackley paints a group of Grapes, hardly we think with the same success as his flower subjects. 214, "A Study of Poppies," David Bates, is by some mischance so unfavourably placed that an opinion of its qualities can hardly be formed. In the Fourth Room we have a few flower subjects; 233, "Azaleas and Pink Roses," Miss M. S. Storey, is by no means good; 237, "Portrait of the late George Eliot" (Mrs. J. W. Cross), by F. W. Burton, is interesting.

There are 332 pictures in the Grosvenor Gallery, and our limited space prevents further notice of them; a large number of the works show high art qualities and are well worthy of extended examination; the majority of even these we have been compelled to pass over. Such of our readers as have time may advantageously spend half a day in the Grosvenor Gallery.

THE AGRICULTURAL HALL.—We are informed that a Horticultural Exhibition and Market will be held in the Agricultural Hall, Islington, London, from July 24 to August 5 next, and at which every requisite in connection with the garden will be exhibited.

ROCKERY PLANTS IN FLOWER.

A FEW words on some of the alpinas now, at the end of the first week in May, in flower in my rockery, may be acceptable to those who are busy stocking rockeries of their own, and I may add what I have before said, that alpinas which can be cultivated in this damp, cold, and unless climate, can be cultivated in any part of England in places not hopelessly shaded by trees or surrounded by houses.

Veronicas.—The first in flower was pectinata, the blue and the red; there ought to be a white one, and I wish some brother gardener would help me to the possession of it. The plant is an ornamental one, in or out of flower, doing best on flat hollows on the rockery, where it must be supplied with occasional top-dressings of rich, light soil, to keep it dense, and to prevent it from straggling in search of nourishment. One generally sold as *V. prostrata* is of dwarf habit, and an exceedingly profuse flowerer, the thick tufts of flower being of a light mauve colour, and being produced in abundance for about six weeks. It is said to be a variety of *V. teurcium*, but flowers more than a month earlier, is much dwarfer, and to ordinary observation is quite a distinct plant. It increases rapidly without being obtrusive, and is in every way neat and useful. *V. reptans* is the dwarfiest of the species, carpeting the surface either of soil or stones rapidly, and neither leaves nor flowers rising more than half an inch from the surface. It must have moisture. It has been recommended for growing bulbs through, but I should think it is too compact a grower, and intercepts too much nourishment on the surface for that purpose. I have received it from abroad by the name of *Lodoniana*—whether rightly named or not I cannot say. *V. glacialis* is a very neat plant, with compact tufts of leaves close to the ground, and erect flower-stalks rising to a height of 2 inches, bearing several pale blue flowers of fair size. It does well on any part of the rockery. A loose-growing, prostrate Veronica, with pale lavender flowers, not unlike in size and form those of *V. gentianoides*, came to me under the name of *multifida* and *incisa*, and has I think other synonyms. It is light and elegant in habit, and does well anywhere. *V. caucasica* is not unlike it either in habit or colour, though sufficiently distinct. *V. lanceolata* is half way in habit and appearance between the two last and *glacialis*, and is a quite distinct, pleasing variety. *V. satyroides* would be a very good dwarf shrubby plant if it were not so shy in producing flowers. It much resembles in appearance *V. saxatilis*, one of the best of the species for rockeries, both the foliage and the large clear dark blue flowers being very ornamental. It does not increase too fast, but hits pulled from the side root readily if not rooted already. Of several varieties which it has the best are *V. Balfouriana*, with rich purple, and *V. Grievei*, with pink flowers. *V. rupestris*, which must not be confused with *saxatilis*, is too well known to require notice.

Dryas octopetala is not difficult to cultivate or increase, and is worth a place for its neat leaves; it has a small, close-growing variety, wrongly sold to me as *D. tenella*. A finer and more showy plant, but more difficult to root from either layers or cuttings, is *D. Drummondii*, an American plant, which after three years' growth extends over about 2 feet square on my rockery. The flowers are borne on upright stalks 4 inches long, and are light yellow, more plentiful but smaller than those of its European brother.

Etrichium nanum, the flowers of which strongly resemble those of *Myosotis rupestris*, but are larger, and borne close to the surface, is flowering freely. Plants sent by post from Switzerland in September all died, but two obtained from Fröbel in November have done well in the crevices of elevated blocks of limestone, where they can root into deep cracks.

Arcebia cchoioides, planted close against a backing of limestone facing south, has flowered most profusely, and the first flowering is nearly over. From one of my three plants I have just cut fourteen flower-stalks, being told that by this treatment shoots may be obtained which there is a chance of striking. When the flower-stalks were removed there remained visible only five lanceolate leaves, all rising from the same underground base.

Loiselcuria (*Azalea*) procrembers, sent me by Mr. Loder from the Highlands in autumn, and planted by his advice on a flat rock with a shallow layer of peat, is flowering, and seems at present quite established.

Aronicum glaciale, with large Composite flowers like those of *Doronicum*, is remarkable for its dwarf

growth, the flowers opening on the surface of the ground almost without a stalk.

Spring Phloxes I sent notes upon last year. I have to add to the number a most elegant and pretty one with pink flowers, not unlike those of *P. verna*; but the habit of the plant is compact and shrubby. It was given me in the autumn by Mr. Durlidge, of Dublin, and is named *P. amœna*.

P. procumbens seems to be one of the plants which likes a mild winter. It is looking healthy and bearing its short-stalked tufts of mauve-coloured flowers in abundance for the first time for four years. I find that it is a plant by no means generally known. *P. divaricata* is an elegant plant of which it is difficult to have too much, and where the slugs have been kept under is flowering very well.

With *Androsaces* I have followed carefully the excellent directions given by Mr. Corvein in the *Gardeners' Chronicle* for their cultivation, and most of them seem likely to succeed.

Globularia tricosantha is bearing its curious blue buttons more abundantly and earlier than I ever before saw—again the fruits of the mild winter.

Gypsophila cerastioides, either raised here, or given me as seedlings two years ago, has now grown into fine plants a foot square; it is a very desirable plant for the upper flats of a rockery, having a close habit, and pretty nearly white flowers.

An Iberis, probably biennial, sown last spring as *I. gibraltaria hybrida*, is making a grand display out of spare corners amongst the stones, the colour of its very large flowers being rich light purple. It can hardly be expected to be hardy here in severe winters, but late frosts do not injure the flowers.

Houstonia corœula and its white variety are now in full flower; a correspondent lately expressed surprise that it flowers so well in a dry sunny part of the rockery. I have been warned by those who have had long experience of it to avoid such situations, and to choose those which are moist and sheltered, as under the former circumstances it will certainly flower itself to death.

Though I have many other flowers now out which I should like to record, I may be asking for too much of your space, and will conclude with a few words on *Sandworts*. *Arenaria balcanica* is now established all over my sandstone, but does not thrive on limestone, not because its roots have any wonderful chemical power of extracting lime out of the stone and poisoning the plant, but because they cannot lay hold of the surface as they can of the soft sandstone. It looks very well on rough sandstone steps, growing in the angles and running up the perpendicular sides. The finest of the species I consider to be *A. purpurascens*, flowering most profusely, and covering as much room as is granted to it with its large purple-tinted flowers. *A. verna* is certainly hard to establish in cultivation, though I succeeded with some plants out of many; a good substitute for it, which is very easily cultivated, is sold as *A. triflora*, and is a very pretty rock plant. Of other plants now in flower I will do no more than name and recommend *Cytisus Ardoisi*, *Erodium petreum*, *Thalicttrum anemoneides*, *Hippocrepis comosa* and *helvetica*, *Itichinisia alpina*, *Anthyllis montana*, and *Linum alpinum*. I cannot, however, omit the mountain Pinks, the earliest of which, *Dianthus glacialis*, is a gem amongst alpine. I have one, not larger than my hand, on which I to-day counted up to seventy expanded flowers, each as large as a sixpence, and of the clearest rose colour, the height of the stalk being less than 2 inches. *C. Holly Dod*, *Edge Hall, Malpas, May 6*. [Kindly let our readers have a similar record later on. Ed.]

BUFFALO HORN MANURE.—The invigorating and sustaining properties of horn shavings as a manure is being forcibly illustrated at Chiswick in the case of zonal *Pelargoniums* and tuberous-rooted *Begonias* in pots. The wonderful wealth of foliage allied to a sturdy growth seen in the plants, and the splendid trusses of flower seen on the *Pelargoniums* are correct indications of the value of the manure. *Chrysanthemums* grown in soil with which the horn shavings have been mixed grow vigorously, and retain their foliage to the last. The pity is, that the high price charged for it makes its general use too expensive to plant growers. If the price could be cheapened, the vendors would do a larger and doubtless equally remunerative trade. It should be used only with quick-growing succulent plants; or, at least, with great care in the case of slower growing subjects. Its value is probably mainly due to the ammonia it contains.

DOWNSIDE, LEATHERHEAD.

DOWNSIDE, the residence of William Lee, Esq., is situated about a mile from Leatherhead, and within easy distance of London. Here, during the last few years, Mr. Lee has been forming a collection of Orchids that bids fair to become one of the most select and important in the kingdom. In the first place the natural advantages of his residence are in his favour. The air is pure, and the houses are built on the side of a rising piece of ground, protected to a certain extent from high winds. They are in number about a dozen, mostly of the span-roofed form, of recent construction, and of course embodying all the most recent improvements.

Two of the most important requisites in Orchid culture are here provided in a manner as near perfection as it seems possible to provide them under artificial conditions. The first is ventilation, and the second atmospheric moisture. You can walk through all the houses here, linger over and admire the splendid tints and quaint forms of the flowers, and feel no sense of inconvenience, even while the air is sufficiently moist for the healthy growth of the plants and the perfect development of their flowers. The paths are all formed of hard-burned grooved tiles, so that each time they are watered the water finds its way into the shallow grooves, and the surface of the paths is practically dry while evaporation is going on from the furrows. In some of the houses the stages are also made to contain water, which has a cooling effect in hot weather. In most of the houses, too, there is a temporary stage placed above the permanent one, the legs of the former standing in shallow basins of water, so that before any slugs, wood-lice, or other pests can reach the plants they must swim first.

The side ventilation is abundant, and the ventilators are so arranged that the air passes over the hot-water pipes under the stage before it is distributed amongst the plants. The roof ventilation is also ample, the ventilators being at the ridge. The blinds, fixed to rollers, run on laths fixed to supports about a foot from the glass. This plan is now always adopted in the best-managed collections. Capacious cement tanks have been formed under the stages to catch all the rain-water, and as supplementary tanks have been formed to hold other water for "damping down," there is always sufficient rain-water for watering with. The heating arrangements have also been well conceived and carried out; even the cool-house is furnished with four rows of 4-inch pipes, and as this is a narrow lean-to, most people would think it was overheated; but it is always best to be able to maintain the requisite temperature during severe frosts without over-heating the pipes.

The first house is span-roofed, and we enter it from a greenhouse of the same construction; it is specially adapted for *Lycaste Skinneri*, and is kept about 5° warmer than the *Odontoglossum* or cool-house. There are some splendid forms of *L. Skinneri* in the collection. The best, when I saw them some weeks ago, was a fine specimen with nine flowers. *L. Skinneri rosea*: they are very delicate rose, the sepals rosy-red, and the flowers 3½ inches across; a variety named *L. purpurata* had very bright purplish-crimson sepals and lip of a darker tint; *L. delicatissima* was also a very pleasing flower. There are, of course, numerous other plants which succeed in this temperature—about 55° at night. A form of *Odontoglossum cordatum* had its sepals and petals saffron, marked with yellowish-brown blotches and spots; *Cymbidium eburneum* was growing and flowering freely, potted in good loam; *Cattleya gigas*, passing through the resting period, the roots being as dry as possible without telling upon the constitution of the plants; *Dendrobium Jamesianum* and *D. infundibulum* occupied a choice corner by themselves, showing by their healthy pseudobulbs that they fully approved of the temperature and treatment. *Odontoglossum coronarium*, a species not easily suited as to position and treatment, was doing well suspended near the glass. *O. nebulosum*, so liable to damp off when the bulbs are in course of formation, succeeds in this house; and a choice white form, probably *caudulatum*, was flowering.

The next, a similar house, in the range is for *Icandrobium*, and a beautiful sight they present, suspended from the rafters and arranged on the stages—beautiful forms of *D. crassinode*, *Barberianum*, and *D. Wardianum*, with the stout pseudobulbs furnished with flowers 4 inches across; the old *D. nobile* in many fine varieties—of which the variety *Wallichii-*

anum is the most noble—held a prominent place. *D. Ainsworthii* had made long, well ripened growth, producing full-sized handsome flowers. *D. Findlayi*, *anum* here, as in the fine collection of Sir Trevor Lawrence, is proving itself to be a first-class *Dendrobium*, so distinct in growth and so charming in flower. Amongst others not so commonly seen in flower were *D. Veitchii*, a singular species; the reverse of the sepals and petals are very hairy, and of a yellow colour, the deeply-furrowed lip being marked with deep purple lines; *D. helyosumum*, desirable for its perfume, the sepals and petals greenish-white, with a greenish lip, the front portion being yellow. There are of course other *Oreobliis* in this house, which thrive under the same cultural conditions. *Coleogyne ochracea* had eight pendulous spikes, furnished with lovely tinted flowers.

The *Phalenopsis-house* comes next in order, and was the most interesting structure at Downside when I was there, and more than any other exemplified the discrimination of Mr. Lee in selecting the best varieties rather than merely getting together a collection. It contained flowering examples of *P. Schilleriana* of the most splendid description—I measured flowers of this species rather more than 3 inches across, of lovely and varied colours; *P. Stuartiana*, of which there are three fine examples—one had a branched spike, on which there had been twenty flowers; the pure white petals of one variety were marked very slightly with small violet spots. There were of course numerous fine forms of *P. amabilis* and *P. grandiflora*, the last of the purest white; *P. Drymerianum* was also in flower. This is very distinct, the sepals and petals being white, tinged with purple near the base, the lips rosy-purple with a bronzy-yellow suffusion. Of *P. leucorhoda* there is a fine healthy plant, which bore a many-flowered spike. *P. casta*, another supposed natural hybrid was also in flower. *Saccolabium* succeed well in this house, and there are large healthy specimens of many rare and fine forms. *Vanda Denisoniana* is also here, in the form of two fine specimens. There are also good flowering examples of *Aerides Lecaenum*, a species introduced by the Messrs. Low, but which first flowered in this collection; the flowers are of a deep purple colour, thickly placed on short curved spikes. It is very distinct as a species, and very fine flowering.

From this house we enter a large span-roofed Cattleya-house. Arranged on the centre stage were some remarkably well grown *Vandas*, amongst which *Veitch's form* of *V. stavis* was most conspicuous, with two long spikes, on one of which were fourteen very large flowers. These plants seem to luxuriate in the atmosphere of this house. Here also was a grand plant of *Calanthe Dominii*, and in flower were some choice forms of *C. Trianae*; the variety *Prince of Wales* was the best. The sepals and petals of this form are of a rosy-purple tint, with the deepest crimson-coloured labellum I have yet seen. A recent form, selected in the York nurseries, and named *Backhouseana*, was remarkable for a peculiar purple blotch in the centre of the petals.

We now for the first time pass into the open air, and enter a small span-roofed structure, used partly as an hospital, but more particularly for growing *Odontoglossum Rozzlii* and *Cyrtidium niveum*, the first remarkable for the large size of the flowers. A long lean-to comes next in order, and is almost entirely taken up with *Masdevallias*, comprising some remarkable specimens, and the finest varieties that can be obtained. In position it faces the north, and the fine health of the plants shows how well the arrangements as to abundant ventilation, plenty of atmospheric moisture, and other cultural requirements meet their wants. I would like to mention *Masdevallia Cheloni* first, because as seen here it has developed qualities far superior to the varieties grown and exhibited by Messrs. Veitch. I was disappointed with it then, but must now congratulate Mr. Sedon on raising not only the first, but a first-class hybrid *Masdevallia*. It is a cross between *M. amabilis* and *M. Veitchiana*, the last-named being the pollen parent. It is best described as a dark form of *M. Veitchiana* with the colours reversed on the lateral sepals, the bright yellow being outside and deep orange-scarlet inside. *M. Shuttleworthii* is also proving itself to be a charming species; there were two plants in flower. *M. polysticta*, with its quaint densely spotted flowers, with three golden tails attached to the sepals; *M. Veitchii*, very rich; *M. ignea*, flowering freely, the best form being *M. ignea*.

gigantea. Here is a large healthy form of the true Bull's-blood form of *M. Haryana*, from the late Mr. Dawson's collection. *M. Houtteana* has buff thickly spotted flowers with purple tails; *M. macrura* in flower, true, and the true *M. chimera* showing.

In the next house, which is a span-roofed one, for *Odontoglossums*, there were scores of fine species and varieties in flower. *C. Wilkeanum* is one of the most distinct of the yellow-golden forms; there are three plants of it. Of *O. Rosii* majus there were some charming flowering plants, the finest variety being rubescens. Yet another Cattleya-house, in two compartments, one hotter than the other. In the coolest *Zelia harpophylla* was in flower, and in the next several forms of *Vanda* tener, well exposed to the light, grow well and flower freely. Besides this range there is yet another, full of *Odontoglossums*; but there is just space to mention that in one portion of it, which is kept warmer, *Odontoglossum citrosum* was doing remarkably well on the south side, where the plants are well exposed to the light; and on the north side of the house there is an equally satisfactory batch of *O. vexillarium*. The forms of *O. Alexandri* are now so numerous that it would require half a page to give the names only; we must therefore conclude with thanking Mr. Lee for allowing us to see his plants, and to engrave the noble *Odontoglossum lyroglossum*, figured on a separate sheet in this number; and we must congratulate Mr. Woolford, his gardener, on growing the plants so well.

PILRIG PARK NURSERIES.

A HYBRID *Rhododendron* (between *R. glaucum* and *ciliatum*) has been raised by Mr. Grieve, which is likely to prove one of the prettiest of small *Rhododendrons* for rockwork. The flowers of this new variety are pinkish-white, the insides almost pure white, and glistening beautifully when seen in sunshine. They are little more than an inch across, and of excellent form. The foliage is slightly fragrant, and the habit of the plant promises to be small. Altogether, I am justified in saying a great deal in favour of this new addition to small alpine *Rhododendrons*. Amongst large flowering *Rhododendrons* of the ciliatum section the Countess of Haddington, white tinted with pink, and more trumpet-shaped than *ciliatum* (a hybrid between *R. ciliatum* and *R. Dalhousie*) is beautiful, and is probably quite hardy in the milder parts of the country. Of *R. ciliatum* itself there are young plants by the thousand. A collection of seedling varieties of *Azalea mollis* of many shades of orange, pale yellow, pink or salmon, and large well-formed flowers, will be a valuable addition to alpine shrubs, as the Silver Lombardy Poplar will be to trees. A specimen of this new variety with silver-lined leaves is already fully five feet high.

Amongst some rare alpine plants there is a good stock of *Aciphylla squarrosa* (the Wild Spaniard), *Saxifraga MacNabii*, *S. Stracheyi*, and *Senecio pulcher*. There is a large bed of *Primula denticulata* with seedling varieties, and a beautiful collection of *Primula Sieboldii* and its named varieties. Though the latter are here grown under glass, they may well take a high place amongst hardy plants in sheltered positions. Good seedling kinds of white *Iberis*, much earlier than *Iberis corifolia*, are already coming into blossom. There is a fine plant of *Saxifraga bronchialis* with *Draba*-like foliage, and also a plant of *Ranunculus Seguii*, which promises to be a good alpine. *Saxifraga Wallacei* holds its own as the best of that section of *Saxifragas*; it is here grown in large quantities, as is also a good form of *Helleborus niger*. There are several pretty varieties of *Ampelopsis*, and a stock of fifteen or sixteen imported kinds of American *Rubus* for fruiting. *Dahlias* of many kinds, double and single, including *Paragon* and the *Cactus Dahlia*, are grown; and some very effective border *Auricularis* are now in blossom. The collection of *Finks* and *Carnations* later in the season is sure to be well worth seeing, as so many good kinds, old and new, are to be found here. *Pansies* and *Violas*, which may perhaps be called the speciality of Messrs. Dickson's nurseries, will not be in full beauty for a short time longer. So far this season promises to be a favourable one for them. *C. M. Owen.*

LATHYRUS LYBIUS.—This is a dwarf growing species, throwing out several shoots of a semi-trailing character, and bearing spikes of orange-coloured flowers, a great number of blossoms being set in a spike. It is a hardy herbaceous perennial and can now be seen in the hardy border at Chiswick. Lovers of hardy plants should make a note of it.

Orchid Notes and Gleanings.

CORYANTHES MACRANTHA (ELEGANTISSIMA).—Unless I am greatly mistaken, the Orchid so carefully delineated in the last number of the *Gardeners' Chronicle* under the name of *Coryanthes macrantha* is in reality one of the many varieties of *C. speciosa* or *C. maculata*. The flowers in your plate—which I presume are represented of the natural size—are much smaller than those of the true *C. macrantha*, as the same was originally described and figured (from an imported specimen preserved in spirits) by the late Sir William Hooker under the name of *Gongora macrantha* in his *Botanical Miscellany* (ii., p. 151, t. 80). Some flowers produced at Knypersley—from a plant which Mr. Aiton gave me at Kew, circa 1835—were quite as large, and astonished me more than any Orchid blossoms I have ever seen from that day to this. Mere size, however, counts for little as a specific distinction. This latter, in the case of *C. macrantha*, depends on the presence or absence of a number of plaits or ridges,

Leatherhead. It has some resemblance to *O. Wilkeanum*, but the coloration is different. The individual flowers measured not far short of 4 inches in diameter, and had oblong lanceolate coarsely toothed sepals and petals of a bright yellow colour, with bold blotches of chestnut-brown. The lip is relatively small, twisted, fringed and toothed, its disc marked near the base with radiating keels, projecting at the ends into sharp teeth. The sides of the column are prolonged into similar teeth, the whole arrangement suggesting a rat-trap, only the animals to be caught are in this case insects, and the trap is of so humane a character that the prisoners can escape and render good service to another flower. We await further particulars of this noble species.

THE HOLLOWAY ORCHIDS.—We learn from Mr. B. S. Williams that he proposes to hold a grand exhibition of Orchids for two months in his nursery at Holloway. The display, besides the great number of young plants coming on, will include the grand specimens which Mr. Williams has so long been in the habit of exhibiting at various exhibitions, and which we understand, will not this season be sent the usual round. Though we can sympathise with exhibitors, we do not think the public will be the gainers.

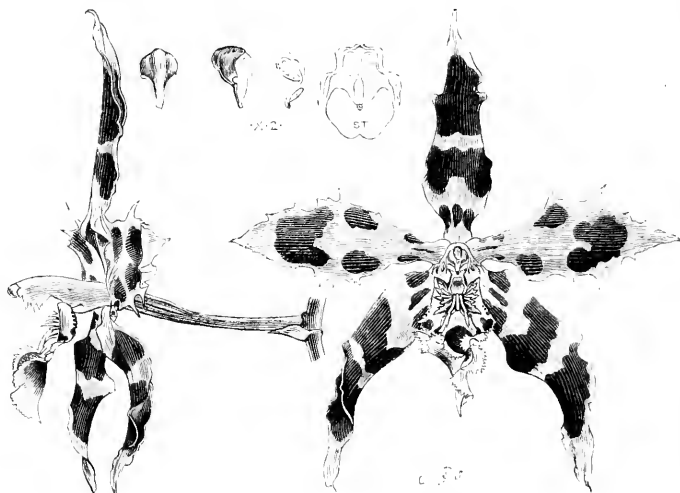


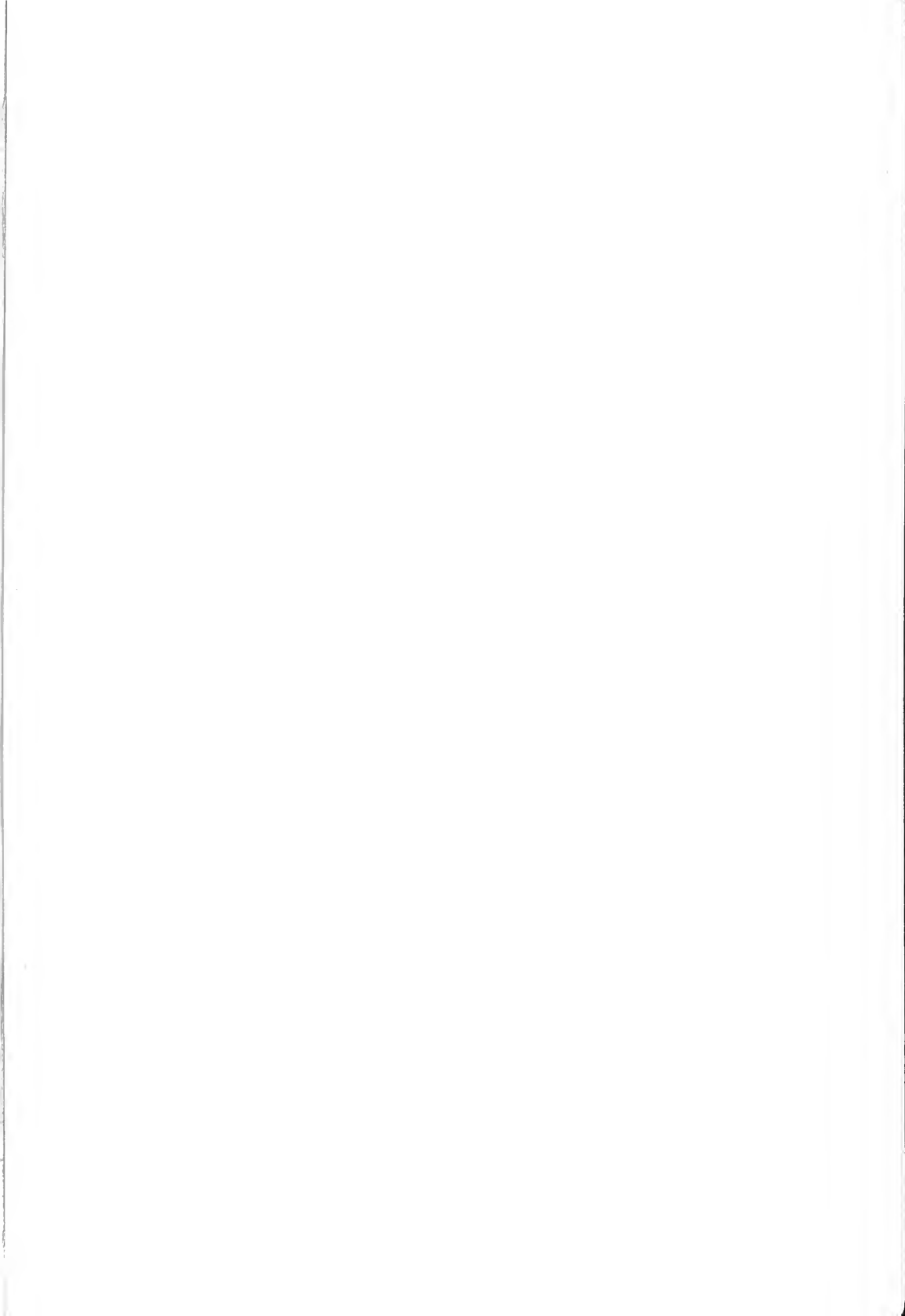
FIG. 97.—ODONTOGLOSSUM LYROGLOSSUM.

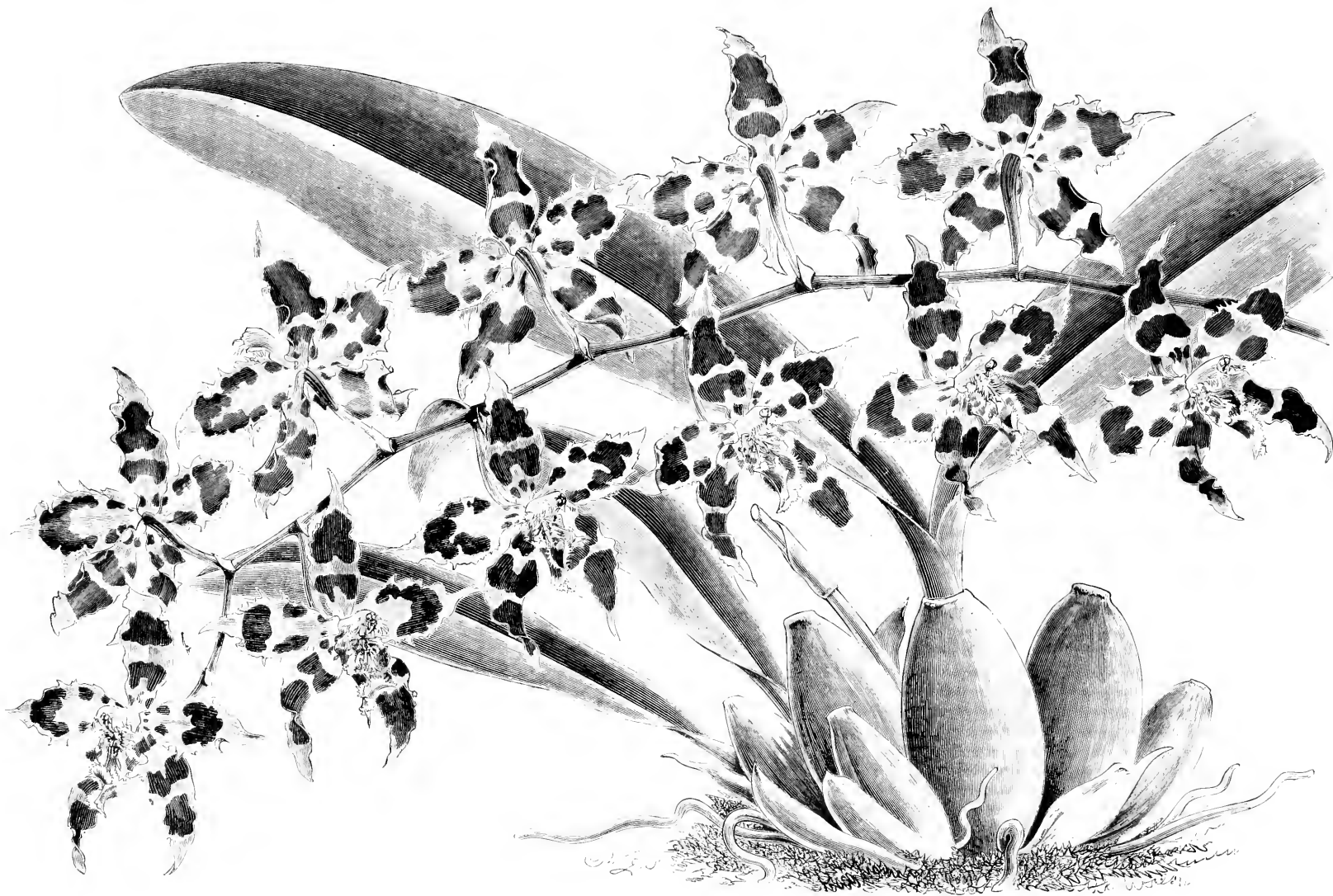
deep as a Gothic moulding, by which the mesochilium (mid-lip) is horizontally divided. Nothing of the kind is shown in your figure (p. 593) nor mentioned in the accompanying letterpress, where you speak of the central portion of the lip as "a thick stalk-like process, bent downwards, and parallel in direction to the column." But the place where the ridges or "crinkles" ought to be is unintentionally indicated by an arrow, slightly inclined across the mesochilium, and which will be found in the upper right-hand flower of your plate of dissections. I am glad that you have recalled attention to this, the most wonderful of all Orchid genera, for it was rapidly passing out of sight and out of mind, owing to three adverse circumstances, viz., 1, the flowers, though freely produced, are fleeting; 2, they cannot be effectively staged for a grand show; and 3, the plants require more heat than is now accorded to the reigning favourites. *James Bateman, 9, Hyde Park Gate South, S.W., May 6.* [Prof. Reichenbach tells us the plant is his *C. elegantissima*; it certainly differs, as was noted when the plant was shown, from *C. macrantha*. *Ed.*]

ODONTOGLOSSUM LYROGLOSSUM.—This is one of the finest of the newer varieties, but one about which little is at present known. How fine a thing it is may be judged from the illustration on a supplementary sheet, which represents a plant that flowered recently in the collection of W. Lee, Esq., of

ONTON HALL, DEVON.

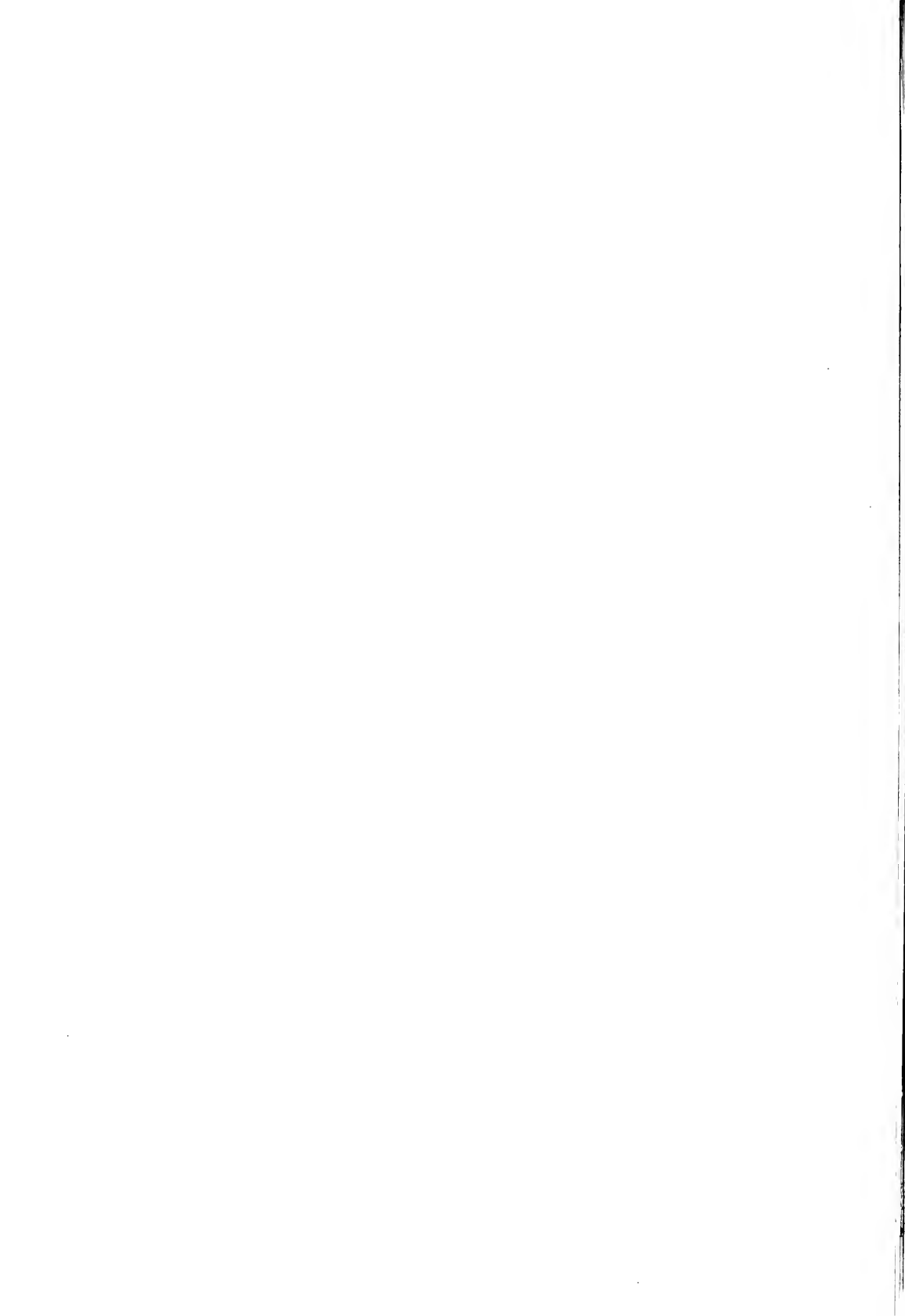
THIS charmingly situated Devonshire residence, the property of E. Fairfax Studd, Esq., lies some 4 miles from Exeter and about 2 miles from the village of Kenton—a village having every appearance of thrift and comfort in its exterior aspect and surroundings. The village is notable for its church of Exminster stone and its tower of over 100 feet in height. The drive to the Hall is of the most picturesque (and this in the truest sense of the term) kind, where the botanist or lover of wild flowers might spend hours, or even days, exploring the adjacent groves and plantations, which abound largely in the richest flora of South Devon. A slope covered with trees and dense underwood upon one side, and a winding valley upon the other dotted with oaks or wild cherries in flower, and further beautified by a lake or running stream, are among the sights that arrest the eye—吸引 the fancy until one has traversed a lengthy avenue and approaches an ornamental bridge near to the Hall. But why a bridge? There is a lake below it, and at some distance in the opposite direction a clear stream of water—clear as crystal—dashes down a waterfall. Ah! It begins to dawn upon the visitor that this crystal flowing stream and lake are not the work of Nature; but as a piece of artificial work it so nearly resembles a scene in a Highland glen that at first sight





ODONTOGLOSSUM LYROGLOSSUM

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the artificial has a remarkable resemblance to the natural, so successfully has the work been executed. Nor would it surprise one to find a Scotchman, a native of a country that can boast of unrivalled scenery, the head gardener at such a place, where Nature is so faithfully represented.

The Hall is but a little distance from the bridge referred to, but at a much higher elevation. Groups and single specimens of hybrid Rhododendrons are extensively planted (in some cases in large breadths) upon both sides of the carriage drive, between the curve from the bridge and the carriage front. Patches of Rhododendrons only, does the reader think? No; the grounds bristle with the best of the Conifer family, and the woods in the distance budding into leaf make a lovely background to the flowering shrubs. Of Conifers, there are many noble specimens of *Thuja occidentalis*, *Abies cephalonica*, *Picea morinda*, and a magnificent specimen of the Lucombe Oak. The latter-mentioned specimen stands out prominently by itself, in a plot of luxuriant green,

other choice spring flowers, make a fine display in pots; and a strain of blue *Cineraria*, called "Oxton Excelsior," is a remarkably showy variety for the embellishment of conservatories all through the spring months. The show of *Cinerarias* alone make a creditable exhibition in themselves.

There is a *Camellia*-house in the terrace garden, containing a good collection of *Camellias*, which supply flowers abundantly in the early part of the season. The flower and terrace gardens are neatly laid out, especially the scroll designs for carpet bedding, in which Mr. Ayson takes an interest; but at present there is no design ever conceived by the art of man half equal to the natural undulations of the grounds and park, so beautifully furnished with trees and shrubs. Fancy a chain of natural terraces beyond a valley furnished with ornamental trees—a group of noble Scotch Firs by the margin of the stream, before referred to—single specimens of *Pinus insignis* and *P. excelsa*, flowering *Magnolias* and *Tulip*-trees, Cedars of Lebanon, and other rare specimens inter-

with a striking white eye, and with about 2 or 3 inches of growth above the flowers, so that leaves and flowers were about equally mixed, giving a most pleasing effect—the smaller leaved variety, *V. minor*, and dwarfed grower, having pale blue flowers, very pretty, no doubt, but much behind its larger leaved rival in point of effect. Why are these *Vincas* so seldom seen or recommended for planting *en masse* in the spring garden? I will not, however, further dwell upon this point, but proceed to the gardens proper, which are two in number, and both of which are in high cultural order.

In garden No. 1 hardy fruits and vegetables are successfully grown, as any one can see at a glance upon entering the garden. Many of the borders, too, are beautified with herbaceous plants and hardy florist flowers, of which Mr. Ayson has a considerable collection. In the glass department there is a good collection of stove plants and Orchids, several of the latter in flower, and a fair collection of New Holland plants in a cool house by themselves. The stock of soft-wooded plants, especially the decorative or show *Pelargoniums*, is beautifully grown and neatly



FIG. 98.—OXTON, NEAR KENTON, DEVON: E. FAIRFAX STUDD, ESQ.

bounded by a dense wood, and on the Hall side is the "Lime avenue" (now obsolete) through which George III. rode upon the occasion of a visit to Oxton. Near to the Lime avenue there is a considerable collection of Conifers, arranged in what will be best understood as the pinetum style. The most noteworthy are *Thuja Lobbii*, *Pinus muricata*, *Picea Menziesii*, *Cupressus Lawsoniana*, *Wellingtonias* of various sizes, *Cryptomeria japonica*, a perfect specimen; *Libocedrus decurrens*, *Abies Nordmanniana*, and a fine group of *Pinus insignis*, which have undergone the novel experiment of being cut back. The trees, having overgrown their situation, were spoiling each other's symmetry, and with hopeful courage Mr. Ayson has cut them back into pyramid shape, rather than destroy them or thin them out. Mr. Ayson has experimented upon Pines in this way before, and hopes to be successful again.

The conservatory attached to the Hall is literally festooned with beautiful creepers, and the walls are draped with two varieties of *Hellotrope*, which perfume the whole building with an agreeable odour, besides producing hosts of flowers for cutting "all the year round." The varieties are *peruvianum* and *Miss Nightingale*, Carnations, forced Roses, and

mixed, so as to give a variety of tints, independently of flowering shrubs of the dwarf kind, which in so good a climate are furnished with a luxuriance of flowers and foliage unknown elsewhere.

And furthermore, there is at Oxton what a great many people would have us believe are almost non-existent in England, namely, "hardy flowers everywhere"—by the margins of woodland walks, in the woods, in ravines and jungles, and grouped or dotted about by the brink of artificial lakes. A whole group of *Hemerocallis flava*, established upon the brink of a lake, looking so healthy, with its fine Lily-like leaves, is, indeed, suggestive of what has and may be accomplished with hardy plants. Huge bushes of *Rhododendrons* overhang the lake for yards, whilst grand specimens of *Abies canadensis* and *Taxodium sempervirens* shoot up above them to a height of from 40 to 50 feet. It would astonish many to see a fine specimen of the latter thriving so freely, with its roots washed by the lake upon one side, and yet the specimen appears in no way to dislike its situation. Then again there are wild *Primroses* on the grass in broad masses, and *Vincas* by the million established in the woods and plantations. Of the latter two beds in the spring garden were lovely a week or two ago. The large variety, *V. major*, had full bright blue flowers,

trained, as also are other kindred subjects. As a Grape grower Mr. Ayson has won for himself a high reputation, which is ungrudgingly accorded to him by practical neighbours who have known him for many years, and this season's crops in several of the vineries promise to surpass their usual excellence. Pines, Peaches, Strawberries, and vegetables, are also forced in both gardens in about equal quantities; and as the management of both gardens does not differ in principle, and as the results do not differ beyond what would be expected from young stock over old, I will only add in conclusion that a garden which has produced—and continues to produce—the same unvarying results over a long series of years under the same management must be a source of pleasure both to employer and employed. *Abnon.*

CHOISYA TERNATA deserves a place in any choice collection of hardy wall plants. At Kew and elsewhere specimens which have remained in their present quarters some years, and withstood the terrible ordeals of the winters of 1879-80 and 1880-81, are now very attractive; their dark green ternate leaves forming a good contrast with the starry ivory-white orange-like blossoms. An illustration of this desirable shrub will be found in our columns for 1880, vol. viii., p. 625. A native of Mexico.

The Roseery.



Florists' Flowers.

ROSES FOR POT CULTURE.—The fine group of these shown by Messrs. William Paul & Sons, of Waltham Cross, at South Kensington, on Tuesday last, and for which they were awarded a Silver-gilt Flora Medal, suggested the names of a few sorts as well suited for pot culture. There were *Star of Waltham*, bright carmine, large and full; *Comtesse de Sereney*, one of the best of the delicate-coloured H.P.'s; *Duchess of Bedford*, rich bright crimson, shaded with dark, very fine; *La France*; *François Michelin*, large, and very handsome; *Marie Raby*; *Mabel Morrison*, silvery-white, with a good habit for pot culture, but the flowers lack substance; *Madame de Montchauveau*, pale rose, with a pink reverse to the petals, large, full, and excellent habit; *Madame Victor Verdier*; and *Junio*, a fine old Rose, very pretty indeed. To these may be added the new silvery-pink *Rose*, *Queen of Queens*, shown by the same exhibitor; this has large, full, and finely-femaled flowers, but the habit was sparse, which might, perhaps, be an accidental characteristic merely. If the habit of growth be at all commensurate with the quality and attractiveness of the flowers, then it must prove an acquisition for pot work.

ROSE REINE MARIE HENRIETTE.—For growing under glass this beautiful bright deep rose-coloured variety cannot be surpassed. It can now be seen at perfection in the Rose-house at Chiswick, and by the side of it the renowned *Cheshunt Hybrid*. Valuable and attractive as it is, it looks dull and wanting in life, for *Reine Marie Henriette* is singularly bright. This has been asserted by some to have been a sport from *Gloire de Dijon*, but it differs from that flower in shape and build, and in the character of the foliage; but like *Gloire de Dijon*, it is wonderfully free. The flowers also are large and full and equal to the *Hybrid Perpetuals* in quality. It is essentially a Rose for culture under glass, and as it is a free grower it requires space in which to develop itself. It is particularly well suited for planting against pillars in the highest part of the house.

ROSE A. K. WILLIAMS.—Great consternation has seized many Rose growers by the strange conduct of this grand new Rose. It was naturally to be expected that a plant which had been subjected to such severe treatment (every bud, as it appeared, having been cut for propagation) would resent it in some way, and warning was given that deaths might be expected, but certainly not in the proportion or manner which they appear to have done;—one very excellent rosarian told me that he had lost ten out of a dozen. The plants appeared strong up to the time of pruning; there were three or four strong shoots, the union of the bud with the stock was perfect (I am stating what I have seen), and yet the plants were hopelessly gone. They had not that blackened appearance which Rose shoots have when they go off, but simply appeared as if they had died of inanition—not of disease. On looking at my own plants I found one half of them dead, and from other growers I have had a similar statement. The stock seems to have made no difference, for they are in the same condition on the seedling Brier and on the *Maeretti*. It would be interesting to know if this is general, for if so it will be seriously against the Rose; but I am still inclined to think that excessive propagation has been the cause. *Wild Rose*.

ROSE DONNA MARIE.—For covering arches, summer-houses, or arades, this Rose can hardly be excelled. Whether the sun shines stronger in Devonshire than elsewhere, the writer cannot say, but it is evident that nursermen in that county take the comfort of visitors into account as a part of their business. In one well-known hot-rustic summer-houses are erected, some of which are now beautifully covered with this free-growing evergreen Rose, and visitors are said to enjoy these retreats in summer immensely—as, indeed, they will may do. Not a particle of the framework is to be seen from the outside, but a living mass of green leaves and buds—indeed, some of the latter are opening a milky white with a tinge of lilac, which look very cheerful hanging loosely over the green, and a mass of leaves. Such a mass of soft entrance can't other, or throw in a natural way, presenting an appealing surface. *W. D.*

LACED AURICULAS.—Almost without exception what plants of these new Auricula forms were exhibited at the Auricula show were lacking that refinement which should be looked for in flowers worthy the designation of laced. But for the fact that the blooms generally had pale-hued edgings there was little to distinguish them from the ordinary shaded alpine, though perhaps looking brighter and more cheerful, because lighter in colour. If these so-called laced flowers are to be esteemed as a distinct exhibition section they must undergo a refining process—one that shall make the ground hues dense and distinct, and the lacings clear, narrow, and well defined. If the broad lacing as recently seen be tolerated the flowers will presently differ little from shaded ones; indeed, a group of these latter having paler markings than are usually found in shaded alpine was put into the fancy section, showing that the term "laced" at present gets a wide interpretation. It can hardly be expected that a section which has been introduced but a few years can yet have made any considerable advance in the direction of refined quality, but that is all the more reason that in determining what should constitute a laced flower—or, better still, Auricula lacing—we should have some clear and defined conception as a guide in selection and breeding.

It is true the class now set apart for them at the Auricula show is known only as "fancy," which may, and really does, include any rubbish, even the most atrocious floral abortions; but none the less as laced flowers are specially mentioned as admissible in the class, it is but right we should understand, not only what are laced as well as what are "fancy" flowers. This latter term it must be admitted is not a happy one. It is meant to apply almost exclusively to abnormally eccentric forms of show varieties; and, indeed, those shown as "fancies" the other day well justified the criticism that they were Auriculae gone mad. To encourage such outrages against all recognised Auricula laws and requirements is most objectionable—indeed, the bewilderment displayed by observers at the show that such oddities should be staged is not confined to the general public; it is shared in by many florists also. On the other hand, the laced section does largely exhibit features that may, with careful selection, in time produce some very charming flowers. They have robust habit, good and varied colouring, and, not least, will reproduce their kind freely from seed. These qualities should render them most acceptable to amateur cultivators, for the show varieties not only seed sparingly, but produce a large percentage of very inferior flowers that are neither pleasing in pots nor fit for border culture.

With respect to the lacing criterion we need not go farther than the laced *Polyanthus*, which is the most perfect laced flower we have. This shows to us a clear well defined yellow centre, which is, or should be, as clearly defined in any good alpine or laced Auricula. The ground is dense and pronounced, and finally the lacing is narrow, distinct, and perfect. Why can we not strive to make a race of laced Auriculas as refined as these are? Indeed, until they approach to the laced *Polyanthus* in defined markings they will never merit the appellation of laced. It is worthy of note that coarseness in cultivation generates coarseness in markings, whilst the most refined lacing will be got from plants that are not generously treated. The plants should always, when the blooming period arrives, have a good pool of roots, and rather than shifting often it is better to liberally top-dress, seedlings raised from seed sown now will bloom admirably in small 6's, and should be shifted into large 6's as soon as the bloom is over. I find seed saved from the most refined flowers bring the best average quality, and it is only by constant selection that the desired point can be attained. If the Auricula Society will strive to give to laced flowers the encouragement they merit, the result will presently be shown in increased competition in a section that many may easily cultivate. *A. D.*

AURICULA RICHARD HEADLEY.—A superb specimen of this fine grey-edged Auricula was sent to the

National Auricula show at Manchester on the 2d inst. by the Rev. F. Tynons, of Baskin Hill, Drumcondra, Dublin. Mr. Tynons is a well-known and successful cultivator of the Auricula, and if the plant sent is an average illustration of his success with the flower, then every encomium passed on his productions is more than justified. The plant in question had a truss of twelve fully expanded pips, all large, symmetrical, and correct, and so finely veined on the edges as almost to be white. The plant was growing in a comparatively small pot, and it was as pot-bound as it could well be. This fine example, not being sent for competition, was unanimously awarded a First-class Cultural Certificate. By the side of this fine flower was a grand specimen of the Rev. F. D. Horner's new blue self Saffire, raised, we believe, from *Metropolitan* and *Fornosa*. It also had a superb truss of twelve fine pips. This was not in competition with others, as Mr. Horner no longer exhibits at Manchester; but it was very much admired. It is a rare addition to the blue self.

Notices of Books.

Insects Injurious to Forest and Shade Trees. By A. S. Packard, Jan., M.D. Bulletin No. 7 of the United States Entomological Commission. (Washington: Government Printing Office, 1881.) P. 275. 8vo.

This Bulletin deals with the North American insects known to feed on the Oak, Elm, Hickory, Linden, Chestnut, Locust, Maple, Poplar, Butternut, Beech, Elder, Cherry, Hazel, Pine, &c., and in many cases the larger term includes a number of different species of the trees under consideration. It adds another to the already very extensive series of reports on economic entomology that the liberality of the United States Government has enabled the leading entomologists on the other side of the Atlantic to produce. Without exception these publications are of the greatest service, both to science and to the class for whose benefit they are particularly intended. The present bulky "Bulletin" we take to be one of the most important and most valuable. The author's scientific reputation is a sufficient guarantee that it is sound biologically, and (with the exception of many absurd coinings of "English" names) it cannot but be of service to foresters.

But we think it might have been better had the author somewhat modified the title. Every insect known to feed upon a particular tree is treated upon. In his introductory remarks the author states that Kaltenbach enumerates 537 species of insects as injurious to the "Oak" in Europe; a very large number are given as injurious to the same tree (using the term in a broad sense) in America. It is obvious, when we come to analyse this list, that only a very small proportion of these are strictly noxious insects, and then only when they occur in extraordinary numbers, which is only occasionally. It is natural for certain caterpillars to feed upon certain plants, and the damage they occasion is in proportion to their number. We have to deal here only with trees, and beyond the unsightliness caused by occasional destruction of foliage on a large scale, we doubt if the trees suffer permanent injury from leaf-feeding larvae. Naturally a certain amount of functional disturbance must result; but surely an equal or greater disturbance arises from judicious pruning or lopping, even although this is usually carried out at the season of least functional activity. Our author, however, regards these insects as "parasites," not specially injurious, adding that the deadly form are comparatively few. Probably under this latter limited class he includes some of the wood or bark feeders. He is possibly right in some instances, but we feel sure that the morbid conditions commonly attributed to the presence of lignivorous insects are more frequently due, in the first instance, to "something wrong at the root," inducing an unhealthy state which the insects seize upon just as flies attack carrion, or visit an ulcer on a beast's back.

We must not forget to notice that Dr. Packard's volume is most copiously illustrated by excellent woodcuts.

At this moment a lady (Miss E. Ormerod), eminently qualified for the position, has received the distinction of being appointed honorary biological secretary to the Royal Agricultural Society—the first time that economic entomology has received any official recognition in this country. She can, and doubtless will, do much good (as she has already done) in enlightening our agricultural classes as to the nature of the insect pests that trouble them, and by instilling into their minds the axiom that "prevention is better than cure." Keep up a vigorous state of health, and the damage caused by insects will occasion little anxiety as a rule, and to this end the advice of an economic entomologist should mainly be directed. But these are exceptions, and when these assert themselves in an extraordinary degree (as will sometimes happen) we fear the only thing is "to grin and bear them."

The Kitchen Garden.



Plants and their Culture.

THE nature of the weather which we have been and are still having has been everything that could be desired for the well-doing of the subjects of this department, consequently the various crops are in a flourishing condition. Continue to make small sowings and plantings of Cos and Cabbage Lettuce at short intervals, so as to maintain a good succession. Plant out Cauliflower and Cabbage plants, including the Red Dutch Cabbage, were not already done, and in quantity according to the demand, and which, if planted during showery weather, experience very little check in being transplanted. Make another sowing of Early London and Veitch's Autumn Giant Cauliflowers, of Carter's Heartwell Marrow, and Wheeler's Imperial Cabbages, to come in for autumn and winter use. Another sowing of Early Horn Carrots for drawing from, and of Early Elm and Dwarf Curled Savoys for late plantings, should be made; as also another sowing of Turnips. Thin out successional crops to 6 or 9 inches in the rows. Sow some more Spinach, and clear the ground of the winter crop as soon as the spring-sown one is fit for use, getting the ground manured and dug in readiness for other crops.

Where Parsnips are much sought after, a sowing made now will come in well for late use. Asparagus beds should be looked over daily, and all the "grass" cut as soon as it is fit, washed, sized, and tied up in bundles, and stood on the ends in saucers containing a little water in a cool room until required for use.

Ere this the Seakale season will have terminated, therefore the pots and boxes with which the plants were covered, together with the material which has been used as a covering, should be removed forthwith, as also should the flower-stalks on Rhubarb plants, which in some cases will be showing somewhat freely, as soon as they appear. Young plants of Broccoli, &c., should be picked out in nursery beds as soon as they are large enough to handle—at all events, before the plants become crowded in the seed-beds—preparatory to being finally planted out. The plants should be allowed sufficient room to develop themselves during the time they are intended to occupy the nursery-beds. This is a procedure that deserves more practical attention and adoption than it always receives, for it not infrequently happens that seedling Broccoli, Cauliflower, &c., are allowed to grow closely together in the seed-beds until they are required for finally planting out; and, under these conditions, the plants, instead of making a stocky and consolidated growth, become lanky and weak. Early Peas, which are now podding, will be benefited by having an occasional soaking of diluted liquid manure, and Vegetable Marrow plants should forthwith be planted on the mounds or beds previously prepared for them, and under the protection of hand-glasses.

If not already done, plant a sufficient number of Beetroot at the foot of a south wall for seed, and for the same purpose put sticks, one to each of the best-formed heads of Cabbage, as a means of indicating their intended use.

Where former directions in the way of seed sowing and planting have not been attended to, no time should now be lost in carrying out those cultural details in accordance with existing circumstances. Look over the crop of autumn-sown Onions, pinch the tops out of those showing a disposition to "ran," and bend the stems of the others, not only with a view to reducing the chances of their running to seed—but to hasten the development of the bulbs. Cauliflowers, like everything else in this department, are "turning-in" rather early this season, and the early plantings of Potatoes are also very forward (meeting in the rows) for the time of year, and should "Jack Frost" only keep away the supply of young Potatoes will be early, plentiful, and good. Late plantings of both Cauliflower and Potatoes, Brussels Sprouts, &c., will require attention in the way of earthing them up; and now that we seem likely to get a spell of dry weather the Dutch hoe freely among young crops and let cleanliness and neatness, in addition to judicious cropping, be the order of the day. *H. W. Ward, Longford Castle, Wilts.*

STOVES: TABLE PLANTS.—Some bright, well-colored examples of the various types of Crotons should be selected for cuttings; these, if successfully struck now, will be of valuable service as table plants during the latter part of the summer. Keep up the requisite stock also of the best of the Dracenas and of Pandanus Veitchii. Of the former class of plants *D. gracilis* should not be overlooked; after the tops of these are struck side shoots will quickly push forth. These will make the prettiest and most graceful plants for the table. An old stool of *Cyanophyllum magnificum* will often yield many young growths that may be turned to good account for the same purpose. Where a well variegated stock of *Cyperus alternifolius* is to be had division should be resorted to. This is a pretty change for indoor decoration, so also is the variegated form of *Cyperus laxus*. If perchance a variegated Pine-apple (*Ananassa sativa variegata*) should be fruiting take care to secure the crotons; these, if potted into 4-inch pots, will soon make nice stuff, with better habit than can be had in suckers. Small cuttings of *Dicentra Fuchsii* Bausei, when struck and established in small pots, can always be turned to good account. Secure any stray seedling Ferns also. Of these, *Asplenium cicutarium*, *Adiantum canescens*, *concinnum*, and *decurans*, as well as *Lomaria gibba* and many of the *Pteris*, will all give a serviceable change. Small plants of *Caladium argyrites* are at all times of good service. For table plants, these should be kept turned round to properly balance their foliage. Small plants of Palms, such as are useful in little pots, should be abundantly supplied with water; if a shift is really necessary, give them the benefit of the same, but only into one size larger. Plants of Gardenias that are relieved of their first crop of flowers should be potted at once, where this operation is required to be done. A fresh growth should then be secured as quickly as possible, and a good supply will soon be had again. *Tuberanemontana coronaria* fl.-pl. is with me succeeding the Gardenias; this plant appears to delight in abundance of heat and moisture at the roots. Its fragrance, also, will recommend it to many who are not partial to powerful perfumes. Young growing stock of the stove Vines, the shrubby *Clerodendrons*, *Ixoras*, and *Allamandas*, should be kept pinched till a nice crop of shoots is obtained. Encourage all young seedling plants of *Aphelandra antarctica* Roezli, *Torenia*, *Gloxinias*, and *Amaryllis*, to make as good a growth as possible. *Achimenes* grown in either pots or pans should be kept near the glass; these, when in vigorous growth, may receive a supply of weak guano-water. Any that may be grown in baskets will require close attention to see that they do not get dry; this remark must also apply to all other basket plants from this time onwards, and to Ferns in particular, which will be spoilt for months to come if but once neglected. I have found it a good plan to water basket-plants late in the evening, if perchance they are suspended in a position where the drip from the same would cause any inconvenience.

GREENHOUSE PLANTS, &c.—Our stock of *Deutzia gracilis* has made a good growth since yielding an abundant crop of flowers. We have kept them so far in ainery at work, but must now soon remove them to cooler quarters, and then to the open air. Under this treatment a certain yield is obtained every year. Winter flowering Heaths and Epacris lately potted and now growing fast, must also be hardened off to prevent their tender shoots becoming too much drawn. Give every encouragement to *Camellias* now making their young growth; as soon as the foliage becomes somewhat hardened they should be exposed to more air. Any that are growing in the open border should also be top-dressed where necessary. With good fibrous loam and sound peat an excellent compost can be made, adding a few half-inch bones or charcoal, and either road-grit or silversand to keep the soil open. Recently struck cuttings of *Spartanopia africana* we intend to run upon a single stem to make standards from 5 to 6 feet high.

We have found them to do well in this way, the flowers showing to better advantage also. A most useful, but seldom seen plant, in a pot at least, is *Celsia cretica*. Of this we shall sow some seed as soon as ripe. The almost perpetual way in which it continues to put forth fresh spikes with bright yellow flowers, quite distinct from anything else, will recommend it to any one with a greenhouse at command. The stock of tuberous Begonias will now be opening their first flowers. Strike any strong growths that may require support, and supply the plants liberally with water. Tea-scented Roses will give a never-failing supply of their deliciously-scented blossoms if a little heat is at command. Occasional doses of liquid manure will be beneficial. The stock of *Fuchsias* to succeed the show and fancy Pelargoniums should not be stopped after this; later batches and young stuff should, however, be treated as previously recommended. Seedling plants of such annuals as single and double *Petunias*, Ten-week Stocks, the large-flowered forms of *Mimulus*, *Lobelias*, and *Salvia patens*, must all receive attention now that more room may be expected by the release of the bedding plants. All these that I have named will be found useful in many ways either for the conservatory, or for ornamental wire baskets in verandahs or corridors. Where Balsams are grown, give them a place near the glass, with sufficient air to keep them sturdy and dwarf. *Globe Amaranths* must be kept in a brisk heat; so also should *Celsia pyramidalis* area, and *C. coccinea* if good plants are desired. *James Hubben, Gunnesbury House, W.*

ADIANTUM COLPODES.—The cultivation of Ferns for cutting, or rather, one should say, the practice of cutting Ferns, has grown into a serious business in many private establishments. Grow what one will—it matters not how well the plants are grown—in a limited space the daily cut, cut, either reduces the plants to a state of feebleness, or at the very least renders them veritable skeletons to what they otherwise would be. Grow the plants in pots, and cut them over weekly, nearly as fast as they grow—well, you cannot expect to have your loaf and eat it. But some expect that the supply of Ferns, like the case of oil of old, should never fail, and to such it may be of some interest to notice the above variety of Maidenhair, which will grow almost anywhere under a glass roof without potting and the aid of a skilled gardener. By the side of a path, on a stone or brick wall, all that is necessary is to insert the roots of the plants between the joints of the stones or bricks, and to keep them supplied with shade and moisture until they lay hold of the surface of the wall, which they will cover in time, and improve in appearance. The variety is not unlike the old *Capillus-Veneris*, and is nearly as hardy. Numerous varieties of greenhouse and hardy Ferns have, from time to time, been recommended for cutting, but it is a well-known fact that ladies will have Maidenhair in preference to anything else; and a Fern that requires so little cultural attention when grown as described, as the variety above-named, ought to be grown by everybody desiring to have a useful stock of fronds for cutting by the cheapest mode of production. *W. H.*

Peaches and Nectarines.

THE fruit in the early houses will by this time be swelling off, and will have commenced colouring. All stopping and tying down should be completed as soon as possible, and the fruit well exposed to all the sun and light it is possible to give them. Keep a somewhat drier atmosphere by allowing the evaporating troughs to become dry, but continue syringing until the fruit begins to ripen, using ram or soft water for that purpose if possible. Have a nice circulation of air on by night as well as by day in order to get the fruit full flavoured. Give the roots a thorough watering with tepid manure-water, which should carry them through the ripening process. I sowed an Early Beatrice a day or two ago, but, as I have said before, they are very small indeed, and (with me) it is a very shy bearer, and not worth growing except for its earliness. Trees in succession-houses will be growing freely; give them liberal supplies of weak tepid manure-water as they require it, and keep a steady night temperature of about 60° during the stoning period. Syringe very freely, to keep spider in check, &c., besides spraying on gently late leaves according to the time they are required to be in. If greenfly is troublesome (and it usually is), in late houses especially, notice the trees with a solution of 2 oz. quassa chips and 2 oz. soft soap boiled in 1 gallon of soft water. *J. Wallis, Keele Gardens.*

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, May 17	Royal Botanic Society's Show. Sale of Imported Orchids, at Stevens' Rooms. Reading Horticultural Society's Show. Royal Horticultural Society of Ireland's Spring Show.
THURSDAY, May 18	Sale of Imported and Established Orchids, at Stevens' Rooms. Sale of Bedding and Greenhouse Plants, at the Faragon, Nursery, Streatham, by Protheroe & Morris.
SATURDAY, May 20	Crypsalid Flower Show.

A COMMUNICATION, interesting in itself and specially so inasmuch as it must have been one of the last matters to engage the attention of our great naturalist, DARWIN, was read before the Linnean Society at its last meeting. The subject was the production of a new variety of Sugar-cane by a process of apposition, and which opened up the whole question of GRAFT HYBRIDISATION. The paper was forwarded to Mr. DARWIN by a Brazilian planter, with a record of confirmatory experiments by Dr. GLASL, Director of the Botanic Garden of Rio Janeiro, and communicated to the Linnean Society. According to the statements made in the paper, duly and formally attested by a number of planters, a new variety had been produced by taking two cuttings of different varieties of Sugar-cane, dividing the cuttings in halves lengthwise, and then tying the cut surface of one-half of the one to the corresponding surface of the other. Then by means which we need not detail, but which seem to be similar to the *greffe à double bouture* of the French, and which is employed for propagating *Acubas*, union is effected, and a new bud or shoot produced, possessing, not characters intermediate between the two varieties, but characters sufficient to lead the authors to speak of it as an entirely distinct variety—a circumstance which leads us to think the experimenters are attempting to prove too much.

In addition to the sworn testimony photographs were sent, but from the slight inspection we have been enabled to make of them, we should not deem the evidence they afford as sufficiently conclusive. Of course there is no reason whatever to doubt the perfect good faith of the writers; but in a case of such importance it is only right to require that the evidence they lay before us should be made as rigorous as possible, so that misinterpretation of facts should be as far as possible excluded. Gardeners in general who, or their ancestors, have practised the art of grafting from time immemorial, are almost without exception unanimous in their verdict against the possibility of graft hybridisation; but, on the other hand, they must and do admit the existence of some modifications, else the utility of grafting at all would, to a large extent, be negative. The truth seems to be that physiological differences are produced—the stock acts in this way on the scion, and to a less degree the scion on the stock. It is needless to give illustrative instances, as they are familiar to every gardener, and we have so often adverted to the matter in these columns, and given so many illustrative cases, that it is needless now to repeat them.

It must be admitted that, as a rule, the changes produced are chiefly physiological, actual changes of form so marked as to be obvious to the unaided vision being relatively few. Still they do exist, and if the proportions they bear to the enormous number of cases in which no such visible effect is produced is apparently infinitesimal, yet the presumption is that as marked physiological change can hardly exist without change of structure, so it is only the imperfection of our vision and the coarse methods of our observation which prevent us from seeing it. If this be admitted, and we think it must be, the possibility of graft hybridisation must be admitted also. Then such cases as that of the *Cytisus Adami*, of the Potato, of the Vine (several cases), of the Pear, and of many others

which have been recorded in these pages from time to time are, taken as a whole, inexplicable upon any other hypothesis. The numerous cases where a variegated scion has communicated its properties to a green-leaved stock, of which we have also seen numerous cases, are sufficient to prove the reality of the reciprocal influence, though it is perhaps not fair to adduce a constitutional defect as a case of graft hybridisation properly so called.

We believe, then, that graft hybridisation is quite possible—nay, that it does occur; but under all the circumstances of the case we are justified in demanding the most rigorous evidence possible before we can admit that any individual case which may present itself is really attributable to hybridisation of this character. Grafting of any kind in the case of monocotyledons is indeed of doubtful possibility. It is true we have heard of the grafting of *Dracenas*, and we have heard of flute-grafting in the case of some grasses, but we do not think in either case that the evidence is free from suspicion. These matters demand careful experiment and most minute and patient examination, and there are few matters that might more profitably attract the attention of experimenters with the requisite intelligence, skill, and patience. The matter would not be of purely scientific interest, but clearly also of practical value. We trust, therefore, that, instead of having to rely, as we do now, on a very few isolated examples which occur to us, as it were, by accident, we may in the future have a body of evidence, founded on careful experiment, and from which all sources of doubt and fallacious interpretation may be banished.

— THE TEMPERATE-HOUSE AT KEW. — It would be hard to say which of the many houses at Kew finds most favour with the public, but, as our illustration shows (fig. 90), those who prefer the Temperate-house have good grounds for their preference. The noble specimens of *Araucaria brasiliensis* and *A. Bidwillii*, the *Dracenas*, the Tree Ferns, the Rhododendrons and *Acacias* in their season, the many classified representatives of the flora of Australia, New Zealand, the Cape, give a special charm to this house, while the noble general appearance of the luxuriant vegetation produces an effect which is so sure to be pleasing that the wonder is that owners of gardens do not more often imitate, according to their means, the pattern set them in this noble structure, where the impression produced is gained at comparatively so little cost and trouble. It is to be regretted that the plans for the completion of this building have so long been allowed to remain uncarried out. Perhaps the winter and early spring months are the times to see the winter garden at its gayest, for then the Australian *Acacias*—many of them planted out in the beds have attained the dimensions of trees—large bushes of *Camellias*, and a host of other early-flowering things enliven the scene. All the *Acacias* have now passed with the exception of a splendid bush or two of *A. armata*, and the elegant *A. pulchella*, whose tiny pinnate leaves are almost completely hidden with the profusion of bright golden yellow balls. Many showy plants which are largely cultivated for greenhouse decoration, and which are generally seen in a small state, exist here in huge specimens, and so a fairly good idea is given of the aspect assumed by them in their native countries. Such are *Polygala myrtilifolia* and *P. grandiflora*. Two other Australian shrubs are too showy to pass over, viz., *Eutaxia myrtilifolia* and *Bossie linophylla*, to h masses of small orange and brown pea-shaped blossoms. The former is a neat-habited, erect bush, whilst the other, with long pendent branchlets, laden with innumerable flowers, forms what may be called a floral fountain of exquisite grace and charming colour. *Doryanthes Palmeri*, now flowering for the first time in Europe, has already been noted and figured in these columns. Another plant of considerable interest is also in flower, *Decaisnea insignis*, the only species of a genus which Sir JOSEPH HOOKER, in his magnificent *Illustrations of Himalayan Plants*, says, in many respects, is one of the most remarkable plants of the Himalayan forests. It belongs to the natural order, Berberidaceæ, but is wonderfully

different from any other Berberidaceæ plant. It has long pinnate leaves, borne in a crown at the head of an erect stem about 6 feet in height, and long drooping racemes of large greenish flowers—the foliage both in texture and size resembling somewhat that of *Ailantus glandulosus*. Sir JOSEPH, moreover, states that *Decaisnea* is well worth cultivation in England for the sake of its fruit alone, which is conspicuous and handsome, of a pale yellow colour, full of a white juicy pulp that is very sweet and pleasant, and is eagerly sought after by the Lepidæ. A figure of this peculiar shrub is being prepared for the *Botanical Magazine*. Several Himalayan Rhododendrons, most of which have been specially noted in these columns, are particularly showy just now, all, with the exception of the purple *R. niveum*, being white flowered—*R. Aucklandii*, *R. Veitchianum*, *R. calophyllum*, *R. Edgeworthii*. Close under a huge mass of the Australian "Fern Royal," *Todea barbara*, which in imported many years ago weighed 14 lbs., a good plant of *Philecia buxifolia* is luxuriating amongst the moss-covered stones; its lovely *Lagereria*-like flowers being more freely produced than we ever saw them when grown in pots. In the same piece of rock-work two other allied plants from the same quarter of the world, *Chili*, &c., are quite at home under similar conditions—*Callitene polyphylla* and *Luxuriaria radicans*; both have gracefully drooping pure white flowers and Box-like leaves, dark green above and glaucous beneath—the former was discovered in South Chili by the late CHARLES DARWIN. On the shelves, where the plants are arranged geographically, so as to give a comprehensive idea of some of the principal characteristics of the temperate vegetation of various parts of the world, the most noteworthy objects are as follows—*Agapetes buxifolia*, from India, with a profusion of splendid scarlet tubular blossoms with spreading limbs; *Vaccinium serratum*, from the same country, with panicles of creamy-white flowers—both these, although succeeding perfectly in pots treated like ordinary conservatory stock, being generally found in their native haunts as epiphytes, high up on the mossy branches of trees. *Vaccinium caracasense* makes a nice pot plant; it has glossy glaucous leaves and terminal clusters of racemes of creamy-white bells. *Fuchsia arborescens*, sometimes met with under the name of *F. syringiflora*, is also a decided acquisition for the cool conservatory; it has large panicles of lilac-purple flowers, and is very unlike the ordinary conception of what a *Fuchsia* must be. A large specimen of a totally different species, also from Mexico, *F. splendens*, planted out in one of the beds, is worthy of special attention, the bright scarlet tube (which is much compressed at the base) and green sepals and petals forming a somewhat striking contrast. Small plants on the shelves, nicely flowered, prove that it may be grown successfully even where space is a consideration. *Felicia frutescens* is a Cape Composite of neat habit with small linear leaves and lavender-blue, yellow disked flower-heads. The pretty Australian *Irid*, *Paterosonia longicaapa*, with its long narrow grass-like leaves and three large mauve-coloured perianth segments, attracts the attention of most visitors. The only climber now in flower worthy of special mention is *Lonicera sempervirens*—the Scarlet Trumpet Honeysuckle. This is certainly one of the best corridor climbers. In the open it gets killed at Kew, and even with shelter and great care only manages to exist. Few would however deny its claims for room in a cool house after seeing the Winter Garden plant.

— MONDAY FLOWER SHOWS.—It is only under very exceptional circumstances that shows should be held on Mondays. The Sunday is as much needed as a day of rest by the gardener as by any other class of toilers, and, apart from other considerations, it is on humanitarian grounds that this position should be maintained. An exhibitor is always very busy on the two or three days before the show, and especially on the one immediately preceding it, and if this happens on Sunday it must needs be a day of unremitting toil and anxiety, and it means a deprivation of the Sunday's rest. And not only does it mean this to the gardener, but to others to whom the flower show gives employment. It is not right nor good policy to force men to work on a Sunday who claim it as a day of rest and respite from labour. Besides, employers as a general rule properly object to their gardeners exhibiting at Monday shows because Sunday work is necessitated thereby.



— OLD OAKS AT DITTON PARK.—Probably at one time denizens of a part of Windsor Forest, now very prominent and interesting features in the Duke of Buccleuch's fine park of Ditton, near Slough, are a number of aged Oaks, some yet worthy the designation of trees, and others mere stumps, wrecks of their former grandeur, not unlike the once heap of stones that alone remains to tell of the more turreted castle or lofty tower. Fancy roaming riot would fain conjure up the days of PUCK and his attendant sprites when fairy elves danced beneath the leafy shade, and waltzed at night to the song of the nightingale or the chirrup of the mole-creeper round the giant stems. But fancy soon comes to earth, and fairy forms instantaneously fade, when there arise dim yet form-like visions of old JACK FAIRSTAFF and his ragged crew rioting and roystering beneath the forest glades, for so huge are the trunks that yet stand, and such evidences of age do they bear, that if some 500 to 600 years old, as is assumed, they were sturdy trees when HENRY V. was Prince of Wales, and cutting some merry if unpropitiously capers. One huge tree, yet the most flourishing of all the ancients, has a monster stem. There is no tape at hand to obtain accurate measure, but extending arms of average length show a measurement chest high of 30 feet circumference. From off one a recent gale tore the last branch, and has left it a ruined, forlorn-looking monster. On one or two there still remains a fair array of dead, leafless branches, but every vestige of bark has disappeared. Another shows some 20 feet high that its huge stem has gone to decay, and has left but a natural hollow cylinder of bark. How easy would it be to manufacture from this giant some terrible story of the boy who, playing truant from school, and engaged in bird-nesting in this tree, fell into the deep hollow, and there met with the fate common to all naughty boys; or the sensationalist, flying at higher game, might base a terrible story worthy of Miss BRADSHAW on the fearful punishment which befel the audacious pibeletan who, daring to woo the only daughter of the noble house, was thrown into this woody prison, and starved to death. We are not curious enough, however, to look for the remains of these fictitious criminals, finding more pleasant employment in admiring the remains of once truly noble though now fast decaying forest monuments.

— THE METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 17th inst., at 7 P.M., the following papers will be read:—"On the Diurnal Variation of Wind and Weather in Relation to Isobaric Lines," by the Hon. RALPH ABERCROMBY, F.R.S. "Mechanical Combinations of Storms, Hurricanes and Cyclones," by W. F. STANLEY, F.R.S., F.R.M.S.

— SAXIFRAGA CLUSII.—At Kew this pretty Saxifrage is flowering freely, and affords an interesting example of what some plants will undergo without injury. A number of specimens were collected on the Pyrenees last season by Mrs. W. T. THISELTON DYLLA, and kept for a month in a tin box before they were brought to Kew. This species in general appearance approaches our native *S. stellaris*, which is found by alpine and subalpine hills in many places in Britain and Ireland. The petals are white, with a yellow blotch at the base, and the anthers red.

— Mr. JOHN MORRIS, who for thirty-two years has been Gardener and Steward at the Manor House, Wethersfield, has commenced business as a nurseryman and florist at the Manor Nursery, Baintree, Essex.

— THE ROYAL SOCIETY.—Among the fifteen selected candidates for admission into the Society are CHARLES BARON CLARKE, M.A., F.R.S., well known for his tried services in the elaboration of the *Flora of India*; and FRANCIS DARWIN, M.A., F.R.S., who has assisted his late father in many of his more recent researches, as well as undertaken independent and most useful work in physiological botany.

— IFFES GIBERTALICA HYBRIDA.—A pan of this distinct hybrid *Candytuft* was shown in excellent form by W. BROCKBANK, Esq., of Didsbury, at the recent Anticilia Show in the Town Hall, Manchester. It is said to be a hybrid between *I. gibraltarica* and

I. corifolia, and it is decidedly intermediate between those two, having the character of foliage of *I. gibraltarica*, but of a smaller and more compact character; with flowers and trusses of the size and shape of *I. corifolia*, but suffused with pale lilac. It is quite distinct in character, and it should prove as hardy as *I. corifolia* it will be a great addition to our hardy evergreen *Candytufts*. The raiser's name did not transpire, but we believe the seed was distributed by Mr. WILLIAM THOMPSON, of Ipswich. The plant was awarded a First-class Certificate of Merit by the Council of the Manchester Botanical and Horticultural Society. It was one of several interesting hardy plants shown by Mr. BROCKBANK, who is gradually making a rare and valuable collection of such subjects.

— ROYAL HORTICULTURAL SOCIETY.—The following provincial floral and horticultural societies have been admitted into union with the Royal Horticultural Society this year, and have received the usual Medals to be competed for at their shows, viz.:

Atherstone Horticultural Society.
Bristol Cheshamham and Spring Show Society.
Gloucester Horticultural Society.
Dalton-in-Furness Horticultural Society.
Ducham, Northumberland, and Newcastle-on-Tyne Horticultural Society.
East London Floricultural Society.
Maulstone Horticultural Society.
Norwood Amateur Floral Society.
Royal Agricultural and Horticultural Society of Jersey.

We trust the Council will extend their operations in this direction, so that the Society may become truly national. It is to be hoped that every effort will be made to keep up the importance and interest of the fortnightly meetings, which are of far more real value to horticulture than the larger and more costly shows. We could dispense with the latter without much regret, but the loss of the former would be a serious blow indeed. For their own sakes, we trust the nurserymen will not neglect these exhibitions, for it is not possible for them to gain so much advantage in any other way, nor to secure so much publicity. A report of an authorised society like the Royal Horticultural Society must be given by the Press almost as a matter of right and duty; but it is far otherwise with the exhibitions made by individual tradesmen. Again, we trust the Society will see to it that every facility is afforded to exhibitors, and that their claims will not be pushed aside for matters so foreign to horticulture and the work of the Society as fancy bazaars, as happened on the last occasion. We note that among the new Fellows elected on Tuesday was His Majesty the King of the NETHERLANDS.

— PHYLANTHUS ATROPURPUREUS.—The one great want in our plant stores is lack of distinct or striking effects, the absence of which is often spoken of by those who know least how to suggest a remedy. But the defect is patent to any one. A houseful of *Crotons* or *Diancuses* is admittedly beautiful, but where either the one or the other is grown to the exclusion of other plants the practice seriously militates against producing that cheerfulness which is created by grouping plants of neutral colours. The plant above named is one that may be mentioned as possessing both the habit and colour which would give the effect indicated. Arranged in connection with *Palms* or *Ferns* the purple leaves give a distinct tone which is not supplied by many other plants, and under a ray of sunshine few people can have failed to observe how the leaves change to crimson, so that under certain conditions of light and sunshine a plant appears to have both purple and crimson coloured leaves.

— TODEA PELLUCIDA AND T. SUPERBA.—There is no doubt that these plants are too much codified as a rule, and that they will bear a temperature much lower than is usually supposed. In Mr. SMEE's garden at Wallington the two species just mentioned have survived for several winters in the open air with the protection of a hand-glass only. One of the finest displays of these and allied plants is, of all places in the world, in a large unheated window-case at the back of a house in Upper Grosvenor Street, London. Mr. COOPER FOSTER has found the secret of growing these plants to perfection, and the basis of the secret is to let them alone. Shading when necessary, as near uniform temperature as possible, a moist soil and

atmosphere—these are the conditions under which a back window in Grosvenor Street has been turned into a veritable botanic garden, so far as filmy *Ferns* are concerned, with the difference that the plants are better cultivated and better grouped than they often are in more pretentious establishments.

— MR. LAWES.—We are pleased to learn that a baizeety is to be conferred on Mr. LAWES. Rarely has public distinction of this kind been more worthily earned.

— THE LATE REV. J. C. NELSON.—We learn that it is intended to place a stained glass window in the chancel of Alkborough Church, as a memorial to a man who succeeded in winning the confidence and warm respect, not only of his immediate neighbours, but also of all horticulturists with whom he came in contact. Communications should be made to the Hon. HAROLD HARROLD, Alkborough.

— SAXIFRAGA CAMPOSI is one of the showiest and most desirable of the "dactyloid" Saxifrages. It is a neat and vigorous grower, forming a compact carpet of light green foliage, bearing numbers of large white blossoms. Altogether the plant does not attain a greater height than 4 or 5 inches. It is a native of the mountains of Spain. At present it is perhaps the most attractive Saxifrage in the Kew collection. A figure will shortly appear in the *Botanical Magazine*.

— RHODODENDRON FORTUNEI.—The exhibition of two specimens of this little known but beautiful and hardy species at the Royal Horticultural Society on Tuesday last is worthy of a note, to call attention to its history as given by Mr. MANGLES before the Scientific Committee and quoted in another column, and also in illustration of the value of the committee in question. One specimen was shown by Mr. MANGLES under its correct name, the other was shown by the exhibitor under another name, given, as we understood, by the exhibitor himself, certainly without sufficient enquiry as to whether the plant was already named or no. A quite unnecessary and misleading synonymy has by this happy chance been stopped at once. The Society and its committees should exercise the greatest care not to sanction the use of a name for a plant shown unless they are satisfied that the plant has a correct title to the name. If people will exercise their right of baptism without adequate care, that is all the more reason why the Society should be stringent in its determination not to sanction such names without inquiry. The flowers in question had the appearance, so far as their undecided colour is concerned, of a hybrid, but, on the other hand, they had that undefinable look which so often pertains to the plants of particular countries, and which renders it practicable often to guess with some approach to correctness at the native country of a plant from its appearance only. New Zealand plants, to give one instance, have often a marked appearance of their own, and so have Chinese.

— RAISING PALMS FROM SEED.—The great demand for *Palms*, especially in a small state, makes the production of these a matter of some moment. Some raise their plants from imported seeds; others, who grow on a less restricted scale, purchase seedling plants on the Continent and grow them on into size until fit for sale. Those who raise from seed obtain their seeds from various parts of the world at all times of the year. Mr. F. BAUSE, of the General Horticultural Company's Melbourne Nursery, Anerley, raises annually a large number of *Palms*, and whether the species and varieties require warm or cold treatment all are treated alike in the matter of raising plants from seed. The seeds are sown as soon as received in pans and shallow wooden boxes; the soil used is turfy loam and a little sand, and the seeds are covered about an inch or so. In raising *Palms* from seed the great point is to get the seed as fresh as possible; and, if perfectly fresh when received, *Arecae* will germinate in six weeks, and *Cocos Weddelliana* in about the same time. *Euterpe clivis* is months in germinating. A few sorts lie in the soil longer than others. *Bactris* requires twelve months to germinate; one or two at a time will come earlier, and at intervals, but the bulk take the length of time named. *Elais guineensis* requires the same period before the cotyledons appear above the soil. The

principal Palms raised from seed in this country are:—*Euterpe edulis*, *Areca lutescens*, *Cocos Weddelliana*, *C. flexuosa*, *C. amara*; *Dactyloctenium*, *Geonoma gracilis*, *G. Schottiana*, *G. Scemmani*; *Thrinax elegans*, *T. parviflora*; *Kentia australis*, *K. Fosteriana*; *Caryotas*, *Lantana borbonica*, *L. rubra*, and *L. aurea*. The matter of potting from the seed-pans is one of some importance. Mr. BAUSE puts within a reasonable time after the plants are something like established in the seed-pans, but it is well not to pot too soon. Each plant is placed individually in a small pot. Some sorts show their peculiar leaf character sooner than others. *Lantana borbonica* will do this in from one to two years; *Geonoma* shows its character in quite a young state, and *Cocos Weddelliana* does the same. *C. flexuosa* not so soon. It is a practice full of interest to the grower to watch the gradual development of character in the young plants as they increase in size and vigour.

— CULTIVATION OF MEDICINAL PLANTS.—Great differences are known to exist in different species or varieties of the same genus as to their medicinal properties—a fact which every one familiar with the varying qualities of Apples and Pears will readily understand. The species of the large genus *Aconite*, for instance, differ very materially one from another in the quantity of aconitin they contain, and even in the quality and strength of that ingredient. For medicinal purposes it is especially desirable that, so far as possible, uniformity of strength in this and other drugs should be attained. With a view, therefore, to ascertain which particular variety is best for the purpose it is suggested by the *Pharmaceutical Journal* that space should be afforded at Kew for the cultivation on a sufficiently large scale of various species of *Aconite* and other medicinal plants, which it is not possible to obtain free from other species in commerce, to allow of chemical investigation of the quantity of the alkaloids contained in the various organs at different parts of the year. Such work is indeed quite legitimate for a botanic garden, and formed one of the duties of the old "physic gardens." The importance of determining the right variety is exemplified in the case of the *Cinchona*s, where at one time much time and money was lost in cultivating inferior varieties. It very often happens that two varieties, scarcely differing at all in external appearance, yet vary so much in chemical constitution that the one is practically useless, while the other is rich in some particular secretion which renders it of consequence for commercial purposes.

— CHILIAN PLANTS.—Since the publication of GAY'S *Flora Chiliana* (1845—1852) very many additional species have been discovered and described in various publications, so that in the absence of a reference catalogue of the species not included in GAY'S work great difficulty was experienced in determining whether a plant had been described or not, and if one had a name where it was published. Dr. F. PHILLIPPI, whose name is well known to those interested in the vegetation of Chili, has supplied this want. For his own use he drew up a catalogue of the names of all the Chilean plants that came under his observation, with references to the places of publication. This catalogue (*Catalogus Plantarum Fascicularium Chilensium ad huc descriptarum*) Dr. PHILLIPPI has now published, for which he deserves, and will receive, the thanks of botanists and horticulturists alike. In a short preface the author describes his work, which is an octavo of nearly 400 pages, and we cannot do better than extract a few notes therefrom. This catalogue, we are told, is only an enumeration of those plants recorded as Chilean in the works accessible to the author; and he has no doubt that many species are repeated under different names. Nevertheless, all the names are given, in order to bring them under the notice of botanists, and because the author has not access to the material necessary to decide numerous questions of synonymy. The species enumerated amount to 5358, of which 1939 are Polypetalæ, 1967 Monopetalæ, 245 Incompleta, 682 Monocotyledoneæ, and 255 Acotyledoneæ. A noteworthy feature in the flora is the presence of not a few monotypic genera, associated with others represented by many species. Thus there are 212 species of *Senecio*, 134 of *Adesmia*, 82 of *Oxalis*, 78 of *Calanthina*, 64 each of *Solanum* and *Chloroa*, 63 of *Carex* and *Valeriana*, 59 of *Baccharis*, 53 of *Haplopappus*, 51 of *Alstromeria*, 48 of *Viola*, 47 of *Plantago*, 43 each of *Eritrichium* and *Escallonia*, 41

each of *Gnaphalium*, *Verbena* and *Poa*, 40 each of *Ranunculus*, *Cristaria* and *Mutisia*, and others that count more than twenty species. Allowing for a considerable reduction in the number of species of some of the foregoing genera, in consequence of some of them having been described under more than one name, and others having been founded on too slender characters, it is evident that the vegetation of Chili, like that of South Africa and Australia, is very rich in forms.

— AUBRIETIAS AT CHISWICK.—Mr. BARRON has gathered together on the rockwork in the Chiswick Gardens quite a representative collection of *Aubrietias*, and very interesting they are; and as they have done well, and opportunity has lately been afforded for instituting comparisons and noting differences. There is the old *A. deltoidea* with its small pale coloured flowers; and by it *A. columneæ*, which appears to be identical with it. The variegated form of *A. deltoidea* makes a pretty rock plant, but it must be kept apart from the green-leaved varieties, or their stronger growth will speedily overpower it. *A. longinivilla*, introduced by Mr. ERNEST DENARY, of Erfurt, is of a pale purple colour, coming very near to *deltoidea*, perhaps a little larger in size. *A. Hendersoni* is of a pale violet hue, which appears to change quickly to lilac; it is yet a very useful form, and a marked advance when first distributed. *A. Campbelli* marks another advance in the ascending scale, reaching towards a heavier tint of violet; it is between violet and lilac; a pretty dwarf-growing form in the sense of being compact. *A. Eyrei*, though considered by some to be no improvement on *A. Hendersoni*, is yet a distinct advance, as the trial at Chiswick conclusively shows; it is of a deep lilac hue, the flowers large and well formed, and it makes an excellent mass. The new *A. violacea*, just certified by the Floral Committee, is also there, with its pretty violet colour well displayed, and here it takes on a great depth of colour. It is an undoubted acquisition, and marks the greatest advance yet made towards a true violet *Aubrietia*. *A. grandiflora* is a distinct form, pale lilac, with a white centre, the flowers not of such good form as others, and it has somewhat washy appearance; still it will be attractive to many. *A. crubescens* is a near approach to a white *Aubrietia*; in the warm sunshine the flowers come slightly tinted with pale lilac, in cool and moist weather it comes whiter; it is not much in itself, but it is of value as probably introductory to a better white. It is believed at Chiswick to be a Continental introduction. Mr. BARRON illustrates the wisdom of giving *Aubrietias* an elevated position and something good to grow in. They will stand any amount of heat and drought, as the dense cushions of foliage keep the soil cool and sustaining about the roots. A rich and somewhat gritty soil causes the young roots to run freely in it. In the case of established plants a top-dressing of fine rich soil thrown among the shoots is found of great advantage. If this can be done twice or thrice during the summer, so much the better. In planting in the open border it is well to give the *Aubrietias* something in the way of stones, potsherds, &c., to elevate the shoots above the surrounding soil. It is when *Aubrietias* are planted in low, cold, wet, clayey spots, that the plants come to grief under the presence of the rigours of autumn and winter.

— CHARCOAL MAKING IN KENT.—This is done to a large extent in the Hop districts of this county, in order to supply the heavy local demand for drying Hops in the time of the Hop harvest. The old Hop-poles are largely utilised for the purpose. To prepare them for burning they are broken into lengths of 3 feet each, and placed for burning in stacks, which are formed of "cords" of wood, as they are termed. Some of the larger stacks are made up of three or four "cords" of wood, and the burners are paid so much per "cord." In forming a stack for building, a hollow place is left in the centre, and then the lengths of Hop-poles are set up on end round this till the size required is obtained. It is usual to burn the upper parts of the poles only, leaving all the sound lower portions some 5 feet in length, in which form they are very useful for repairing hedges, &c. When these are too much decayed for this purpose they are burnt, but it is necessary to place the ends which have been dipped in creosote before being used with the Hops upwards, or they would not be consumed. They of course take a much longer time to burn through than do the un-

dipped portions. The heap, when ready for lighting, presents a thick mass of upright pieces of wood, the heaps varying in size according to the quantity to be burned, and is from 14 to 20 feet in diameter. A layer of coarse straw is then placed over the heap of wood, and over this a covering of rough sand, 2 inches or so in depth, is placed. A quantity of red-hot charcoal is then dropped into the opening in the centre, which ignites the wood, and then the opening is covered over. The fire, therefore, proceeds from the centre to the circumference, and it occupies from a day and a half to three days to thoroughly char the mass. When sufficiently cooled it is cleared away into a shed ready for use, and another heap is formed, till all that is required to be burned is exhausted. The work is done by professional charcoal-burners, who take a kind of circuit, itinerating in various parts of the country. The best charcoal is made of roots of trees, but a longer time is required to convert them into charcoal—what is known as "dead wood"—that is, the branches of trees that are cut out to thin them, or blown down by the wind, and Hop-poles. The straw becomes thoroughly charred, and, being mixed with the calcined sand and small pieces of charcoal, makes an excellent manure for Onions, Turnips, &c. It is not unlikely that this charred sand and charcoal would prove an excellent ingredient for *Auricula* soil. There can be nothing injurious in it, being mainly composed of the finer particles of the charcoal; and the sand must be better after being burnt than before. Some of this sand will be used by an *Auricula* cultivator in his potting compost this summer, and it will be interesting to know how it answers. It would not be difficult to obtain some fine charcoal for potting purposes from some of the Kentish homesteads, as the Hop-dressers do not care to use the fine among it, and prefer the coarse. The remains of a store-heap have to be sifted, and the siftings supply *Auricula* cultivators with what they appear to require to keep their soil porous and sweet.

— ANEMONE CORONARIA ALBA.—We have received from MESSRS. PETER VAN VELSEN & SONS, of Haarlem, some flowers of a pure white variety of *Anemone coronaria*, which are remarkable for their size, substance, and purity of colour.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending May 8, issued by the Meteorological Office, London.—The weather, though finer in the south-west than elsewhere, has been generally cloudy, rainy, and unsettled. Thunderstorms occurred in many parts of the kingdom on the 3d, and again at several stations towards the close of the period. The temperature has been slightly above the mean in the east, south, and south-west of England, and about the average in the "Midland Counties," but in all other places it was a little below. The maxima over southern England were rather high, a reading of 71° being recorded in London and of 70° at Stratfield Turgis on the 3d. In other districts the maxima varied between 69° and 68°. The minima were as low as 31° in "Ireland, N.," and between 32° to 35° in most other districts; but in "England, E.," the thermometer did not fall below 39°; in "England, S.," 37°; and in "England, S.W.," 36°. The rain-fall has been equal to the mean in "England, N.W.," and rather less in "Ireland, S.," but in all other districts the fall was in excess of the average. Bright sunshine shows a slight increase in most places, the percentages ranging from 28 in "England, N.E.," to 58 in "Ireland, S." Depressions observed.—Pressure over our islands has been more uniform than of late, and the changes comparatively slight. Numerous small depressions have travelled slowly in an easterly direction, causing the wind, which was generally light or moderate, to be very variable in direction.

— GARDENING APPOINTMENTS.—W. C. LEACH, for seven years Foreman to the late Mr. INGRAM at Alnwick Castle, and for the past three years Gardener to F. TOWNSEND, Esq., Honington Hall, has been appointed Head Gardener to G. H. ERINGTON, Esq., Laxden Park, Essex.—Mr. C. BUCHANAN, Gardener, Penicuik House, N.B., has been appointed Clerk on the Penicuik estates of Sir GEORGE CLERK, Bart., in succession to Mr. C. FRANCE, who succeeds Mr. DANGERFIELD as Factor on the Stone estates of the Earl of Mansfield.

RABY CASTLE, DURHAM.

This grand old monument of Border architecture was built in times when defence was the matter of greatest importance, when first thought was yet unborn of that terrible compound against which in later days the thickest walls are full as spiders' webs; yet, with raiders' attacks ever in view, the builders of these old castles well knew how to combine strength with fair appearance, as evidenced by such parts of the original as still remain. Amongst all these old castles in the northern counties there are none of more noble appearance, and few in which additions or repairs needful to make good the inroads of time have been carried out in better keeping with the older parts.

Raby is situated some 10 miles from Darlington, standing within an angle formed by that town, Barnard Castle and Bishop Auckland, 8 miles from the latter and 6 from Barnard Castle. The approach by the principal entrance is from the quaint old village of Staindrop, about a mile distant, and from which a well-kept carriage drive winds its way through the beautifully wooded park, which is over 900 acres in extent, enclosed by an 8 feet high stone wall.

There are two other entrances to the park at points opposite to the principal approach; one of these is on the Bishop Auckland Road, where there also is a lodge. A better idea may be given of the extent of the magnificent grounds enclosed within these walls by mention of the 15 miles of roads and paths there-in, than by a mere statement of the acreage. With a passing glance at the old church, which stands in the village where repose many who, in their time, have held sway at Raby, we pass through the gates, and follow the road already mentioned. The park here, in common with the surrounding district, has been so favoured by Nature with those easy undulations without which all that Art can do fails to give to the landscape the desired effect. There is enough diversity of surface in the land, yet an absence of the abrupt ascents that make locomotion toilsome.

To the left of the drive leading from the Staindrop entrance stands the Bath Wood, which takes its name from the bath here existent that has been formed by enclosing a beautiful spring, the water of which is unusually clear. There is an additional room besides that which encloses the spring. The grounds in this part have been well laid out, and are nicely planted with shrubs and trees of modern introduction that contrast well with the fine native timber at hand on every side. There is here also fronting the bath a piece of water that from its position in this silent hollow adds much to the general effect. The trees of which this wood is composed mostly consist of Beech, Elm, and Sycamore, which thrive well, the rich loam resting on a subsoil free from stagnant moisture favouring that healthy growth which is unmistakable in the bright smooth bark and tall thick trunks of the Beeches in particular. Leaving the grateful shade of the wood, and again following the drive, which from this point follows a more direct course to the Castle, a conspicuous object presents itself—a handsome piece of water about to acres in extent; the road divides the higher from the lower portion of this miniature lake, the existence of which, according to local tradition, I believe, is ascribed to the stone of which the Castle is built having been quarried here. This water extends to the south side of the Castle, right up to the battlement wall that encompasses the building, around which was a mote, a portion of which has been filled up; but much still remains. In all probability the water required to fill the moat was obtained from this lake. The effect from this point, with the Castle fall in sight, of the ever-varying surface of the land, handsome masses of trees, the broad open glade in which are grazing hundreds of red and fallow deer, the whole relieved by more extended views stretching far and wide into the surrounding country, is such as few parts of the kingdom can boast. To the left of the carriage road there rises a long ridge of ground running westwards, which is occupied by a grand lot of Beech trees, old but still thriving, with tall clean stems, as straight as gun-barrels, and bark as smooth as saplings. This elevated ridge extends for some 600 yards in length, and is a commanding feature of the park. I may here remark, that in the park at Raby, as in the grounds attached to many more of the old baronial residences existent in various parts of the country, the great mistake of over-planting, so common in places of more modern date, has not been committed. Here, the broad open spaces, picturesquely irregular in their outline, stretch

out boldly, and have been spared the infliction of dotting the surface with little groups and odd trees that are objectless, except to show that the planters were disposed to do something, even if their work defaced the object which it might be supposed they had in view, in providing the needful shelter and shade to embellish the ground, but not hide its beauties by blocking the views from anything beyond distances wholly insufficient. Still following the carriage road, which, from where it crosses the piece of water already described, winds round through a grove of fine trees, standing sufficiently far apart to admit of their healthy existence for a dozen generations yet to come, we reach the porter's lodge. From this point the land descends somewhat in the direction of the garden, beyond which it again gradually rises towards the extremity of the park in this direction, which is bounded by the North Wood, that is 2 miles long. This wood occupies ground considerably higher than the Castle, and gives grateful shelter from the keen north winds that come sweeping across the open country in these elevated districts in a way that those who live in warmer localities little understand.

Approaching the immense pile of building, occupying within the outer wall a space of over 2 acres, it literally looks to be crowded with towers possessing enormous strength. A portion of the building is supposed to date from the twelfth century, but the greater part some two centuries later. The whole is in excellent preservation, material and work alike having so far defied the wasting influence of time through the long ages it has stood that the walls look little the worse. Passing through the porter's lodge, standing in the outer wall—and which, like the rest of the noble pile to which it leads, has well withstood the wear-and-tear of time—from this we make for the south front, an inspection of which gives even a still clearer idea of the extent of the building. Looking southward from here there is a splendid view in the direction of the adjoining county of York, over Richmond, which town is 16 miles distant. From the eastern front of the building the views in the Cleveland direction are equally fine. On the walls of the Castle at short intervals Ivy is growing with the vigour that good soil and a genial position usually give; this fine old plant is seldom out of place, but never less so than when clothing an ancient building like this. It is not suffered to encroach so far as to hide too much of the walls, or to form a continuous covering, but is kept within bounds, each mass being separated from its neighbour by a bare space. The outline of each space covered is kept cut-in irregularly so as to give it a natural appearance. The scarlet *Tropæolum speciosum* is also planted in several places at the foot of the walls up which it is trained, growing luxuriantly, and producing flowers in abundance. It attains a height in this northern part of England which it rarely does in the south. I may here mention that the building stands within a comparatively short distance of the eastern confines of the park, which in this direction is bounded by the Bishop Auckland Road. The principal entrance to the Castle is at the west side, where there is a passage to the courtyard, across which there is a doorway of unusual proportions; by this is reached the entrance-hall, which has a carriage-way right into the interior of it. This hall, in keeping with the rest of the vast fabric, is of enormous size, with a beautiful arched roof. A detailed account of the interior of Raby and the treasures it contains would be out of place in a notice which has no pretensions beyond a brief description of the garden and grounds adjacent, further than to mention its lofty rooms, appropriately furnished and replete with works of art, among which is the well known statue of the "Greek Slave," by Power. On the walls are numbers of fine pictures, amongst them being many portraits of the family and others. The baronial hall is 126 feet long by 36 feet wide. *T. F.*

(To be continued.)

THE PURPLE BARBERRY.—As an ornamental foliage shrub this striking variety of *Berberis vulgaris* would be well worth growing. When, however, its profusion of racemes of pale yellow flowers, followed by its crop of pretty fruits, are taken into consideration, it will be seen that its claims for admission into a shrubbery of even very limited extent are well founded. Besides, like the ordinary green-leaved form, it requires no care or attention beyond preventing other shrubs of larger growth from choking it.

CULTIVATION OF USEFUL PLANTS IN SAN DOMINGO.

In a recently issued report by Major Stuart on San Domingo it is stated that the cultivation of the Sugar-cane may now be considered an established industry in the district of Porto Plata. There are already five large plantations in bearing, with mills of the most approved construction. The area of many of the old plantations is being enlarged, and new ones are marked out for immediate clearing. The cultivation of the Sugar-cane is, however, not the only agricultural industry that has lately begun to flourish in this district; Cocoa, Coffee, Tobacco, are also produced in continually increasing quantities, having each a good surplus for exportation after liberally supplying the home trade for local consumption. Previous to the recent introduction of the Sugar-cane, Cocoa, and Coffee, Tobacco formed the staple produce of the country, and its chief medium of commerce. About 12,000 quintals was annually exported, nearly all of which was sent to Bremen, the chief market for the produce of Porto Plata. In 1878 or 1879 the consignees at Bremen wrote to their correspondents in Porto Plata that they would accept no more consignments of Dominican Tobacco, as owing to the want of proper care in the cultivation of the plant, and in the preparation of the leaf, it could not be sold unless at a heavy loss. This announcement produced a widespread consternation in the country, for it seemed to threaten both growers and exporters with ruin. Happily the remedy was at hand. A good many Cubans were in the country who understood the Cuban mode of cultivating and preparing Tobacco; they were applied to by the Dominican growers, and the fruits of their instructions were the exportation from Porto Plata alone of 40,000 quintals in 1880, and 100,000 quintals in 1881, of prime Tobacco.

Dominican Tobacco is now in demand, at good prices, not only in Bremen, but also in Liverpool, Havre, and New York. Its cultivation is carried on in the southern districts, as well as in the north, and on a yearly increasing breadth of land, while both in the north and south factories are already established for the manufacture of cigars and cigarettes under the superintendence of Cubans of experience. Of these manufactures there is already a very considerable exportation, with every prospect of increase. In fact the Dominicans aim at competing with the Cubans in the finer sorts of Tobacco, and as they possess the same advantages of soil and climate there is no reason why, with equal skill and care, they should not succeed.

Major Stuart further writes as follows:—

"All that I have said about the progress of agriculture in the north applies in every particular to the south, but in a much larger sense as regards Sugar. On the lands lying back from the capital, and along the banks of the lower Ozama, numerous cane plantations are now established, each complete with mill and all the stock and requirements for the production of sugar. There are already twenty-three of these plantations within a radius of a few miles round San Domingo city, and it is not intended that the number should rest there. When I visited San Domingo for the first time, in the fall of 1875, none of these plantations existed, but one—the first in the country—was in course of clearing, and workmen were engaged in putting up the mill. Last year, I may add, a system that promises well was tried of inducing small holders in the neighbourhood of plantations to raise canes on their lands, and sell them in a raw state to the millowners. The cultivation of Coffee is also in a promising condition in the Dominican country. Congenial soil and climate for it are found without difficulty in various places, but chiefly at present on the heights above Azua overlooking the Bay of Ochoa, a deep inlet that divides into nearly equal parts the south coast of the island. Here a small Coffee plantation was established in 1877 by President Gonzalez on his paternal lands. It succeeded so well that others hastened to follow the example, not only in the neighbourhood of Azua, but also in different parts of the country. The little tree is tended and dressed with proper care, and so rapidly has the cultivation extended that even now Dominican Coffee appears in its own name on foreign markets, and is quoted, I have been told, on a par with that of Jamaica. The quantity exported is still comparatively small, but it increases with every season. Until 1878 Coffee was imported into the country, for the Dominicans are a coffee-drinking people, and now it is the surplus left after the supply for home consumption that is sent out of the country."

The next production to be noticed is the Cacao or Chocolate tree. This tree is of recent introduction into the Dominica country. It has taken very kindly to the soil, and being cultivated with care it yields abundantly, and the kernel is of good quality. Cacao now figures well among the exports of the country, with an annual increase which keeps pace with that of Sugar and Coffee.

MANURES AS ABSORBENTS OF WATER.

By A. STEPHEN WILSON.

I AM not aware that any complete theory of a manure has yet been laid down; nor do I propose entering upon the labour of laying down such a theory. My present purpose is to show, from experiments made by me, that manures perform a certain office in addition to that of directly supplying plants with the food contained in their own substances. The office to which I refer is that of absorbing moisture from the atmosphere—a function which may be called hygroscopion (*Augras*, moist, and *serbois*, I drink up). Now, it would seem obvious that if in a dry season a given manure has the capacity of absorbing moisture from the atmosphere more copiously than the soil in which it is mixed, the roots of plants growing in that soil and manure will be better supplied with water than if the manure were absent. And if, of two manures, the hygroscopic power of the one is greater than that of the other, a plant growing in the more hygroscopic will be better supplied with water than a plant growing in the less. But the results will be better seen after the experiments have been detailed.

Some trials of a rough kind were first made in search of suggestions. Two small flower-pots were filled with soil; two were filled with the same soil mixed with finely ground Cambridge coprolite; two with soil and dissolved coprolite; and two with soil and guano. The pots were accurately weighed and set beside each other in the evening in a garden walk. In the morning it was found that the soil alone had gained 47 grains; soil and ground coprolite, 42 grains; soil and dissolved coprolite, 60 grains; and soil with guano, 54 grains. This comparison was carried on for twelve days; but the conditions were seen to be very defective. The pots were of equal size, but possibly varied in porosity. The soil and the manures at the outset were just taken as they came to hand, and therefore may have contained, to begin with, varying percentages of moisture; then slight showers occasionally fell, while the wind may have carried off from some of the pots a few particles lying on the surface. The results were, therefore, of no value, except to indicate certain precautions necessary to secure scientific facts, and need not be here given.

FIRST SERIES.

Garden soil, ground coprolite, dissolved coprolite (superphosphate), and guano were then taken, and all sun-dried, though not completely. Small stoneware jars, all of the same size and shape, were then filled with as nearly the same degree of compactness as could be attained. They were then set upon a platform in a tray containing water, and the whole enclosed with a large glass bell to confine the evaporation. The results were as under:—

1881.	I.		II.		III.		IV.	
	Earth.	Ground Cam. Coprolite.	Ground Cam. Coprolite.	Dissolved Cam. Coprolite.	Guano.	Guano.	Guano.	Guano.
May 28	1000	1000	1000	1000	1000	1000	1000	1000
" 30	994	1004	1008	1020	1020	1020	1020	1020
June 2	985	1008	1020	1037	1037	1037	1037	1037
" 8	975	1014	1039	1080	1080	1080	1080	1080

Weights were made every day, but as they harmonised throughout only as many are given as to show the general results. From May 28 to June 8 the earth lost 25 parts from 1000, the ground coprolite gained 14 parts, the dissolved coprolite gained 39 parts, and the guano gained 80 parts. Undoubtedly had the jar of earth stood in the water-closed bell alone it would have gained weight, but the absorptive power of the dissolved coprolite and guano immediately beside it caused a still further drying of the less absorptive soil; and this result shows that such manures in a comparatively dry soil will attract towards their particles the moisture in the surround-

ing soil, and therefore become more rapidly liquified and available for roots.

SECOND SERIES.

But the conditions under a glass bell were somewhat artificial. I next thoroughly sun-dried quantities of earth, cow-dung (pulverised), ground coprolite, dissolved coprolite, potato manure, and guano. They were all in a state of fine division. Cups and pans corresponding with each other in size and surface were filled with the various manures, and the surface struck off with a straight-edge. It would have been possible to have put the same weight into the competing jars, but this would have necessitated different degrees of compression, and it was therefore resolved to compare equal bulks exposed with equal surfaces. The cups were of different sizes, the same numbers (1, 2, 3) in the table being of the same size. The whole were placed in a large tray and set in the floor of a disused milk-house.

1881.	I.		II.		III.			IV.			V.		VI.			
	Earth.		Cow-dung.		Ground Cambridge Coprolite.			Dissolved Cambridge Coprolite.			Potato Manure.		Guano.			
	1.	2.	1.	2.	1.	2.	3.	1.	2.	3.	1.	2.	1.	2.	3.	
June 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
" 4	101	101	102	103	101	101	101	102	102	102	102	102	102	102	102	102
" 6	102	102	107	108	103	103	103	102	105	107	104	112	116	108	111	105
" 8	102	102	109	109	103	103	103	106	108	105	118	125	111	115	110	107
" 10	102	102	110	110	103	103	103	107	108	106	126	135	115	111	117	110

Thus between June 3 and 10 the earth had gained in each cup 2 per cent., the cow-dung 10 per cent., the ground coprolite 3 per cent., the dissolved coprolite 6, 7, and 8 per cent., in the respective cups; the potato manure 26 per cent. in one cup and 35 per cent. in the other, and the guano had gained in one cup 10 per cent., in another 15, and in the third 19 per cent. The gain is greatest in some of the small pans, simply because the absorbing surface exposed to the air bears a greater proportion to the weight of manure in the pan in the smaller pans than in the larger. Where there is little absorptive force the difference is small.

It is seen from the figures that the earth has less absorbing power for atmospheric moisture than any of the manures compared with it. The next lowest in this power is the ground coprolite, then follows the dissolved coprolite, absorbing twice as much moisture as the ground coprolite; then comes the cow-dung or farmyard manure, absorbing rather more than the dissolved coprolite; next follows the guano, with a still higher absorptive power; and lastly comes the potato manure, taking in from the air nearly four times as much water as the superphosphate.

These results are not at all meant to give absolute factors of hygroscopic power, but merely to show that this power varies greatly in different manures. For permanent comparisons probably a standard cup would have to be adopted with various other fixed conditions; but into this point I need not here enter.

THIRD SERIES.

The manures for the third series of comparisons were completely sun-dried and pulverised, and turned over in a current of air under bright sunshine till all the moisture which could be driven off in this way

1881.	I.		II.		III.		IV.		V.		VI.		VII.		VIII.	
	Soil or earth.		Ground Coprolite.		Cow-dung.		Dissolved Coprolite.		Challenge Manure.		Turnip Manure.		Guano.		Potato Manure.	
	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.
June 13	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
" 20	102	102	104	104	110	111	108	110	117	114	127	114	127	114	127	109
" 27	103	102	104	104	113	113	112	115	123	111	126	123	131	140	159	139
July 1	103	102	104	104	114	114	115	118	126	124	130	124	130	140	161	162
" 7	103	102	105	105	115	115	118	122	130	129	135	134	144	160	171	171
" 15	103	103	106	106	117	117	122	126	136	134	140	142	154	172	187	187
" 22	103	103	105	105	116	116	123	126	136	135	140	145	156	179	193	193
" 30	103	103	105	105	116	116	124	126	137	137	141	148	158	186	199	199

was got clear of. The pans were then loosely filled, and the surfaces evenly struck off. For each kind of manure there were two pans of different sizes; all the No. 1 pans being largest and of the same size, and all the No. 2 pans being also equal to each other. They were then placed in a tray and set in the floor of an

outhouse. The door and window permitted a constant current of air over the pans; but they were completely protected from all rain. They were exposed from June 13 till July 30, and were weighed sixteen times. Seven of these weighings are given in the annexed table. The weights of dry manure are made 100, and the increase in each case is reduced and stated per centively as before.

Notes were kept of the state of the weather, which was sometimes dry and sometimes wet, but not much rain fell during the time under notice, so that the air was in an average state of saturation. It was not thought fit to continue the experiment longer, because large crops of mould began to show themselves on some of the pans, especially those containing the Turnip and Potato manures; and, as many fungi have a strong affinity for moisture, further results would have been vitiated.

The manures are placed in the table in the order of their absorptive power, and it will be seen that the

soil has absorbed 3 per cent., the ground coprolite 5, the cow-dung 16, the dissolved coprolite 25, the Challenge manure 37, the Turnip manure 39, the guano 53, and the Potato manure 92 per cent. The earth, under the conditions of atmosphere which here affected the experiment absorbed in a few days all the moisture it was capable of withdrawing from the air, and the ground coprolite behaved in a nearly similar manner. The cow-dung after July 15 gave off a little of the water it had up to that date absorbed. The superphosphate continued absorbing at a diminishing rate up to the end. The Challenge manure, Turnip manure, guano, and Potato manure, also went on to the end adding to their water, at a rate, upon the whole, gradually diminishing, the guano having added about one-half to its weight, and the Potato manure having nearly doubled its weight.

(To be continued.)

LIST OF GARDEN ORCHIDS.

DENDROBIUM.

(Continued from p. 528.)

- 175. *D. PARADOXUM*, Teijsm. and Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv., reprint, p. 12.—Sumatra. Buitenzorg Botanic Garden, 1862. Flowers 2 inches long, greenish.
- 176. *D. (DEIDILION) PARVUM*, Rehb. f., *Gard. Chron.* 1866, p. 1042; *Xenia*, ii., p. 164, t. 169.—Birma. Discovered and introduced by Rev. Mr. Parish for Messrs. Low, with whom it flowered in 1866. Small greenish flowers.
- 177. *D. PARMITH*, Rehb. f., *Bot. Zeit.* 1863, p. 237; *Bot. Mag.*, t. 5483; *Xenia*, ii., p. 140, t. 152; Jennings, *Orch.*, t. 39.—Moulmein. Discovered and introduced by Rev. Mr. Parish for Messrs. Low, with whom it flowered in 1863. A handsome species of the *D. noble* type, having almost

- wholly purple flowers, with a deeper coloured disc to the labellum, which is also very downy. Hort. Kew.
- D. PAXTONI*, Paxt. Mag., = *D. fimbriatum* var. *oculatum*.
- D. PAXTONI*, Lindl. = *D. chrysanthum*.
- 178. *D. (HOLCHRYSA) PERULA*, Rehb. f., *Hamb.*

Gartenz., xxi., p. 298.—Assam, India. Imported by Mr. J. Day about 1874. Flowers small, sulphur-yellow, streaked with orange.

179. *D. (DENDROGROBYN) PETRI*, Rehb. *f.*, *Gard. Chron.*, n.s., vii., p. 107.—*Polystea* or *Australa* (?). Introduced by Mr. Peter Veitch. Flowers white, in erect racemes.
180. *D. PHALANOPSIS*, Fitzgerald, *Gard. Chron.*, n.s., xiv., p. 38.—North Australia and New Guinea. Flowered by Captain Broomfield in 1880. Allied to *D. superbiens*, but the sepals not waned. Flowers lilac, 2–2½ inches in diameter.
181. *D. (PHELODENDRON) PICTUM*, Rehb. *f.*, *Gard. Chron.*, 1862, p. 548.—Borneo. Discovered and introduced by Mr. Hugh Low, and flowered in the nursery of Messrs. Low & Co., Ceylon. "Nearly allied to *D. aureo-roseum*. Sepals pale rose, petals and lip white, richly painted with deep crimson veins."
182. *D. (EUPHORBIA) PIERARHI*, Roxb., *Veitch Gard. Cat.*, p. 63 (*Boenm hantua*). Hook., *Exot. Flor.*, t. 1, p. 103, t. 2, p. 234; Lodd., *Bot. Cab.*, t. 750; *Bot. Rec.*, t. 1, p. 175; *Flore des Indes*, t. 1, p. 955 (var. *fulvifolium*).—Chittagong, India. Flowered in the Liverpool Botanic Garden about 1825. Sepals long and slender, bearing delicate transparent flowers throughout their entire length. Flowers pale rose, with a yellow lip. Some varieties are much more highly coloured than others. Hort. Kew.
183. *D. PLANIBULBA*, Lindl., *Bot. Reg.*, 1843, Misc., n. 79; *Hort. Acclim.*, vi., p. 80.—Manilla. Imported by Mr. Cumming and flowered by Messrs. Loddiges. A singular species, of small stature, and having small white flowers veined with purple.
184. *D. (BOIROTUM) ELICATILE*, Lindl., *Bot. Reg.*, 1846, Misc., n. 7; *D. puberulum*, Lindl., *Bot. Reg.*, 1846, Sp. Orch., p. 79, t. 1, p. 103. Imported by Messrs. Rolleston. Flowers large, solitary, dull yellow, tinged with red; labellum
185. *D. (EUPHORBIA) PRÆCINCTUM*, Rehb. *f.*, *Gard. Chron.*, n.s., vii., p. 750.—Imported by Messrs. Veitch with *D. devonianum*. "Flowers scarcely exceed ½ inch in length, of a pallid ochre colour; lip sulphur-yellow, orange in front."
186. *D. PRIMULIUM*, Lindl., *Gard. Chron.*, 1858, p. 400; *Journ. Linn. Soc.*, iii., p. 12; *Regel. Gartenflora*, x., t. 336; *D. nobil. var. pallidiflorum*, *Bot. Acclim.*, v., p. 500; Sikkim, India. Allied to *D. nobil.* and *D. cucullatum*. Flowers solitary, white, tipped with rose, and a yellowish downy labellum. Hort. Kew.
187. *D. (EUPHORBIA) PULCHERIMA*, Roxb., *Lindl. Gen. and Sp. Orch.*, p. 62; Lodd., *Bot. Cab.*, t. 1, p. 103; *Manil. Bot. Soc.*, t. 1, p. 103, t. 2, p. 507.—Sihet, India. Cultivated and flowered by Loddiges in 1833. This is referred to by Reichenbach and others as a variety of the same species as *D. devonianum*, but as it already possesses a distinctive name, and looks so different I keep it apart here. Although very beautiful it is by no means so grand a plant as *D. devonianum*, from which it differs in its more decumbent habit, much shorter, broader leaves, and in the smaller, nearly circular, shallowly lobed, golden-yellow disc, not two large separate blotches. Hort. Kew.
188. *D. PRINOSUM*, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv., reprint, p. 10.—Moluccas. Puitenzorg Botanic Garden, 1862. Inconspicuous.
189. *D. PURPURESCENS*, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv., reprint, p. 10.—Java. Puitenzorg Botanic Garden, 1862. Inconspicuous.
190. *D. (PYNOSTACHYUM) BENTH.* PURPUREUM, Roxburgh, *Flore Indica*, iii., p. 484; Miq., *Choux de Pé*, *Gard. Bot.*, 1870, t. 1, p. 20, fig. 1.—Moluccas. Cultivated in the Botanic Garden, Calcutta, at the beginning of the present century, and at Puitenzorg in 1866. A very distinct and curious species, of which I have seen no specimens. It has long stout stems and small flowers, something like those of *D. secundatum*, but much smaller, crowded together in spherical, sessile clusters.
191. *D. PYNOSTACHYUM*, Lindl., *Journ. Linn. Soc.*, iii., p. 19.—Moulmein. First discovered by Mr. Thos. Lobb, and subsequently introduced by the Rev. Mr. Farguhar, who sent it to Kew in 1866.
192. *D. PYSMALIUM*, Lindl., *Gen. and Sp. Orch.*, p. 82.—Siam. Puitenzorg Botanic Garden, 1869. Inconspicuous.
193. *D. QUADRANGULARE*, Parish, MSS.—Flowered at Kew in 1871.
194. *D. RABIANI*, Rehb. *f.*, *Venia*, iii., p. 130, t. 1, p. 116.—Borneo. Discovered and introduced by Mr. Hugh Low, for Messrs. Low & Co., of Upper Ceylon.
195. *D. RAMOSISSIMUM*, Wright, *Et. Pl. Ind. Or.*, t. 1, p. 168; *Journ. Linn. Soc.*, iii., p. 15. Ceylon, India. A small shrubby and branching species. Flowered at Kew in 1872.
196. *D. ELIACRATUM*, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv., reprint, p. 11.—Sumatra. First seen in the Botanic Garden, 1866. Inconspicuous.
197. *D. (EUPHORBIA) PULCHERIMA*, Lindl., *Bot. Reg.*, 1846, Misc., n. 110; Lindl., *Bot. Reg.*, 1846, Misc., n. 110; Lindl., *Bot. Reg.*, 1846, Misc., n. 110; Lindl., *Bot. Reg.*, 1846, Misc., n. 110; Singapore. Introduced by Mr. Cumming, and cultivated by Messrs. Loddiges in 1840. Flowers straw-coloured, not very pretty.

(To be continued)

HOME CORRESPONDENCE.

Dinner to Mr. Thomas Moore.—Although invitations to the dinner to be held at the Cannon Street Hotel on May 23 have been sent to all who have subscribed to the presentation fund, as well as to those members of the committee who have not subscribed, I think it desirable to guard against possible misunderstandings by way of this final note. The dinner will be served at 6.30; Dr. Masters, F.R.S., will preside. The charge to each guest will be 21s. Evening dress is optional. To the country cousins whom the Royal Horticultural Society's exhibition may bring to town, we say, "Don't trouble about evening dress, but come as you are." But notice in advance is particularly requested, because of the necessary marketing, cooking, &c. *Shirley Hilliard.*

Shrubs for Town Planting.—With reference to the letter on shrubs for town planting, inserted in your journal for May 6, I would suggest that a trial might be made of *Salixia adiantifolia* and the two kinds of *Catalpa*. I think both would grow in the smoky atmosphere of London, and, if so, they would be highly ornamental. *John Colebrook.*

Lawn-edge Cutters.—Some time ago we introduced to the notice of our readers, a valuable implement for hedge-clipping, introduced by Mr. Ridgway, of Macclesfield, and which has met with favour. Mr. Ridgway has lately been trying his hand at the invention of a simple machine for cutting lawn-edges, and has succeeded in producing a capital instrument, illustrated in fig. 100, and which having tried we are pleased to be able to report satisfactorily upon.

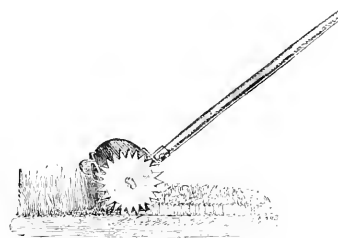


FIG. 100.—RIDGWAY'S LAWN-EDGE CUTTER.

Every gardener knows what a tedious, back-aching job lawn-edge cutting is—here is a tool that is worked with ease, and with an expedition that all will appreciate.

New Melons.—As the distributors of Best of All Melons we take exception to the judgment of your correspondent, Mr. Carmichael, in his note on new Melons (p. 602), wherein he describes "The standard of flavour in Best of All is not nearly high enough." Had your correspondent given a qualified judgment, by saying it was his experience, we should not have taken exception to it, but to condemn the Melon so strongly does not accord with the hundreds of leading gardeners who have grown this variety for the last two years, and have given their opinion of its merits as one of the finest flavoured Melons in cultivation. To confirm the opinions of so many cultivators we may mention that at the Great National Fruit Show held here last August we exhibited several fruit on our stand, and cut one or two for the opinion of several horticulturists, amongst which we may name Dr. Hogg, Mr. Penny, Mr. W. Sneed, Mr. J. Eastwood, &c., who declared it was the best flavoured Melon they had tasted. *Dickson, Brown & Tail, Manchester.*

Aucubas.—How grand these are this year, the winter having just suited them. As there has been no frost to injure the berries, they set with great freedom, and are now glowing on the bushes like coral, the colour being perfect, and in fine contrast with the rich spotted leaves by which the large clusters are backed. Seen as Aucubas are at present, so full of fruit, no shrub can be more ornamental, and the wonder is, that numbers of males are not planted to supply pollen, for if that were done it would be distributed by the air and bees, and the blossoms on females would be fertilised without any trouble. Our plants are some distance from each other, and yet the females are full of fruit, which may in part be accounted for by the quantity of males we have about, so that in whichever direction the wind is it carries some pollen. The best way, however, is to plant

both male and female pretty close together in sheltered, sunny spots, as there the flowers not only show and set more freely, but the berries do not get knocked about and damaged in the manner they are liable to when in more exposed situations, where the fruit often gets so much bruised as to turn it quite black. Those who are not so fortunate as to have male plants should at once obtain some in pots, or get pollen and artificially fertilise, as the pollen will travel and keep in an ordinary wooden pill-box, and may easily be applied to the stigmas of the blooms by means of a soft camel-hair brush, very slightly moistened in honey or sugar-and-water, to make it a little sticky, and so cause the pollen grain to adhere. Although there are now many varieties of Aucubas that have been obtained from seed, none are more showy than the old *A. japonica*—the common spotted kind, that has been known so long—as the contrast between the foliage of this and the berries is both striking and pleasing. Some two or three, however, are remarkable for their fine leaves, and are worth growing on that account, the best being *A. longifolia* and *A. michauxii*; but the seedlings, which any one may raise by sowing the berries, mostly vary, and yield about an equal percentage of males and females. The seed germinates most readily when sown in sharp sandy soil, where it should be covered by a handlight, or protected in some way from birds and mice, which devour it is just as it is beginning to grow. The berries require no washing to get rid of the pulp, as that soon rots away in the earth, and they may, therefore, be sown as they are any time now, as they are ripe and will soon fall from the bushes. *J. S.*

Nerium Oleander.—It may perhaps interest some of your readers to know how well this fine old plant flowers after being planted out in summer. We have now some grand plants against the back wall of our second vinery, which are covered with large trusses of bloom. We planted them out in June in a sheltered situation facing the south, and gave them plenty of weak liquid-manure while making their growth, and secured the canes from being broken by wind. They were lifted and re-potted in the autumn, and tied up against the back wall of the vinery, where they are now displaying their beauty to great advantage. They are valued here much for cutting, to be mixed with such flowers as *Stephanotis*, *Eucharis*, &c. I enclose a truss for your inspection. The plants are only three years old, and have from twenty to thirty trusses on each. *Fred. Thomson, The Gardens, Norman Court, Salisbury.* [Very fine, Ed.]

Wistaria sinensis.—As "H. L. C." wishes to know if there is a larger *Wistaria sinensis* in the country than the one at Luscombe Castle, South Devon, I beg to send you the dimensions of one at Oakwood, Chichester, Sussex. It is planted in the angle of the greenhouse and garden walls. The longest branch on the top of the garden wall eastward is 110 feet; six branches on the south front of the garden wall east, are 15 feet long each; two others are 10 feet long each; another branch on the top of the chimney measure 6 feet; another branch on the top of the back wall of the greenhouse westward is 27 feet, and one on the north of the back wall of the greenhouse 23 feet, making in all a total of 284 feet. It is now in bloom, and can be seen by any one who would like to call. Oakwood is about a mile from the BASHAM Railway Station on the Brighton and Portsmouth South Coast line. *G. L., Oakwood.*

The Black Italian Poplar is, no doubt, deserving of much of the praise bestowed upon it by your correspondent, Mr. Rust, at p. 602, except as regards the particular quality for which he recommends it the most. It is evident Mr. Rust has had no experience of the Canadian Poplar (*Populus canadensis nova*), or he would have hesitated before pronouncing the Black Italian variety as the fastest growing tree we have. In this respect it must give pre-eminence to the Canadian variety, which is altogether a great improvement, is more vigorous in growth, has larger and denser foliage, which is retained till quite late in the autumn. It is a very handsome tree, well adapted for planting wherever the Black Italian Poplar is considered to thrive. It is a most satisfactory tree to plant in exposed situations and in smoky neighbourhoods. *G. Z.*

Gentiana acaulis.—I am glad to see that one nurseryman at least has a good stock of this lovely Gentiana, and hope, now that attention has been called to its great beauty and usefulness as an edging plant, that many will be induced to try it, as I feel sure if they do they will be greatly pleased with the result. There is no doubt it must be largely grown from seed, as a dried root [? of *G. lutea*] is used for making decoction to be taken as a tonic, but not so much now as formerly, when quinine was less known. I see that the writer of the notice of the *Gentiana acaulis* at Slough speaks of the plant as growing in the shade; but my experience of it is that it requires sun, as it

is only under the influence of the solar rays that it opens its blossoms, which mostly turn south, and remain leaning that way. *J. Sheppard.*

The Alexander Peach.—I can fully endorse all that Mr. Rivers has said in favour of this Peach. It may be of interest to those who may be contemplating planting it, to know that last season I fruited it on the open wall, where it ripened its fruit quite a fortnight earlier than the earliest kinds growing in an unheated Peach-house. This season I have removed my tree into the Peach-house, having, after many trials, reluctantly arrived at the same conclusion as Mr. Rivers—that Peach growing in the open air is almost hopeless. *Chas. Meenan, The Gardens, St. Clare, near Ryde.*

Salvia patens.—This is a very useful, showy, and easily cultivated greenhouse plant; it is also an attractive bedding plant either planted in masses or in mixed beds, but it is as a greenhouse or conservatory plant that I shall now refer to, and for the embellishment of which, on account of its beautiful soft blue flowers—a colour peculiar to itself—it has few equals. Cuttings put in now singly in 3-inch pots in light sandy soil and placed in a Cucumber or Melon frame will root quickly, and by repeated shiftings into larger pots, as they require more room at the roots, and stopping of the shoots, and plenty of air and water at the roots, when necessary, will make useful flowering plants by the autumn. *H. W. W.*

Cleaning Boilers.—There are many letters in your columns about boilers, but one thing I have not yet seen touched upon, and that is, how to clean them. My boiler is a saddle, and it has only a little hole about three-quarters of an inch in diameter in one of the wings, which is quite insufficient to get dirt out from it, and utterly useless to clean the other wing. Now is not the inefficiency of the boiler often due to the fault of the water, and the way it is put in? Mine used to be fed from a little wooden cistern, into which coal, ashes, and a little soot fell, and from there into the boiler, and now I fear there is a deposit of mud in it from the dirty water which supplies it, and which comes down from a mill-dam, holding a good deal of clay and mud dissolved in it. Is there any way of putting up a filter to clear the water, and yet allow a strong flow, for other places are supplied from the same source, and how can the boiler be really cleaned out? It is a pity that pressure holes are not made in them, which, as the pressure is slight, might easily be done. I have no doubt that many boilers are covered with a thick deposit from the water, causing a great loss in firing. *J. R. H.*

Perennial Candytuft.—If the variety alluded to at page 592 as *Iberis superba* be identical with the kind I have under the designation of *Iberis garretii-folia superba*, I can well bear testimony to its great value as a spring decorative plant. Taking it for all in all, I think it the best of the genus, for although *I. gibraltarica* produces the largest trusses of bloom, the flowers are in the open, and the plant does not freely produce; the plant is of somewhat irregular habit, and it certainly is not thoroughly hardy. *I. garretii-folia superba* has, next to *I. gibraltarica*, the finest trusses, and these are of even purer hue than are those of *I. corifolia*, and are borne on longer stems, so that the plant is pre-eminently useful to furnish cut flowers. It is robust, of a free spreading habit, and quite hardy. Taken in conjunction with the *Cheiranthus Marshallii*, so full just now of rich orange flowers, I think these are two of the most effective and valuable of hardy perennials for the present season. *A. D.*

Coccocypselum discolor.—Although this is not a showy stove plant it is nevertheless a useful and somewhat curious one—useful on account of its trailing habit as well as by reason of its easy culture and striking contrast to other plants of similar growth, and curious on account of the deep blue berries which ornament the drooping shoots, which, hanging over the edge of the staging in pots, with white plants of *Pantolium variegatum*, &c., have a very pleasing effect. The leaves, too, which are ovate and about $\frac{1}{2}$ inch long, are covered with a down of the same colour as the berries. The plant propagates freely from cuttings, and succeeds under the most ordinary stove treatment. *H. W. W.*

The Salt Stork of April 29.—The storm of Saturday week did sad mischief here. All the early deciduous trees suffered terribly, and many of them are, I fear, injured for the year, as the leading and principal shoots appear quite destroyed at their extremities. No others suffered so much as the Maples, of which I have a considerable collection. I send you specimens of the foliage of *Acer saccharinum*, *A. dasycarpum*, and *A. platanoides* to which you may taste the salt still remaining, though they have been washed with frequent rains ever since. The

salt completely cauterised the foliage. Some of the evergreens, such as the common Laurel, and still more the Portugal Laurel suffered very much; but none of the Conifers, though several of them had put forth a considerable length of young tender shoots. *Cedrus atlantica*, the early common Spruce, and more especially *Picea cephalonica*, were covered with soft youthful growth, but they were uninjured. I am about 40 miles from the sea—the nearest point; but the wind did not come from there. It was west by south, and the atmosphere must have crossed North Devon, Somersetshire, Wiltshire, and part of Hampshire before arriving here. Still, the brine of the Atlantic was in it, as my poor trees indicate, but too clearly. *James Salter, Basingstoke, Basingstoke.*

Bouvardias.—Those who have the convenience of a few or intermediate-houses should not fail to grow a few Bouvardias, as, unquestionably, they are among the most useful winter-flowering plants in existence, affording as they do a large amount of choice bloom, which is of great value for cutting and working up in bouquets. To have them of a serviceable size, cuttings should be struck at once, and to obtain these it is necessary to put one or two old plants in strong moist heat, which will soon induce them to break and form side shoots, and these when about 3 inches long are sufficiently advanced for removal. If the cuttings just below a joint with a sharp knife and the lower leaves carefully removed, they will root as readily as *Verbenas*, but to get them to do this they must be placed in a propagating-box where they can be kept close and have a brisk temperature, or stood on a shady shelf up near the light in a stove covered with a bell-glass, under which they get the conditions required. As soon as struck—which, if all goes well, will happen about a month—they should be potted off singly in small pots and returned to the propagating-box, or to a hot-bed frame, where they can have the benefit of a moderately close moist heat for a time to get a fresh start. When fairly on the move they should at once have more air to gradually prepare them for the change of standing out in the open. As the summers are variable, and sometimes wet and cold, it is advisable to prepare a bed for them in a frame, where in case of an adverse change the lights may be put on, and if this is done the young plants may be planted in the bed by the middle of June. In making up the frame, the foundation should be formed by a foot or so of half rotten leaves, and on these 6 inches of refuse peat or leaf-mould and sharp turfy loam spread, in either of which Bouvardias root readily and grow with great freedom. As they are of thin spare habit a foot apart is quite far enough to plant, and as soon as they get beyond the points of the shoots should be nipped out, which will cause them to break and become moderately bushy below. All further attention the plants will require during summer is to be kept syringed or damped overhead on the afternoons of hot days and duly watered whenever they become dry at the roots. If greenfly assail them the easiest remedy is to close the lights and fumigate, or the plants may be syringed with weak tobacco-liquor, which will cleanse them at once. By the end of September the growth will be thoroughly hardened, and it will be time to lift and re-pot the plants, which should be done in light peaty soil, when it will be necessary to keep them close and warm till they get over the check. If wanted in flower early a few of the most forward may be placed in heat at once, and if kept there after the heads are cut they soon break again and yield a succession of bloom. Bouvardias will flower fairly well in a moderately warm greenhouse, but not nearly so well as they will where they can be subjected to more heat, as there they bloom continuously if assisted by the application of weak liquid-mannure. As to sorts the best to grow are *Vreelandii*, *Hogarthii*, *Maiden's Blush*, and *Oriflamme*, unless the doubles now being advertised should turn out more valuable, but of these I have had no experience as yet. Double flowers, however, are generally more lasting, although in this case it is doubtful if the doubleness will add to their beauty as compared with the singles, which are the perfection of lightness and finish. *J. Sheppard.*

Where to Plant Surplus Spring-flowering Plants.—As the time when spring-flowering plants—a few of which are still at their best—will have to make way for the summer occupants of the flower garden is now at hand, may I be allowed to suggest, for the benefit of those of your readers who may have been in the habit of consigning their surplus plants to the rubbish-heap, the planting of them in irregular and alternate patches on the banks on either side the avenues, shrubbery walks, and here and there in suitable situations amongst the trees in frequented places. Thus planted places which heretofore were cheerless in early spring are now, by reason of the masses of blue Forget-me-Nots, Violas, Primroses, Daffodils, white Arabis, Wallflowers, Violets, &c., which meet the eye at every turning in the drives and walks, rendered pleasing and interesting spots of resort, and the

air, which is pervaded with the fragrance of those ever popular flowers—Wallflowers and Violets—more pleasant to breathe. There are not a few unattractive spots in many places adjoining the carriage drives through the park, woods, and other frequented places which might, in the way above suggested, be beautified at a trifling labour expense. *Tortus.*

The Mimulus.—The superb forms of *Mimulus maculatus* which Mr. Clapham has created by long selection and careful hybridisation, in addition to their almost gorgeous beauty, are truly very hardy. I put out a large number of strong plants as early as the first week in April, and they are blooming very profusely. From one seedling plant I gathered flowers exactly 3 inches across, and perfectly round. I think those were the finest I have yet seen. On soil that is fairly good and light, yet cool, the Mimulus will grow almost luxuriantly, and produce a fine effect. The object of the grower should be to get up a good growth of side shoots, and to effect this it is well to stop the main or centre growth early. Plants will do remarkably well in the autumn, blooming late and luxuriating in the cool moist weather which then prevails. *A. D.*

Insects.—When Shakespeare penned those true and true words, "The worst of creatures fastest propagated," he must, one would think, have known something of garden troubles, and yet of the insects with which they have to contend, for truly the increase of some of these is marvellous, and where they spring from, or how many of them originate, is a mystery. Take red-spiders, for instance, the most minute of the lot, and the puzzle is how such pests get into a quite new house freshly planted with Vines or Peaches, and yet, if the conditions are favourable, hosts of them soon come into existence and spread with the greatest rapidity. Bad as red spiders are, however, they are not to be feared so generally, which breed so fast as to almost outrun all calculation, and if one or two only appear on a plant, their progeny, and those issuing from them, are soon all over the leaves, sucking out the juices and curling them up. What they have a special liking for just now are Roses and Peaches, which both show unmistakable signs that the enemy is at work, for, look where one will, crippled shoots are to be seen, and if these are not liberated and set going at once, they will take a long time in getting over the check. Tobacco-dust, though highly dangerous to leave on for any lengthened period, is an excellent remedy against aphids, as with a distributor, which may be carried in the pocket while disbanding is going on, a puff may be given to any shoot affected, and the progress and breeding of the insects at once stopped.

The best time, however, to apply the tobacco-liquor is early in the morning, when the trees or bushes are moist with dew, as then it adheres best, and as it at once acts on the fly, and causes them to leave their hold, they may easily be washed off by means of water from a garden engine or syringe. By looking over Peaches and Nectarines occasionally and treating them in the way referred to, they may be kept clean without having recourse to Gishurst or other insecticides of a similar nature, none of which can be used with the greatest success, a small tender shoot without much risk being injured. The dust may be made work of freely in such a case, and to make short work of the greenfly on Roses and cleanse the plants of their presence, there is nothing I am acquainted with equal to nicotine soap, which has the active properties of Tobacco in it, and by diluting it to the proper strength it may be syringed on, or the long shoots bent down and dipped in without causing much waste. Quassia chips boiled with some soft-soap in the water forms a good and cheap insecticide, and if a little tobacco-juice or nicotine is added it will quickly vanish under its influence. The only way of dealing effectually with the Rose-maggot, so snugly ensconced in the leaves it so dexterously curls, is to give each a loving squeeze between the finger and thumb, which may be done without bruising or harming the young tender foliage, as the grub is soft and collapses under the gentlest of pressure. The Gooseberry caterpillar, so prevalent in some gardens, may be got rid of by the same means, which should be sown thickly on the ground under the bushes, as there the larvae be hatched and issue forth as soon as the weather gets warm. Currants, so subject to greenfly, which affect the tips of the young branches, are best managed by nipping the points out, as the aphid cannot exist on the old hardened leaves, the tissues of which are too tough for them to get the sap through. The worst of all the aphid family are the black, which usually affect Cherries, and the only way of destroying them without harming the shoots is to use a strong solution of nicotine soap and immerse them all in it. The liquid at once penetrates their oily coating, and by its quick action seems to dissolve them. The aphid peculiar to Plums are almost as difficult to kill, and the best way of battling with these and the black on desert Cherries is to remove the young shoots early by timely stopping, as by doing this they may in many cases be kept away altogether. As to red-spider, the best

remedy where they affect trees on open walls is cold water, drenchings of which from a garden engine they cannot endure. Dryness at the roots is a frequent cause of these parasites affecting Peaches, to prevent which it is a good plan to mulch all trees with half-rotten manure, and this should be done early, so as to keep the moisture in and maintain the soil in an equable condition of warmth. By-and-by, when the fruit is swelling fast, an occasional soaking of sewage will do much towards keeping the trees in vigorous health, and will also assist them greatly in carrying their load. *J. Shappard.*

Reports of Societies.

Royal Horticultural: May 9.—James McIntosh, Esq., in the chair. The Rev. G. Henslow took Maples as the subject of his lecture, as Messrs. Veitch exhibited a fine series of new forms from Japan, remarkable for their coloured and variously dissected foliage. He first called attention to the fact that Maples abounded in the Miocene epoch, nineteen species having been found fossil at Teningen near Lake Constance. They were even attacked by a fungoid disease much resembling the Rhytisma acerinum, which forms black spots on the Sycamore. Maples were well known to the ancients for the value of their wood. Theophrastus, Virgil, and Ovid often alluded to the markings on the wood, for which it was prized, as it is now. Maples are found in Europe, North America, North India, and Japan. Of the European, the common Maple (*Acer campestre*, L.) is a well-known British shrub or small tree, the wood of which is valuable for cabinet work, and makes one of the best charcoals. *A. Pseudo-Platanus*, L., the Sycamore, has also valuable timber, while the knotted roots are used for inlaying, &c. The sap has been made into sugar and wine in the Western Highlands of Scotland. Of American species, *A. saccharinum*, L., the Rock-sugar or Bird's-eye Maple, is one of the most important. It was introduced here in 1735. The timber is valuable, and used instead of Oak when the latter is scarce. The fibres sometimes show peculiar arrangements, being undulated like that of the "curled Maple" (*A. rubrum* L., the red flowering Maple), or in spots, which gives the name of Bird's-eye. It forms excellent fuel and the ashes are rich in potash. Sugar is extracted from the sap by boiling, the flow of sap being peculiarly sensitive to climatic conditions (see a paper by Mr. Maw in the *Gardeners' Chronicle*, 1878, p. 137). Of the Japanese Maples lately introduced by Mr. Veitch, *Acer palmatum*, or polymorphum, is the most important, as being remarkable for the great variety in the forms and colour of the leaves. It was originally introduced in 1822, but for the beautiful and delicately cut-leaved new forms we are indebted to Mr. J. G. Veitch and Mr. C. Maries. Their names, *Ampelopsifolium*, *atropurpureum*, *dissectum*, &c., will describe their different peculiarities. Another species—*A. distylum*—as well as *A. carpinifolium*, both from Japan, are curious for the leaves being without lobes, the usual number varying from three to seven. As the first leaves developed on seedling plants (e.g., Sycamore) are without lobes, it represents a primitive condition, while the five or seven lobes obtained by later developed leaves, and characteristic of many species, would seem to be later developed forms—the three-lobed *Acer trilobatum* having been particularly characteristic of the Miocene epoch. Several other beautiful and interesting forms were exhibited by Messrs. Veitch, which were introduced by them, some not yet having distinctive names. He also exhibited some curious specimens of Japanese grafting, several varieties having been grafted on the same stem.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Larval Disease.—A letter was read from Mr. Clutton with reference to the statements made at a previous meeting by Mr. McLachlan, and stating that there was no doubt but that the insects really were effecting great injury by stripping the shoots of the leaves.

Rhododendrons.—Mr. Mangles showed cut blooms of several species and varieties of *Rhododendron*, and commented upon their characteristics. Among the specimens exhibited by Mr. Mangles were—1. One of the hybrids originally raised by Dean Herbert between *Azalea viscosa*, as the pollen parent, and *R. maximum*, and called *R. bigener*. 2. *R. nilagiricum*, true—a scarlet flowered variety, from the Nilgiri hills, and which occurs in Ceylon and other parts of India under various names. 3. *R. nilagiricum* of gardens, a large, pale rose-coloured variety, misnamed, as it is not a native of the Nilgiris but of Nepal, being, in fact, *R. Campbellii*. 4. *R. Fortunei*, a species discovered by

Fortune on the mountains of the province of Chekiang, at a height of about 3000 feet (see *Gardeners' Chronicle*, 1859, p. 368; *Botanical Magazine*, t. 5596). "The discovery," says Mr. Fortune, "was most unexpected, for . . . no *Rhododendron* had previously been known to exist in this part of China." The foliage is bold, the leaves oblong, heart-shaped, cuspidate, white on the under-surface; the flowers are borne in a somewhat pyramidal truss, the individual flowers being large, widely campanulate, pale rosy-lilac, nearly regular, and with stamens of nearly equal length. The parts of the flower are in seven. The flower recalls that of *R. Aucklandi*, but is abundantly distinct. 5. *R. calophyllum*, from Bootan, with bold oblong lanceolate leaves, glaucous on the under-surface, and large funnel-shaped white flowers. 6. *R. Edgeworthii*, with its rugose leaves covered with brown pubescence beneath. 7. *R. Thomsoni*, with its deep red flowers, in this instance quite free from spots. 8. *R. californicum*, a species remarkable from

affected in consequence of their varying modes of growth.

Germination of Seeds.—An interesting communication on this subject from Mr. Anderson-Henry was read, of which we hope to give the substance on another occasion.

Plants, &c., Exhibited.—Rev. H. Harpur-Crewe showed flowers of *Muscari armenicum*, the white variety of the Persian Lilac, which is very rarely met with; also of *Paeonia Witmanniana*, a native of the Caucasus, with flowers of a pale sulphur-yellow, and leaves puberulous on the under surface. Mr. G. F. Wilson showed a trowel of a particular shape, useful for dividing plants with as little injury to the roots as possible. As we shall probably give an illustration of this we defer further comment. From Mr. Doscaven came flowers of *Papaver umbrosum*, and from Mr. George, a flowering specimen of a hybrid between an Ivy-leaved *Felagonium* (*F. peltatum*) and *P. zonale*.



FIG. 101.—MASDEVALLIA ROSEA. (SEE PP. 628, 646)

its habitat, in the extreme Western States of the Union, and quite different from anything on the opposite side of the continent. The species is hardy here, and has pyramidal trusses of medium-sized rosy-lilac flowers, not unlike those of *R. ponticum* in form. 9. *R. Blandfordi*eforum, a very remarkable Malayan species, with tubular orange flowers, tipped with yellow. (See *Gard. Chron.* 1856, p. 548.) 10. *R. Koylei*, a species with reddish tubular flowers, somewhat like those of *R. Thomsoni*, but different.

Reversed Mushroom.—Mr. W. G. Smith showed a Mushroom (from Mr. Clarke, The Gardens, Shadwell Court, Theford) with a second in a reversed position on the top of the cap of the first, as has been figured in our columns on other occasions.

Fungus in Dilute Sulphuric Acid.—Mr. Smith alluded to the presence in large quantities of a fungous mould in dilute sulphuric acid, tinted with cochineal. The fungus when cultivated in syrup developed first into the "vinegar plant," and ultimately into *Penicillium crustaceum*.

Effect of the Late trials on Leaves.—Dr. Masters exhibited specimens of leaves of various trees, to show the different manner in which they were

FLORAL COMMITTEE.—The Rev. H. Harpur-Crewe in the chair. The principal new plants shown on this occasion were *Frax angulata*, a New Zealand trailing plant, with minute rhomb-shaped irregularly toothed leaves, and relatively large white Lobelia-like flowers; it is a charming plant for carpeting on the rockwork; *Azalea pontica atalerensis*, a variety with deep fiery orange-coloured blossoms; *Eurybia Gunni*, a Tasmanian shrub, with small, hoary, oblong, coarsely toothed leaves, and white starry flower-heads, each about an inch across, and freely produced at the ends of the branches; *Asiatic Thunberg*, a Japanese under-shrub with unequally pinnate or bi-pinnate leaves, the segments broad, yellowish-green, and sharply toothed; the small white flowers are very numerous, and borne in erect much branched pyramidal panicles, the flower-stalks being of a reddish colour and slightly downy. *Azalea rubiflora flore-pleno*, a species with soft pilose leaves, like those of *Azalea mollis*, and large double pinkish-lilac flowers, the petals being slightly spotted. *Cypripedium microchilum* had white flowers, the sepals marked with a central purple stripe on the inner surface; the lip is

small, white, and compressed from side to side; and *Dendrobium Curtisii*, a species with slender, leafless erect stems and small magenta-coloured flowers; on the barren shoots the leaves are linear lanceolate. These came from Messrs. Veitch & Sons. From Sir Trevor Lawrence, Bart., M.P. (Mr. Spyers, gr.), came *Pescatorea Lehmanni*, figured and described at p. 44 of our present volume; *Oncidium teretifolium*, a species with erect cylindrical leaves as thick as the thumb, and erect many-flowered panicles, the individual flowers being small and of a bright yellow colour; and *Masdevallia rosea*, flowering for the first time in Europe. The illustration, fig. 101, and the note published at p. 628, preclude the necessity of entering into further detail here. Messrs. Kelway & Son, Langport, showed *Scelopendrium vulgare* var. *densum*, a curious little variety, the short leaves of which are arranged and curled so as to resemble Parsley, and are divided in small dome-like tufts. Of this we shall give a full description on another occasion. From the Chairman's garden came *Mascria armenicum*, the largest and best of the *Mascria*. Messrs. Hurst & Son, Houndsditch, exhibited a variety of *Myosotis alpestris*, with golden-yellow foliage, a combination of colours not at all appropriate or suitable. Mr. B. S. Williams had *Amaryllis* *Edith*, a variety with nicely formed flowers very bright scarlet, feathered with white; the new Palm, *Kentia costata*, and a good plant of the grand *Hydrangea paniculata grandiflora*. Messrs. W. Paul & Son, Waltham Cross, had a small group of new *Noses*, which included a very pleasing new *H. P.*, named *Ulrich Irumer*, which will probably gain a higher award than the Committee gave it to-day. It is in the way of *Etienne Levet*, of beautiful form, deliciously scented, and one of the brightest in colour when seen at its best. Another new *H. P.*, *Queen of Queens*, also attracted some attention, being of the style of *Francois Michelin*, large and full, but peach-pink in colour and thin in the petal, and much wanting in fragrance. Cut flowers of some very pretty seedling *Carnations* came from Mr. Duffield, gr. to H. K. Mayor, Esq., Winchmore Hill; and a crimson-magenta of excellent form named *W. Howard* came from Mr. Howard, of Southgate, who also showed another good thing in the variety *Principina*, of which we shall also publish a full account in a subsequent issue. A nice box of seedling *Pansies* came from Mr. J. W. Perkins, Woodfield, Deckenham; and under the name of Mrs. Chas. Butler Mr. G. Aslett, gr. Warren Wood, Hatfield, exhibited beautiful blooms of *Rhododendron Fortunei*. Mr. Bennett, of Shepperton, contributed another of his hybrid *Tea Roses*, *Duchess of Albany*, a peach-coloured flower with a soft rose-coloured centre. Messrs. Canell & Son had another of their grand strains of zonal *Pelargoniums*, and some flowers of a good strain of *Mimulus*, including a duplex form. The awards made were as follows:—

First-class Certificates.

To Sir Trevor Lawrence, Bart., M.P., for *Pescatorea Lehmanni*.

To Sir Trevor Lawrence, Bart., M.P., for *Oncidium teretifolium*.

To Messrs. James Veitch & Sons, for *Azalea rubrifolia* (flore-pleno).

To Mr. W. Howard, for *Tree Carnation "W. Howard"*.

To Mr. W. Howard, for *Davallia Griffithiana*.

To Messrs. Kelway & Son, for *Scelopendrium vulgare densum*.

To Mr. Aslett, for *Rhododendron Fortunei*.

To the Rev. H. Harpur-Crew, for *Mascria armenicum*.

Second-class Certificate.

To Messrs. William Paul & Son, for *H. P. Rose Ulrich Brunner*.

FRUIT COMMITTEE.—John Lee, Esq., in the chair.

Mr. S. Ledham, Tarvin Road, Chester, again sent examples of his late *Broccoli*, all *Broccoli*, the most handsome and best in quality of any that have come under our notice. With heads of medium size, compact, and perfectly white, it is one of the most attractive in form, and as we have proved, of excellent table quality. A First-class Certificate was awarded. Messrs. James Veitch & Sons showed their Model *Broccoli*, a hardy, dwarf, self-protecting variety; and Mr. Draper, Gatham Hall Gardens, Sunderland, sent his selected variety, both of which suffered by the comparison with Ledham's. Mr. C. J. Salter, gr. to J. Southgate, Esq., Streatham, sent half-a-dozen fruits of the *Selborne Royal Cucumber*, a white-spined variety, ranging about 18 inches in length, but having an objectionably long neck. Messrs. Hurst & Son showed a handsomely variegated *Broccoli*; and Mr. Divers, gr. Wierton House, Maidstone, sent examples of *French Crab*, *Hansell's Souring*, *Court-pennet*, *Plum*, *Crab*, *Hansell's Apples*, and Mr. J. May, gr. to Capt. Le Blanc, Northaw House, Barnet, sent an early white-fleshed *Melon*. Mr. Miles sent from Wycombe Abbey Gardens two samples of winter *Spinach*, the one run to flower, as an usually sees it at this time, and the other—supposed to be a later variety—showing no signs of bolting, but having a good crop of large succulent leaves.

PROMENADE SHOW.—We were required to record a falling-off in the last meeting or two, and especially of the one under notice. It is not a healthy sign just at present, and we hope, is only the result of a little nursing for the summer show. The exhibition was held to-day in the western arcade, and included only a fine collection of pot *Roses* and cut blooms from Messrs. Wm. Paul & Sons, Waltham Cross, which gained a Silver-gilt *Flora Medal*, and which are fully alluded to at p. 634. Mr. B. S. Williams sent a small group of plants, conspicuous amongst which was a profusely flowered example of the beautiful *Psychotria jamaicensis*. A large collection of Japanese *Acer*s, which formed the subject of Mr. Henslow's afternoon lecture, came from Messrs. Veitch & Son, and were awarded a Silver *Flora Medal*. A beautiful collection of cut blooms of *Pyrethrum* grown under glass secured a Silver *Bankers Medal* from Messrs. Kelway & Son, Langport; and a similar award went to Mr. Runsey, Waltham Cross, for a choice lot of cut blooms of *Roses*. A large group of *Herbaceous Calceolarias* from Mr. C. J. Salter gained a Silver *Flora Medal*. From Chiswick Mr. Barron sent up a well-varied assortment of admirably grown plants in flower, including many of the always interesting race of *Cape Pelargoniums*.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew Square, Edinburgh, on Tuesday, May 2; Mr. Hugh Fraser, the President, in the chair. Mr. Alex. Shearer, landscape gardener, 4, Marchmont Street, Edinburgh, delivered an address on "Gardening Chemistry." Mr. John Morrison, Coney Park, Stirling, received a First-class Certificate for a new seedling *Rhubarb*, named *Stirling Castle*. It was of a beautiful crimson colour. Mr. Geo. McClure, Trinity Grove Gardens, received a First-class Certificate for a seedling *Auricula*, named *Duchess of Albany*. Mr. Geo. I. Brown, Milburn Cottage, exhibited a *Polyanthus*. Mr. Jas. Pegg, Wardle Lodge, exhibited a seedling *Amaryllis*, also a seedling *Cheranthus* from C. Marshall. Mr. Jas. Giddings exhibited flowers of which *Ilac* taken from the open air. Mr. M. Chapman, Easter Duddingstone Lodge, exhibited *Ribes speciosum* in flower, and *Podophyllum Emodi*, also a gold-leafed *Polyanthus* with double flowers. Mr. J. Dowie, Hinchinbrock, exhibited a sample of the *Apricot crop* from a south-west aspect, grown in the open, also trusses of the yellow *Bankans Rose* from south-west aspect in open. Mr. Andrew Paul, Gilmore Place, exhibited two fine *Orchid* plants in flower, viz., *Odontoglossum Pescatorei* and *Oncidium phycitochilum*; they were much admired. Messrs. Field & Co. exhibited flowers of *Golden Turk*, *Ranunculus*, and *Anemone Queen of Scariets*. Messrs. James Dickson & Sons exhibited six *Auriculas*, viz., *Vulcan* (Sims), *Sims Giddings* (Reid), *Loyalist* (Holden), *White Royal* (Traill), *Richard Headly* (Lightbody), and *Black Prince* (Smith).

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 10, 1882.

MONTH AND DAY.	BAROMETER.	TEMPERATURE OF THE AIR.					HYGROMETRY.— Height of Dew Point.	WIND.	KNOWALL.
		Mean Reading on 5° Fahr. from 8 a.m. to 8 p.m.	Range.	Mean for Day.	Mean for Week.	Increase or Decrease in 60 years.			
May 11	30.3	+0.2	5.7	5.2	5.1	5.2	96	S.E.	0.22
12	29.7	+0.5	9.3	5.7	10.5	5.3	88	W.S.W.	0.5
13	29.7	+0.6	10.1	10.1	10.5	7.4	74	W.S.W.	0.32
14	29.7	+0.2	10.4	10.1	10.3	8.4	72	W.S.W.	0.02
15	29.6	+0.2	10.5	11.5	10.7	10.7	71	N.W.	0.02
16	30.2	+0.4	10.5	12.0	10.7	11.0	71	N.W.	0.02
17	30.1	+0.4	10.6	10.6	10.5	8.4	77	N.W.	0.00
Mean	29.8	+0.4	10.2	10.5	10.5	10.5	78	S.W.	0.5

- May 4—A dull, damp day; great gloom from 12.30 to 3.10 p.m.; rain frequent till 3 p.m. Fine night.
- 5—A fine morning; overcast. A dull, gloomy afternoon. Rain at night.
- 6—Rain in early morning. A fine, bright afternoon, sun shining brightly, warm. Fine night.
- 7—A fine day, sun shining occasionally; thin clouds. Lightning seen in the North and West at night.
- 8—A very bright day, with sky overcast at times. Fine, cloudy night.
- 9—A very bright day, sun shining brightly. Dark sky. Fine night.
- 10—A dull, gloomy morning. A fine bright afternoon; sun shining. Sky overcast at times. Fine night, cloudy.

LONDON: Atmospheric Pressure.—During the week ending May 6 the reading of the barometer at the level of the sea increased from 29.46 inches at the beginning of the week to 29.81 inches by 9 A.M. on April 30, decreased to 29.73 inches by 9 A.M. on May 1, increased to 30 inches by 3 P.M. on the 2d, decreased to 29.71 inches by 3 P.M. on the 3d, increased to 29.73 inches by midnight on the 3d, decreased to 29.67 inches by 9 A.M. on the 4th, and was 29.97 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.82 inches, being 0.38 inch higher than last week, and 0.12 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 70°, on May 3. On April 30 the highest temperature was 50°. The mean of the seven high day temperatures was 61.7°.

The lowest temperature in the shade of the week was 37° on April 30; on May 6 the lowest temperature was 49°. The mean of the seven lowest temperatures was 44.5°.

The greatest range of temperature in one day was 23°.5, on May 3; the smallest was 12°, on the 4th. The mean of the seven daily ranges was 17.2°.

The mean temperatures were, on April 30, 45°.5; on May 1, 48°.4; on the 2d, 51°.2; on the 3d, 50°.7; on the 4th, 51°.2; on the 5th, 53°.5; and on the 6th, 54°.7; of these those of April 30 and May 1 were below their averages by 3°.9 and 1°.4 respectively, all the rest were above their averages by 1°.1, 6°.3, 6°.4, 2°.3, and 3°.1 respectively.

The mean temperature of the air for the week was 51°.6, being 5°.7 higher than last week, and 1°.1 above the average of the week.

The highest reading of a thermometer with black-ening in vacuum placed in the full rays of the sun, was 133° on May 3; the highest on the 4th was 67°.5. The mean of the seven days readings was 114.4°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 33°, on April 30. The mean of the seven readings was 39.7°.

Rain.—Rain fell on six days, to the amount of 1 inch.

ENGLAND: Temperature.—During the week ending May 6 the highest temperatures were 70°, at Blackheath, 69°.4 at Cambridge, and 67° at Sunderland. The highest temperature at Liverpool was 58°.4, at Bolton 58°.5, and at Hull 60°. The general mean was 63.6°.

The lowest temperatures in the week were 30°.5 at Cambridge, 33° at Sunderland, and 33°.1 at Wolverhampton. The lowest temperature at Brighton was 38°.6, at Bristol 38°.2, and at Plymouth 37°.8. The general mean was 35.7°.

The greatest ranges of temperature in the week were 38°.9 at Cambridge, 34° at Sunderland, and 33° at Blackheath. The least ranges were 20°.9 at Liverpool, 23° at Hull, and 24°.5 at Plymouth. The general mean was 27.9°.

The mean of the seven high day temperatures was highest at Cambridge, 63°.5, at Sunderland 61°.8, and at Blackheath 61°.7; and was lowest at Liverpool, 54°.6, at Bolton 55°.2, and at Bradford 55°.5. The general mean was 58.7°.

The mean of the seven lowest night temperatures was highest at Brighton, 46°, at Plymouth 44°.8, and at Blackheath 44°.5; and was lowest at Bolton, 38°.3, at Wolverhampton 39°, and at Sunderland 39°.3. The general mean was 41.8°.

The mean daily range was greatest at Cambridge, 22°.3, at Sunderland 22°, and at Truro and Nottingham 19°.7; and was least at Liverpool, 11°.6, at Plymouth 12°.8, and at Leeds 13°.2. The general mean was 16.9°.

The mean temperature for the week was highest at Brighton 51.8, at Blackheath 51.6, and at Cambridge 50.7; and was lowest at Bolton 45.1, at Wolverhampton 46°, and at Bradford 46°.9. The general mean was 48.5°.

Rain.—The largest falls were 1.63 inch at Nottingham, 1.55 inch at Leeds, and 1.13 inch at Bolton. The least falls were 0.41 inch at Liverpool, 0.49 inch at Plymouth, and 0.50 inch at Hull. The general mean fall was 0.93 inch. Rain fell on every day in the week at Bristol, and on five or six days at other stations.

SCOTLAND: Temperature.—During the week ending May 6 the highest temperature was 64°, at Dundee and at Paisley; at Greenock the highest temperature was 54°. The general mean was 57.8°. The lowest temperature in the week was 38°, at Paisley; at Leith the lowest temperature was 38°. The general mean was 33.6°.

The mean temperature for the week was highest at Paisley, 45°.5; and lowest at Aberdeen, 45.7°. The general mean was 46.9°.

Rain.—The largest fall was 1.14 inch at Greenock; the smallest was 0.12 inch, at Paisley. The general average fall was 0.59 inch.

JAMES GLAISHER, F.R.S.

Obituary.

On p. 604 reference was made to the deaths of two famous Northern florists—Mr. THOMAS WOODHEAD, of Halifax, and Mr. THOMAS MELLOR, of Ashton-under-Lyne. Mr. Woodhead died at his residence, Shildon Head, Halifax, on Sunday, April 30, at the age of fifty years, the cause of death being Bright's disease. He had been ailing for something like a year previously. For twenty years Mr. Woodhead had been a grower of Auriculas, and possessed one of the best, if not the best, collection in England. He was an amateur cultivator, as he filled the position of manager of the Shildon Head Brewery Company at Halifax for a considerable time. He was a lover of flowers from childhood, but his speciality was the Auricula, and in the blooming season he spent a great portion of his leisure among his flowers. Of late years he raised several seedlings, a few of which were seen at the Auricula Show at South Kensington a short time since, and others will be heard of in due course. In private life Mr. Woodhead was much esteemed. He was one of Nature's noblemen, and very straightforward in all his dealings. Hitherto Mr. George Rudd, of Bradford, has distributed the overflow of Mr. Woodhead's collection, but nothing is known at present as to what will be done with the plants. The collection is said to be rich in such fine varieties as George Lightbody, Smiling Beauty, Lanchashire Hero, Colonel Taylor, Both's Traclove, &c., as well as promising seedlings.

THOMAS MELLOR, who was for many years a constant exhibitor at the Auricula and Tulip shows in Lanchashire, died at his residence, at Ashton-under-Lyne, on May 1, at the age of sixty, or thereabout. He was a shoemaker by trade, but of late years had devoted himself almost entirely to floricultural pursuits. He cultivated Pinks, Ranunculuses, Tulips, Carnations, Pinks, Auriculas, Polyanthus, &c. He was one of the last of the Pink growers in his district. As much as thirty years ago he was an exhibitor of Pinks at Middleton. As a raiser he appears to have done but little save with Auriculas, and with these only recently. It is said he had a fine lot of promising seedlings. His garden was at Ashton Moss, some distance from his residence, and here he spent a great deal of his time. He, as well as the late Thomas Woodhead, was a member of the committee of the Northern National Auricula Society, and was a constant subscriber, and an attendant at the meetings, and always had good counsel to give. He was very upright in all his transactions as a florist, and is much mourned by those who had floricultural relations with him, as well as by those who were more intimately acquainted with him. It is said his fine collection of Auriculas has passed into the hands of Mr. William Brickbank, of Didsbury.

Enquiries.

He that questioneth much shall learn much.—DAVID.

BLACK PAINT FOR WALLS.—I am having some stone-and-line garden walls pointed, cemented, and wired. I propose to have them washed over with cement and water to cover cracks, &c., and then painted black. What would be the best stuff to use to blacken them with which will not hurt the trees? I have plenty of coal-tar, but understand that will destroy the trees. Oil paint will be far too expensive. Y. K. H. [Try Hill's Black Varnish, if not too costly. Ed.]

Answers to Correspondents.

COLLUS, G. H. A poor thing, of no commercial value. FIGS: 7. O. The affection looks very much like the work of a fungus, but we have found nothing in the shape of spores. The cells are gorged with yellow matter, and the hairs are in the same condition. It may arise from a sudden chill, or it is possible that thrips was present when the fruit was very young? It is only the superficial cells which are affected at present. We should be interested to know what the condition of the fruit is later in the season. M. J. D.

INSETS, F. H. K. Your Apple trees are attacked by numbers of the Weevil, Curculio (Nematus) oblongus, which destroy the buds of young Apple trees just as they burst forth, by eating them utterly away, and dropping to the ground at the slightest approach of danger, and reascending the trees in a few minutes after the danger is past. By laying large sheets under the branches, and violently shaking the latter, the beetles are easily dislodged, and may be swept off the sheets without delay, and burned. If left undisturbed, the females will deposit their eggs in the bloom-buds or young twigs, which should be picked off and also burnt. L. O. W.—D. K. The caterpillar is that of one

of the Geometridious Moths ("loopers" as they are popularly termed), probably of the "Orange-tooth" (Angrona prunaria). The mimetic resemblance to twigs occurs in many species, and was familiar to the earliest authors on the metamorphoses of insects.—Schubert, Co. Dava. The gummy-looking objects on the fruit-twigs are the females of a large species of cocoon or "scale insect." They should be exterminated as soon as possible, or they may occasion much damage if present in numbers.

NAMES OF PLANTS: H. T. B. No. 2, Spiraea Thunbergii; 4, Cytisus sessiliflorus. The other two, without numbers, are Caragana arboreas and Amelanchier canadensis, var. alabamica.—H. G. C. & S. Asparagus officinalis.—G. W. G. 1, Dendrolium perfoliatum; 2, D. fruticulatum; 3, Lycaete Harrisoniae.—H. J. R. Pteris longifolia, certainly.—A. H. The largest flower is Lycaete Harrisoniae. The others were not under numbers. Send again with more particulars.—T. B. M. 1, Aphyllanthes monensis; 2, W. F. C. & S. Arthropodium cirratum.—T. B. 1, Othonopsis cheirifolia.—C. W. D. 1, Veronica austriaca var., but we do not find the exact form you send in the Kew Herbarium, though we do not doubt that it belongs to that polymorphic species; 2, Taraxacum cordifolia, certainly; 3, Saxifraga tenella; 4, Erigeron philadelphicus; 5, E. bellidifolius.—H. M. 1, A semi-double flowered variety of Staphylea pinnata.—H. S. 1, Saxifraga granulata, fl.-pl.; 2, Muscar comata, C. Kimberley. The Bird Cherry (Prunus Padus).

PAINT: Y. K. H. Lead-paint. PANSLY: A Constant Reader. A very good strain; the fancy flowers especially being highly commendable.

PANSIES AND POLYANTHUSES: W. Candell. The Pansies are of good size and fair form, and the colours in the fancy flowers bright and well varied. The double sulphur-coloured Primrose is very fine, and very pleasing also; the yellow Polyanthus Golden Queen and the hose-hone form called Cloth of Gold, Jupiter, a very dark velvety maroon with bold clear centre, is very effective.

POLYANTHUS: J. L. Your gold-headed Polyanthus is a clear, bright, and showy border flower, but by no means a novelty. As a florist's flower its great defect is its blue-eye.

SHAMROCK: J. B. Dr. Prior says Medicago lupulina. In London T. repens is the plant generally used.

VINES: R. P. The excrescences are due to some derangement of the growth that is not much understood. They will do no harm.

WALLFLOWERS AND PANSIES: F. Komer. The flowers arrived in very fair condition. The brown, dark brown, and yellow extra double tree Wallflowers are splendid, more like double Saxets than Wallflowers, so perfectly double and handsome are the blooms. Of the Pansies we cannot write in such high terms; they are not first-class, judged by our standard. Dr. Faust or King of the Blacks is the only one we should covet.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editor," and not to any member of the staff personally. The Editor would be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to make them payable to William Richards, at the post-office, King Street, Covent Garden, London, and to send some note to inform the Publisher at the office of this journal.

CATALOGUES RECEIVED.

- C. R. FLERY, Castle Bromwich, Birmingham—Exhibition Dahlias.
LITTLE & BALLANTYNE, Carlisle—New Roses, Bedding Plants, &c.
E. W. SCRIBBLE, Vinstone Nursery, Plymouth—Bedding and Greenhouse Plants.
W. MAVO, Perry Barr, Birmingham—Bedding Plants, Chrysanthemums, &c.
DIXON & ROBINSON, 12, Old Millgate, Manchester—Bedding Plants, &c.
E. G. HENDERSON & SON, Maiden Vale, London, W.—Plants & General Nursery Stock.

COMMISSIONERS RECEIVED.—T. M.—J. S.—Sir T. L.—H. E.
—G. R.—Geneva.—J. G.—V. S.—S. R.—P. P.—B.
—E. M.—H. D.—R. McL.—H. G. Rebb.—F. J. T. B.—
—F. R.—Quedlinberg.—H. L. (Nepaul).—M.—Therise K.
—H. G.—H. G.—H. G.—H. G.—H. G.—H. G.—H. G.—H. G.—
—W. G.—U. M.—Girardin, Argentem.—C. B. Toves.—L. U.
—Nancy.—G. N.—J. G.—N. A. H. S.—E. Smith.—F. R.—
—M. D.—Clay & Wesley.—Christy.—N. B.—R. J.
—C. J.—M. J.—J. D.—W. H. H. D.—J. McK.—W. R.—
—M. T. F.—C. M. O.—Brookes & Co.—E. S. W.—J. N.—
—D. F.—G. Dawson.

Markets.

COVENT GARDEN, May 11.

Trade somewhat quieter this week, and prices depressed. James Webber, Wholesale Apple Market.

Table with 2 columns: Fruit—Average Wholesale Prices and Lemons, per 100. Lists various fruits like Figs, Gooseberry, Raspberries, etc. with prices in s. d. and p.

Table with 2 columns: Vegetables—Average Retail Prices and Potatoes, doz. Lists various vegetables like Artichokes, Asparagus, Beans, etc. with prices in s. d. and p.

CUT FLOWERS—Average Wholesale Prices.

Table with 2 columns: Cut Flowers—Average Wholesale Prices and Aralia, white, doz. Lists various cut flowers like Abutilon, Anemone, Arum lilies, etc. with prices in s. d. and p.

PLANTS IN POTS—Average Wholesale Prices.

Table with 2 columns: Plants in Pots—Average Wholesale Prices and Aralia Schottii, per doz. Lists various potted plants like Arbutus, Arum lilies, Azalea, etc. with prices in s. d. and p.

SEEDS.

LONDON: May 10.—A very quiet trade characterises the trade for farm seeds, and the season can now, in fact, be regarded as over. According to the Board of Trade returns the imports of Clover and grass seeds into the United Kingdom for the past month were 2,720,000 cwt., value £55,134; and 1,370,000 cwt., value £284 for Clover and other seeds continue to drop in, but for the moment there is no speculative enquiry for any description. Mustard and Rape seed are in improved request. Linsed tends slightly downwards. John Sainsbury & Sons, Seed Merchants, 37, Abchurch Lane, London, E.C.

POTATOS.

The Borough and Spitalfields Markets reports state that moderate supplies are to hand, which meet with a quiet trade. Quotations—Scottish Champsions, 50s. to 60s.; ditto Regents, 70s. to 80s.; Magnum Bonum, 55s. to 60s.; Victoria, 110s.; Lincoln Champions, 60s. to 70s.; York ditto, 60s. to 70s.; ditto Victoria, 120s.; flukes, 130s. per ton; German Reds, 4s. to 4s. 6d. per bag.—The imports into London last week comprised 15,847 bags from Birmingham, 2713 bags 837 half-boxes from Lincoln, 1754 packages from Malta, and 1195 bags from Snettlin.

COALS.

The following are the prices current at market during the week:—Easton Wym, 15s.; Walls End—Hawthorns, 14s. 3d.; Lambton, 15s.; Original Hartlepool, 15s. 6d.; Wear, 14s.; South Hetton, 15s. 6d.; Carleton, 15s. 6d.; South Kellow, 15s.; Thornley, 15s.; Hatfield, 15s. 6d.; Hetton Lyons, 15s.; Tunstall, 14s.; Chilton Tees, 14s. 6d.; Tees, 15s. 6d.

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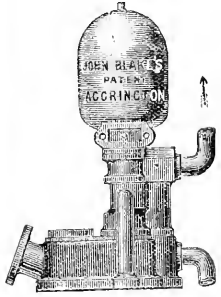
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From Captain GANDY, Castle Bank, Appley, February 11, 1880.

"The Self-acting Hydraulic Ram you erected for me is an excellent example of strength and good workmanship. Whilst working with a 7 ft. 4 in. fall, it forced water 71 ft. high, and is doing me every satisfaction. It will do more work in one day than the old Ram of another make could do in a week."

From V. F. BENETT-STANFORD, Esq., M.P., Pyt House, Tisbury, Wilts, August 29, 1880.

"I have no hesitation in saying my self-acting Hydraulic Ram, and apparatus for extending the supply, which you laid down here, and which you have so kindly and so very satisfactorily. The Ram forces upwards of 2000 gallons per day to a service reservoir holding 25,000 gallons at an elevation of 275 feet above the roof of the house, from which reservoir the water is distributed to the house, stables, horse barn, and several cottages, and in 1878-9, four jets can be thrown on the house from different sides, at a great force, and large volume. I consider your work has been done well and efficiently, and does you credit."

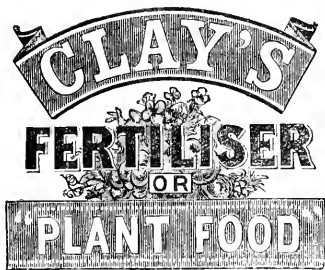
From the Rt. Hon. the Earl of GRANARD, Castle Forbes, March 1, 1880.

"The Hydraulic Ram erected for me at Castle Forbes has answered perfectly. Considering the very small fall attainable by the nature of the ground, it is a great success, and throws up water to a cistern on the top of the tower 55 ft. high. When Mr. Blake first proposed to put it up I doubted the possibility of its succeeding, owing to the nature of the ground; but I have been most agreeably undeceived."

From Sir ROBERT MENZIES, Bart., of Menzies, Rannoch Lodge, Rannoch, August 20, 1880.

"The Hydraulic Ram you fitted for me to supply water to Rannoch Lodge and Camerich, two houses three quarters of a mile apart, is a complete success. The extreme distance the water is carried is 1 1/2 miles, and though the elevations of the two houses are different, there is a regular supply of seven quarts per minute to each house, which has never ceased since the Ram was set going, about three months ago. Your Ram took the place of one previously tried on the same spot, which did not succeed, and was in fact a complete failure."

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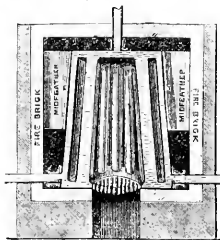
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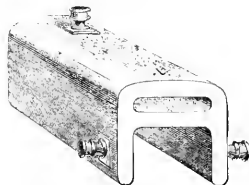
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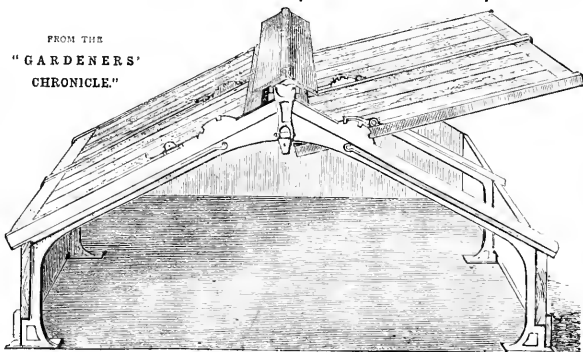
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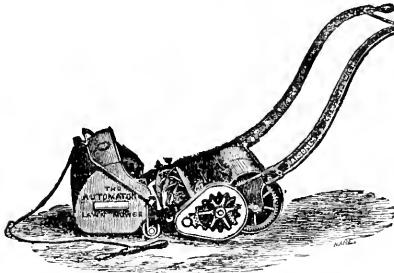
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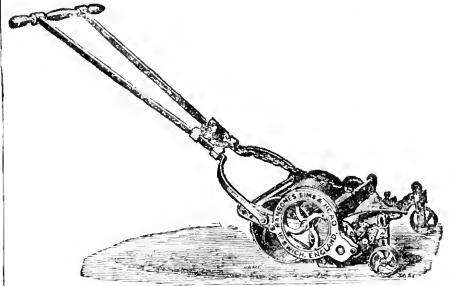
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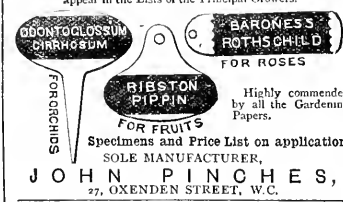


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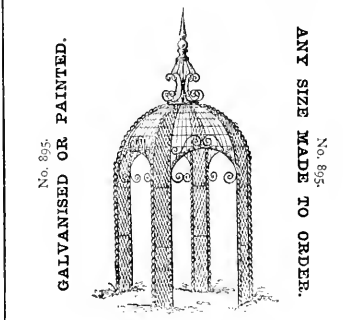
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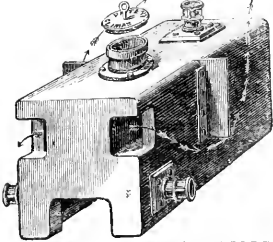
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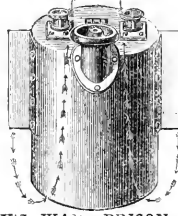
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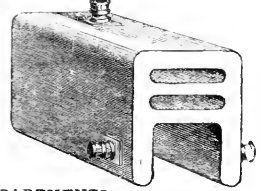
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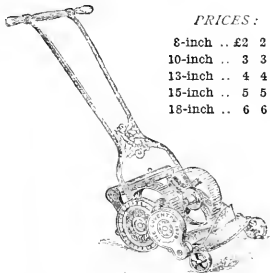
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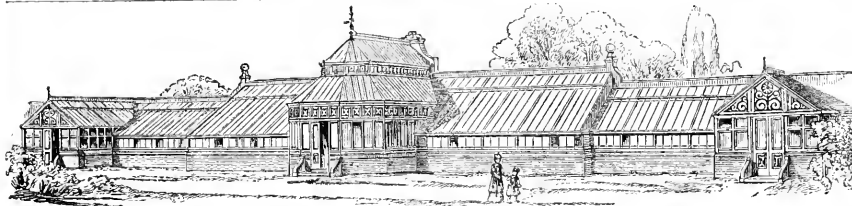
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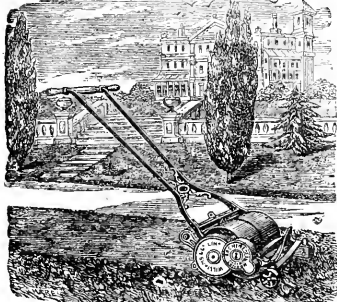
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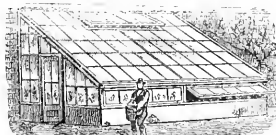
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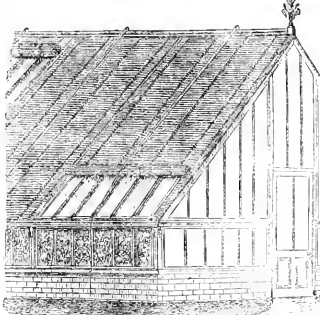
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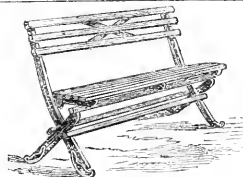
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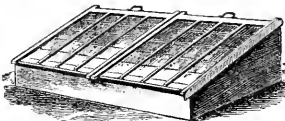
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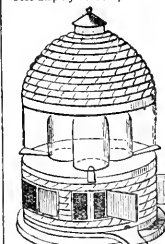
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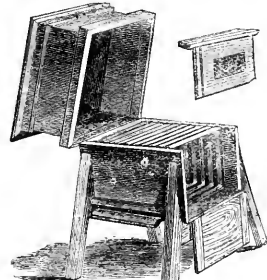


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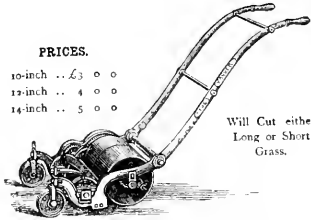
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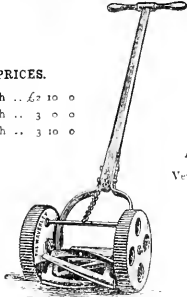


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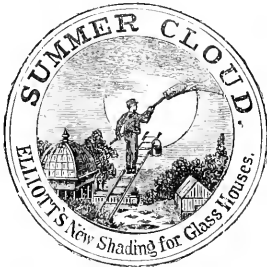
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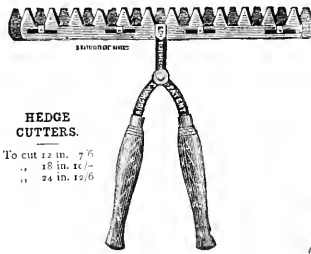
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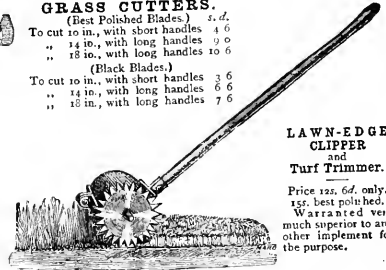


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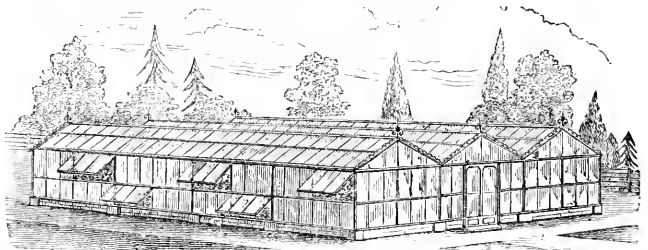
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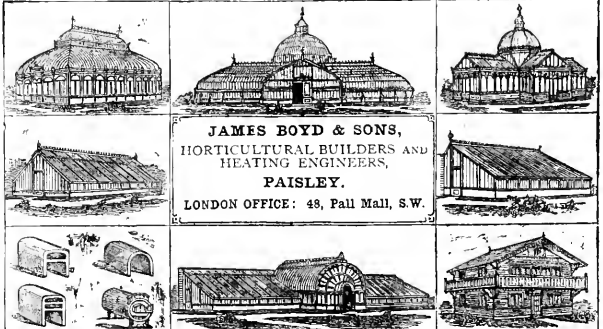


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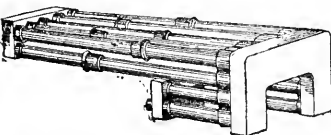
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FOREMAN, in a good establishment.—Age 27; well up in Plant and Fruit Growing. First-class character. Three and a half years in last place.—J. FRIEND, 4, Postland Place, Northend Road, Kensington, W.

FOREMAN; age 23.—The Advertiser wishes to recommend his Foreman to any Gardener, where good husband and trust are required. Seven and a half years' exceptional character.—A. O'FERR, The Gardens, Felcourt, East Grinstead.

FOREMAN and PROPAGATOR.—Age 30; twelve years in leading London Nurseries. Good knowledge of Stove and Greenhouse, Hard and Soft-wooded Plants, 300 Orchids.—J. S., Mr. Speed, Bulson Bridge, near Skipton, Yorkshire.

FOREMAN PROPAGATOR and GROWER.—Well up in the Cultivation of Roses, Conifers, Clematis, Soft-wooded Plants, &c. First-class references.—HORTUS, New Cumberton, near Leamington.

To Nurserymen.

FOREMAN and PROPAGATOR.—Age 31; thoroughly understands the Cultivation of Roses, Clematis, Rhododendrons, Conifers, and General Nursery Stock. Fifteen years' experience in leading nurseries. Last five and a half with Messrs. W. Wood & Son as above. Good references.—M. BARNETT, Maresfield, Uckfield, Sussex.

PROPAGATOR and GROWER of MARKET PLANTS.—ADVERTISER is well up in Growing in large quantities and in first-class style Hard and Soft-wooded Plants, and for Cut Blooms; also well up in Grooming. Highest references from well-known Market Growers.—G. J., Gardeners' Chronicle Office, W.C.

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JOURNEYMAN, in a good establishment.—Age 24; two and a half years' good character from last place.—G. BRANCKHILL, 25, Barrow Hill Road, Regent's Park, N.W.

JOURNEYMAN, in the Houses.—Age 23; has a fair knowledge of Orchids, cool and self-reliant. Stove and Greenhouse Plants, Vines, Cucumbers, and Melons. Five years' good character.—J. MYERS, 2, Mary's Cottages, Golton Road, Touchdown Common, Middlesex.

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IMPROVER, in a Gentleman's Garden or Nursery.—Age 21; no objection to pay a small Premium. Good character.—HENRY SMALLEY, Haubury Hall, Burton-on-Trent.

IMPROVER, in a Gentleman's Garden.—Age 17. Has been used to garden work, and to sing in the choir.—J. CURRI, Dr. Bellamy's, Ingoldstone, King's Lynn.

IMPROVER (O. GERTON, age 19).—Seven years' experience in Flower Gardens, Lawns, Conservatories. Strong, steady, very obliging. Under Glass preferred. State terms. &c.—all inquiries will be answered by H. W. PITCHER, Six, Hatfield Peverel, Essex.

WANTED, by a young gentleman, with which he could be useful and also gain a knowledge of FERTILIZING in all its uses and branches.—C. Gardeners' Chronicle Office, W.C.

SHOPMAN, or SALESMAN.—A young man desires re-employment in a Florist's establishment. Thorough knowledge of all kinds of Trade, Plants and their values, Bouquets, Cut Flowers, &c.—All Book-keeping.—C. Old Vicarage House, Fordham, Cambs.

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SHOPMAN or ASSISTANT.—Advertiser is desirous of re-employment as above. General knowledge of every detail; also Book-keeping. Seven years' experience.—E. BLACK, 10, Gallowater Road, Westbourne Park, W.

NURSERY CLERK.—Advertiser seeks a re-employment, having had twenty years' experience in the routine of both Nursery and Seed Trade. For the past two years conversant with Messrs. W. Paul and Son's above capacity. Efficient Correspondent and Book-keeper.—F. A. RICHE, 12, Pelham Road, South Wimbledon, S.

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By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, MR. EPPS has provided our breakfast tables with a delicately-flavoured beverage which may save us many a heavy doctor's bill by the judicious use of such articles of diet that constitute may be gradually built up until soundness of constitution and every element of disease. Hundreds of subtle maladies are arising around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame.—WOLF BRAND, & Co., Great Street, London.

EPPS'S COCOA.

GRATEFUL AND COMFORTING.

Made simply with boiling water or milk. Sold only in packets, labelled, JAMES EPPS AND CO., HOVE PATENT CHEMISTS, London.

Makers of Epps's Chocolate Essence for Afternoon use.

HOLLOWAY'S PILLS are the medicine most in repute for curing the multitudes of maladies which attack humanity when wet and cold weather gives place to more genial temperatures. In short, these Pills never fail to relieve the first class of distempers of the system, and to allay the nervous energy, which at times oppress a vast portion of the population. Under the wholesome, purifying, and strengthening powers exerted by these excellent Pills, the tongue becomes clean, the appetite improves, digestion is restored, and a soundly rendered perfect. Holloway's medicine possesses the highly estimable property of restoring the whole mass of blood, which in its renovated condition carries purity, strength, and vigour to every tissue of the body.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING and COLLECTING MACHINES for 1882.

THE WINNERS OF EVERY PRIZE IN ALL CASES OF COMPETITION.

Patronised by Her Most Gracious Majesty the Queen on many occasions, His Royal Highness the Prince of Wales, the King of the Belgians, the late Emperor of the French, the Emperor of Russia, and most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "Journal of Horticulture," of June 9, says:—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Son, of Leeds and London. As the machines are known in all lands where good laws are cherished, it is quite unnecessary to give any description of them."

Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856, and Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

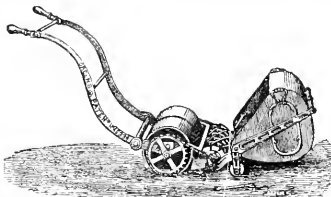
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible.
- 2d. They are worked with much greater ease than any other.
- 3d. They are the least liable to get out of order.
- 4th. They make little or no noise in working.
- 5th. They will cut either short or long Grass, wet or dry.

Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower,

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
*To cut 22 inches. By Two Men ...	8 10 0
*To cut 24 inches. By Two Men ...	9 0 0
*It made stronger, suitable for Donkey, gas, extra.	

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

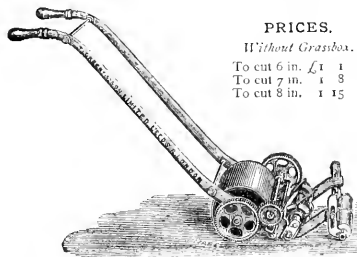
To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.



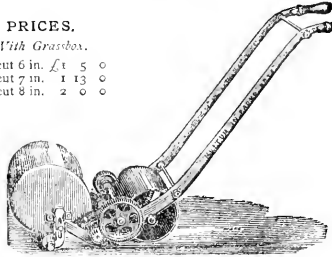
PRICES.

Without Grassbox.

To cut 6 in.	£1 1 0
To cut 7 in.	1 8 0
To cut 8 in.	1 15 0

This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, serviceable machine, and very easy to work.



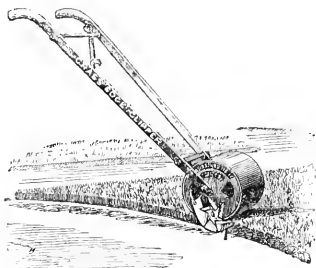
PRICES.

With Grassbox.

To cut 6 in.	£1 5 0
To cut 7 in.	1 13 0
To cut 8 in.	2 0 0

GREEN'S PATENT GRASS EDGE CLIPPER.

Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.



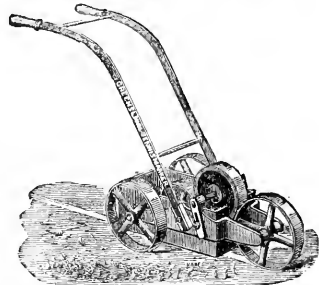
SIZE and PRICE.

Wide.	Diam.
8 inch	7 inch
Packing Case, 2s.	

GREEN'S PATENT LAWN TENNIS COURT MARKER.

This Machine is of novel design and construction, and the simplest and most effective in its operations.

In the trough containing the liquid there is a loose drum which revolves when the machine is in motion, and conveys the marking material to the intermediate pulley, which in its turn transmits it to the front one, so that the ground is marked effectively as the machine is pushed along.



Price, 21s.

Small Bag of Patent Marking Composition, 11d. and Packing, 1s. 6d.

Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

No Lawn Mower Manufacturer keeps so large a stock of Mowers as is to be found at our London Establishment, 53 and 55, Blackfriars Road, where purchasers can select out of several hundred Machines, of Hand, Pony, and Horse Power, and have their Orders executed the same day they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

THOMAS GREEN & SON (Limited), Smithfield Ironworks, Leeds; and 54 and 55, Blackfriars Road, London.

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whittiers, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, May 13, 1882. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow. Agent for Manchester—JOHN HEYWOOD.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants.

Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants, 536, KING'S ROAD, CHELSEA, LONDON, S.W.

TWO SPECIALITIES WORTHY OF EXTRA NOTICE.

The best Zonal Pelargonium in Cultivation for Summer Bedding is undoubtedly

MILES' WEST BRIGHTON GEM.

After five years' trial it still holds the first position as the most floriferous, compact, and effective variety yet introduced.

Awarded Three First-class Certificates.

Price, in 60-seed pots 4s. to 6s. per dozen.
" 48 " " " " " " 12s. to 15s. 6d. each.

Special quotations for large quantities.

MIGNONETTE.

No variety ever introduced has been found to equal **MILES' NEW HYBRID SPIRAL.**

Its beautiful, robust, compact and floriferous habit is the admiration of all who see it.

It is far more fragrant than any other variety.

Price of seed (in sealed packets only) 1s. per packet.

Established plants, in single pots, 1s. to 12s. per dozen, or 1s. 6d. each.

Liberal Discount to the Trade.

W. MILES,

WEST BRIGHTON NURSERIES, HOVE, SUSSEX.

PELARGONIUM EDWARD PERKINS

is one of the most distinct and best winter bloomers yet introduced. Coloured Plates, or Bunch of Flowers, 6d. each, returnable to Customers.

Strong Plants, 5s. to 10s. 6d. each.

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FOR LAWNS,

Of the finest close-growing Evergreen kinds, 12. per lb. Special preparations for all purposes, soils, and situations. Advice gratis.

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"Knowing how difficult it is to obtain pure stocks of grass seeds, even when price is a secondary consideration, I write to say the supply I obtained from you for our terrace lawns has given the greatest satisfaction."

"Please send me three bushels of the very best Lawn Grass Seeds, suitable for an exceedingly hot upland soil. . . . The seed I have had of you has been the only kind which has been able to resist the influence of the sun and drought upon my soil, gravely soil."

FARM SEEDS

Of all kinds, which have given unequalled satisfaction. See Illustrated and Descriptive LIST, free on application.

UNSURPASSED FLOWER and VEGETABLE SEEDS. LIST Free by Post.

RICHARD SMITH & CO.,

SEED MERCHANTS and NURSERMEN, WORCESTER.

(ESTABLISHED 1804)

Orchids a Speciality.

The stock at the Clapton Nursery is by far the largest hitherto seen in Europe, and is of such magnitude that, without seeing it, is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

CLAPTON NURSERY, LONDON, E.

CHOICE FLORISTS' FLOWERS

Nice Young Plants from Pots.

Carefully Packed, Post or Carriage Free, at Prices quoted.

CHRYSANTHEMUMS , new varieties of 1881, including some splendid sorts	Per dozen.—s. d.
„ large flowered, incurved, &c., fine exhibition varieties	6 0
„ good standard sorts, to name	4 0
„ 25s. per 100, and	2 6
DAHLIAS , new varieties of 1881, including Walter Williams, Joseph Green, and Prince of Denmark	5 0
„ Show and Fancy, splendid exhibition sorts,	2 6
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„ in splendid variety, from our fine collection	2 6
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FLOXES , Perennial, very choice varieties, fine	3 6
PENTSTEMONS , a very choice assortment	3 0

Cheque or Post-office Order to

DANIELS BROS.,
TOWN CLOSE NURSERIES,
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EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our **SPECIAL LIST of CHEAP FERNS**, which will be forwarded free on application.

W. and J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

SINGLE DAHLIAS.

BEING the introducers of, and the only recipients of Certificates for, the above, and holding all the best varieties in cultivation, including those of Messrs. Collingford and Moore, enables us to offer by far the best and choicest plants from seed, and mostly showing bud, which will certainly produce flowers equal to the named kinds, and many probably superior to anything yet seen in this family.

4s. per dozen, 25s. per 100, £10 per 1000.

All the Season.

What we can supply in large quantities, established in pots, and specially prepared for immediate decoration —

NICOTIANA AFFINIS, the most interesting new plant of the year.

LOBELIA BRIGHTON, best Light Blue.

EBORA, best Dark Blue.

SEEDLING BEGONIAS, found hardy during this last winter.

FENESTRATIONS, best named.

SINGLE DAHLIA COCCINEA, the best (species) Scarlet.

VIOLAS, three best colours—Blue, White, Yellow.

HENRY JACOBY, the darkest and best bedding Zonal.

CANNAS, all the best bedding.

AGERATUM SWANLEY BLUE, the best and brightest.

„ **CANNELL'S DWARF**, for carpet bedding, 4 inches average height.

BEDDING FANSIES, full of flowers—Yellow, Blue, and White.

ECHEVERIAS, the three best.

HERNIARIA GLABRA, best Dark Green, for carpet bedding.

SEEDLING PETUNIAS, raised from our well-known seed; the best ever offered.

BEDDING DAHLIAS, garden varieties.

CALCEOLARIA GOLDEN GEM, best Yellow.

CHRYSANTHEMUMS, now ready for the blooming pots.

HELIOTROPE WHITE LADY, an acquisition.

MALVA MOSCHATA ALBA (White Mallow), the best white-flowering hardy plant of the year.

And all the usual Bedding Plants.

Prices on application.

H. CANNELL & SONS,



EXHIBITION OF ORCHIDS.

B. S. WILLIAMS

Has much pleasure in announcing that he has determined to make a grand show of his flowering ORCHIDS, during the next two months, at home. The Exhibition will include, in addition to the usual stock of young Flowering Plants, all the grand specimens that he has been in the habit of including in his Collections, which have obtained the leading prizes for many years both at home and abroad.

Patrons of Horticulture are especially invited to inspect this Exhibition.

The Exhibition will contain large and small specimens of ODONTOGLOSSUMS, CATTLEYAS, LÆLIAS, ONCIDIUMS, CYPRIPEDIUMS, MASDEVALLIAS, VANDAS, AERIDES, SACCOLABIUMS, and other rare and showy ORCHIDS.

AN EARLY INSPECTION IS RESPECTFULLY INVITED.
NO CARDS TO VIEW REQUIRED.

A hearty welcome will be given to all who honour us with a visit.

CARRIAGE ROUTE.

Carriage Route from the West End is through Albany Street, Regent's Park, Park Street, Camden Town, Kenish Town, and Junction Road.

The North Metropolitan Tramway Cars, in addition to the Street Tramways Company's Cars, arrive at and start from the Nurseries, for the City and West End, every few minutes.
The Great Northern Main Line trains all stop at Holloway Station, which is within fifteen minutes' walk of the Nurseries. The Midland and Great Eastern Main Line trains all stop at Kenish Town Station, which is within ten minutes' walk of the Nurseries. The Midland, in connection with the Metropolitan Railway, runs frequent Trains during the day from all parts of London to Upper Holloway Station, which is within three minutes' walk of the Nurseries.

VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

TUESDAY NEXT.

**CYPRIPEDIUM SPICERIANUM,
PHALÆNOPSIS SCHILLERIANA,
PHALÆNOPSIS AMABILIS.**

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, on **TUESDAY NEXT**, May 23, at half-past 12 o'clock precisely, by order of Messrs. **HUGH LOW & Co.**, many hundreds of very fine plants of **CYPRIPEDIUM SPICERIANUM**, in splendid condition, amongst them fine specimens; large quantities of **DENDROBIUM INFUNDIBULUM**, **D. THYRSIFLORUM**, **D. EBURNEUM**, **D. FINDLEYANUM**; **AERIDES FIELDINGII**, **A. AFFINE**; **VANDA DENISONIANA**, pure white; **LÆLIA DORMANI**; large quantities of **PHALÆNOPSIS SCHILLERIANA** and **P. AMABILIS**, established plants; **P. ESMERALDA**, semi-established, and other **CHOICE ORCHIDS**.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN LONDON, W.C.

THURSDAY NEXT, MAY 25.

VANDA INSIGNIS (true).

MR. J. C. STEVENS has received instructions to offer for **SALE** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, **W.C.**, on **THURSDAY NEXT**, May 25, at half-past 12 o'clock precisely—

AN IMPORTATION, JUST RECEIVED IN EXCELLENT CONDITION, OF THIS VERY RARE AND REMARKABLE ORCHID.

This is the valuable **SPECIES** of which a few plants were introduced by Messrs. Veitch several years since, and of which, hitherto, some five or six plants only have been known in European collections. It must not be confounded with the plant grown in many collections under the name of **VANDA INSIGNIS**, but which is only a variety of **V. TRICOLOR**.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THURSDAY NEXT, MAY 25.

HIGHLY IMPORTANT SALE OF IMPORTED ORCHIDS.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, **W.C.**, on **THURSDAY NEXT**, May 25, at half-past 12 o'clock precisely, by order of Mr. **F. SANDER**, St. Albans,

LÆLIA ELEGANS,

Unique importations, in unprecedented quantity and quality.

LÆLIA PURPURATA.

Immense masses of this gigantic and noble Lælia.

ZYGOPETALUM GAUTIERI.

Showy and beautiful.

LÆLIA FLAVA.

The finest lot ever offered. This golden Lælia is especially chaste and fine.

CATTLEYS and LÆLIAS.

Very promising-looking species.

PHALÆNOPSIS SCHILLERIANA, **AMABILIS** in quantity; also some **TETRASPIS** and **ESMERALDA**.

MASDEVALLIA CHIMÆRA (Sander's variety), **REICHENBACHIANA** (**NORDMANIANA**), **HARRYANA**, **LINDENI**, **ELEPHANTICEPS**, and the new and fine **MASDEVALLIA MELANOXANTHA** (Reh. f.), **CATTLEYA SKINNERI**, and a large lot of **ODONTOGLOSSUM GRANDE**, some **ODONTOGLOSSUM ALEXANDRÆ** and **TRIUMPHANS**, described varieties, together with other importations in grand condition.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

ECHEVERIA METALLICA, in 48's. Several hundred.
H. STROUD AND SONS, Green Lanes, Finsbury Park, N.

DAHLIAS, Show, Fancy, and Pompon, fine strong plants of the best varieties, 25s. per 100. Single **DAHLIAS**, mixed, 6s. per dozen; named varieties, 8s. per dozen. Very strong plants of **NEW ROSES**, **Helene Faust** and **Violette**. However, 2s. 6d. each, 24s. per dozen; best Tea-scented varieties, 15s. to 24s. per dozen. **LISTS** on application to **JNO. HOUSE**, Eastgate Nurseries, Peterborough.

GERANIUMS (Surplus Stock).—**Vesuvius**, Autumn-struck, from single pots, 8s. per dozen; Feb. stores, 6s.; **Tom Thumb**, Autumn, single pots, 6s.; several other sorts, 8s., all extra fine. **APONOGETON DIS-TACHYON** (African Water Lily) 4s., 6s., and 6s., per dozen.
B. R. DAVIS, Veitch Nurseries, Veitch.

NEW CATALOGUES
of **Vegetable and Flower Seeds,**

Stove and Greenhouse | for 1892. | Florists' Flowers,
Plants, | | Herkaceous Plants,
Bedding Plants, | &c., &c.

For Plant advertisements, see last week's *Gardener's Chronicle*. **CHOICE STRAINS OF FLOWER SEED**, post-free, at low prices. The undernamed are all of one quality, and that really good; the difference being in size of packet only.

SEEDS OF BEDDING PLANTS, 3d. and 6d. packets.—**Ageratum**, **Lobelia** of sorts; **Pink**, **marikensis**, **Single Petunias**, **Golden Pyrethrum**, **Verbenas**, &c.

SEEDS OF FLORISTS' FLOWERS, 6d. and 1s. packets.—The best strains procurable. **Carnations**, **Piotees**, **Pinks**, **Fansies**, **Show or Fancy**; **Anthrimum**, **Hollyhock**, **Stage** or **Alpine Anemola**, **French or African Marigold**.

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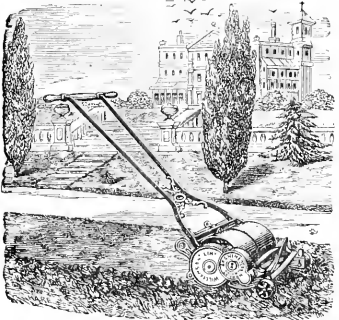
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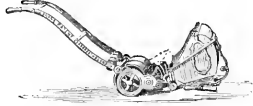
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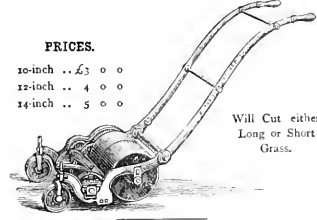
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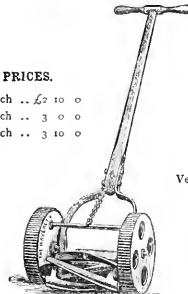


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THE

Gardeners' Chronicle.

SATURDAY, MAY 20, 1882.

NORBURY PARK.

TWO hundred years ago that "fine old English gentleman"—justly called the pattern of his age—John Evelyn, of Witton, since known from the title of his best known work as *Sylva* Evelyn—used occasionally to walk over to this village from his country house; and here, quoting his own words Sir Francis Stidolph received him, "among his goodly walks and hills shaded with Yew and Box." This is the earliest incident connected with Norbury that need be noticed. The next matter of interest in relation to landscape gardening concerns the Park. There are 300 acres of park in the gorge of the Mole, which passes through it with many a graceful bend, the chalk hills and slopes on either side sweeping down into the valley. Even in Surrey you will not find such another park—

"Where up the sunny banks
The trees retire in scattered ranks,
Save where, advanced before the rest,
On knoll or hillock rears his crest,
Lonely and huge, the giant Yew,
As champion to his country true,
Stands forth to guard the rearward post,
The bulwark of the scattered host."

But lovely as the park is now, it was much less so a hundred years ago, when unsightly Walnut trees overcrowded it, and when the old Manor House stood by the river, in a bad, obscure position, where it remained, damp and low, till Mr. William Lock bought the place in 1774, abandoned the old house, and built a new one. The present house is an improved edition of that new one of the last century, and it occupies a site which could not be altered for the better. It was produced by the improvements of one of the builders of the Houses of Parliament, the grandfather of the present owner of Norbury Park, Mr. T. D. Grissell. And although Norbury owns an ancient history and boasts a Saxon Thane and a Norman knight among its possessors, the erection of a good house on one of the best sites in Surrey is a matter of more importance to the present generation than any other portion of its history.

Mr. Lock has been described as "the Meccenas of English literature and art," but we are here in sight of Deepdene, once the residence of Thomas Hope, author of *Anastasis*, and collector of the greater part of the costly art treasures of that superb abode, and I shall, therefore, be content to describe Mr. Lock as a man of sense who pulled down the old house in the bottom. The spot he selected for his new mansion is about 400 feet above the river, and well sheltered by Beech woods behind. It is not an inch too high, nor a hair's breadth too low, and it commands such a prospect as you will hardly find elsewhere even in Surrey. From the windows and the lawn before the house are seen a varied park with famous Yews and graceful Beeches, the village of Mickleham, with the river and the gabled rectory; Box Hill—that promontory of many hues changing with the sky—Denbies and Dorking, with Deepdene among the trees beyond, the avenues of Betchworth Park, and Leith Hill in the distance.

Another piece of curious history connected

with Norbury Park is the planting of the Walnut trees. Evelyn speaks of "the Walnuts innumerable" which covered the path, to the exclusion of that ornamental kind of timber which now render it delightful. There is no record of the exact date of the planting of these ugly orchard trees, but we are told that they yielded in good years £300 in Walnuts, and no doubt they were planted by one of the priors who preceded Sir Francis Sidolph at Norbury Priory.

A few scattered Walnut trees have been allowed to remain, as interesting mementos of the past, but the orchard generally was destroyed by Mr. Anthony Chapman, who immediately preceded Mr. Lock. The Beeches in the Park were not mentioned by Evelyn on the occasion of his visit, and, judging from the apparent age of most of them, they replaced the Walnut trees towards the end of the last century, though some of the trees are older. They are now the chief ornament of the Park, and when Mr. Downing, the gardener, had conducted me to a favourable point of view, he might well speak with enthusiasm of the many shades of their foliage during the earliest expansion of the leaf, and the part they play in the tumbled foreground of a most sweet landscape.

The Yews of the "Druids' Grove" are probably not much altered since the seventeenth century; some say they were in their prime at the Conquest. Some of them have been appropriately named as "The King of the Park," "The Fallen Giant," and "The Horse and his Rider." The Grove extends from near the house, athwart the hill-side, towards the village of West Humble. At Foxbury, the high-seated villa of Mr. Birkett, I fortunately trespassed on his domain on leaving the Park, and met with more than my deserts from that kind proprietor, who showed me his happily selected site, its lovely outlook on the hills, his lawn and shrubs, and much-prized purple Gentians, all of which he enjoys at eighty-one, and has fresh Roses in his cheeks, so healthful is the pure air here, which has enabled even age, as he assured me, to dispense with any other stimulus.

I did not count the Yews—they stand by thousands, nor measure them—they vary from small and spreading to very large and tall, one measuring 22 feet round I believe. "None of your small waists here!" says a local writer. The Druids are said to have walked here, as the monks of the Priory below certainly did. They are supposed to have walked in more unlikely places, as in Wistman's Wood, in Dartmoor, where they are said to have cut Mistletoe on a site far too rough and cold for that plant. The banks of the Mole suit it better, by the way, and numerous great bunches grow upon the Black Poplars opposite the Burford Bridge Hotel. I believe that artists find more "manageable" scenery within the confines of Norbury Park, than in the wider landscape outside, where the hills cannot easily be caught, and the country retreats many miles beyond reach. They find convenient Thyme banks, rounded knolls and heights, and pleasing sweeps of smooth turf. Then there is always a delightful background of trees, or single specimens, a Beech for instance—a capital study—reported 100 feet spread by 160 feet high. Any artist might revel in Norbury Park, where each scene, shrub and tree, Yew or Box, or younger Beech, is ready for his canvas, to express by perfect Art what is already perfect in Nature. H. E.

GENISTA HISPANICA.—This pretty little shrub is now one mass of yellow blossoms. It forms a dense hemispherical bush, and is at all times, from the arrangement of its rigid spinous branchlets, an elegant plant. It is found under various names in nurseries. In one of the leading London nurseries we lately saw it labelled *Ulex nanus*, which in others it is sometimes named *U. hispanicus*. A native of Southern France, Spain, and Portugal.

New Garden Plants.

BOMAREA FRONDEA, Mart., n. sp.

(Fig. 102, p. 669.)

THIS is a heretofore undescribed species, belonging to the same group as *B. Caldasiana*, and, indeed, so similar to it in the dried state that it has been confounded with it. It may, however, be readily distinguished by the stem being leafy all the way up to the base of the inflorescence, by the shorter flower-stalks, the larger and more trumpet-shaped flowers, the more elongated flower-segments, the wedge-shaped shortly acuminate inner segments tapering at the base into a relatively very long narrow stalk. The colour of the outer segments is rich yellow (lutescens) splashed with orange, while that of the inner segments is clear canary-yellow (flavus), with numerous small purplish-brown spots. Our material has consisted of dried specimens collected by Carder at or near Bogota, and of a coloured drawing made by the same collector. After comparison we also refer to the same species the specimens collected by Holton, n. 145, and by Triana, n. 271, in the same neighbourhood.

Messrs. Shuttleworth & Carder have stock of the plant, and if in cultivation it prove as good as in the wild state (and the probability is it will prove better), then it will form a decided acquisition even to this very handsome group of greenhouse climbers. There can be no doubt as to its superiority to *B. Caldasiana*, to which, as above said, it is nearly allied. *M. T. J.*

ARIDIS SUAVISSIMUM, Lindl.

The original variety, as represented in Paxton's *Flower Garden*, ii., 66, with the fine broad leaves, the short, strong, exceedingly dense raceme, the fine colours, and—what could not be represented—the delicious perfume—a combination of Poinsettias and honey, I might say. It is long since I have had flowers sent of this plant: I think it is nearly lost. Hence it is declared by many spectators to be new, as I am informed by the lucky possessor, Dr. Alex. Paterson. It has taken a very long time to grow, till it has arrived to its actual perfection, bearing five spikes at once, being 4 feet high. There is no doubt that, to judge from the leaf, it was neither exposed to great intensity of heat, nor light, nor air. I believe some species can be managed to flower in short time, but I doubt whether the plants would bear the excitement. I think the safer plan is the Patersonian—*to be patient, and to give the plant full time.* H. G. R. H. f.

FERNS AT ROCKVILLE, EDINBURGH.

As Mr. Neill Fraser is kind enough to allow those who care for the cultivation of Ferns to see his collection, it is well known to many; and as he gets Ferns from various parts of the world, there is always something of fresh interest, as well as many a specimen of successful culture to be seen. It would be difficult to find a better basket Fern than *Goniophlebium subauriculatum*, with, probably, over a hundred fronds, varying in length from about 4 feet to 9 feet, many of them perfectly pendulous. The plant is about 6 feet through, and has grown from a small plant to this size in three or four years. Another finely-grown Fern is *Platypeltis sporidicarpa*, 16 feet in circumference, with fronds over 4 feet long. Its glaucous foliage is good for contrast with other Ferns; but a much prettier Fern is *Peris scaberula*, very like a small and finely-cut *Davallia*: this plant is 4½ feet across. A very fine specimen of *Adiantum gracillimum*, one of the most beautiful of Ferns, is not yet in its full beauty, nor is a plant of *Lygodium scandens* (nearly fifty years old), which is usually cut down every year, the new fronds growing about

15 feet in length. *Asplenium macrophyllum* is a good basket Fern, but of slow growth. The hanging fronds are about 2 feet long. *Nephrolepis exaltata* is grown in a picturesque way, planted on a hollow stem about 2 feet high; the runners root down the side of this stem, and send out young plants. On reaching the surface of the soil these runners form a mass of young Ferns, the whole specimen being formed of a group of plants at different levels. *Peris serrulata major cristata*, 19 feet in circumference, has gracefully drooping fronds, which are 4 feet long. There are some curious varieties of *Polypodium*, *P. sanctum*, more like a *Cystopteris* than a *Polypody*; *P. falcatum*, from North America, resembles a very acute form of *P. vulgare*; it is still rare. *P. vulgare cornubiense* has *Davallia*-like fronds; and *P. vulgare glomeratum* is another curious form; *Lomaria fluviatilis cristata*, from New Zealand, has long narrow fronds; *Pellaea densa*, somewhat resembling a very finely-cut Parsley Fern, is nearly hardy; *Gymnogramma triangularis*, imported from North America, is like a miniature *Polypodium calcareum*; *G. schizophylla* has fronds so finely-cut as to be quite lace-like; the annual, *G. leptophylla* is doing well in the cool-house, in which many of the Filmy Ferns are grown; the fronds of *Hymenophyllum demissum* var. *nutans* are very finely cut, and amongst many other good kinds are *Adiantum sessilifolium*, *A. speciosum*, with gracefully arched fronds; *Lygodium flexuosum*, with much larger and thicker leaves than *L. scandens*; and *Davallia pycnocarpa*, a new Fern from Fiji, which resembles *D. pentaphylla*, but is more divided—Mr. Neill Fraser thinks it is possibly a variety of the latter.

No plants are more successfully grown here than Filmy Ferns; *Trichomanes*, and *Hymenophyllum* in great variety appear perfectly at home, some in heat but the greater number in a cool house, which only receives heat from the adjoining houses. Todeas sow themselves freely in this house, and in it the most beautiful specimen of *Trichomanes* in the whole collection is to be found a piece of tree-stem covered thickly all over its sides with the little fronds (of hair-like fineness) of *T. trichoidemum*, the whole specimen being about 13 foot high, and nearly as wide. On another piece of tree stem is *T. trichoidemum* growing on one side of it, and *T. pyxidiferum* on the other. *Hymenophyllum arizonicum*, from New Zealand, on a Tree Fern stem, is another specimen of Filmy Ferns grown as they are imported on stems—a plan which not only seems to suit these small kinds well, but also effectively shows their beauty. *Hymenophyllum asplenoides* on a stem, from Jamaica; *Trichomanes lucens*, also imported from Jamaica, probably the only plant in the country, and promising to be a very pretty Fern; *T. floribundum*, very rare, from Demara; *Hymenophyllum Malingii*, probably the only plant yet imported from New Zealand; *Trichomanes crispum*, like a transparent *Lomaria*, with the fructification well developed along the edges of the fronds, from Jamaica; and *Hymenophyllum dilatatum*, with long narrow fronds, are amongst the rarest kinds grown here. There is a fine plant of *Trichomanes reniforme*, and a specimen of *Hymenophyllum demissum* is about 3 feet across. There are but a few of the large variety of Ferns grown under glass. The collection of Ferns, native and exotic, out-of-doors, is very interesting; but, of course, it is too early in the season to see the plants fully developed. *Struthiopteris orientalis*, from Japan, has lived out-of-doors for the last six years. C. J. Owen.

THE DEVON ROSERY.

ALTHOUGH this extensive Rose-growing establishment is not perhaps so familiarly known to our readers as others that could be mentioned, it is not because it lacks interest as regards size, or that it is behind other leading establishments in the variety and quality of the stocks of Roses that are annually grown for sale, and that find their way in larger or smaller numbers to the remotest corners of the United Kingdom every season. But the Devon Rosery is more than its title would lead the majority of people to believe. It is, indeed, a well organised general nursery establishment, in which will be found excellent variety and superior quality of all the leading plants, trees, and shrubs of the day. Roses are, however, the "speciality," and it is no part of the writer's business to find fault with the title selected by the owners, Messrs. Curtis, Sandford & Co., who have been for many years successful prize-takers in the

* *Bomarea frondosa*, Mart., n. sp. nov. (Fig. 102, p. 669.)
Gleditsia edulis, lanceolata; acuminata; sommis compositis; foliis; cynis umbellatis simplicibus; multilobis; basi foliatis; pedunculo racemosis brevibus (1-2 pollicibus); floribus 2 poll. long. tubulosis; compositis dorsibus; perianthio segmentis; exterioribus angustis oblongis obtusis; lobis aurantiaco-lavatis; segmentis interioribus (quarta parte majoribus) flavis rubro-maculatis. L. fructibus apice tenui; medio lacinioso; acuminatis; basi compositis in unguem longissimum angustatis. Hab. Bogota. B. S. Under the name of *B. Caldasiana* supra descripta. Holton, Herb., n. 145, et Triana, n. 271, in herb. Kew.

leading classes for Roses at the principal exhibitions held in London and elsewhere. The Rosery is situated about a mile from Torquay, and less than five minutes' walk from Torre station. The entrance to the nursery is off the Paignton Road. A neat flower garden, already planted out, is laid out in front of the offices, near to which there is a span-house filled with Tea Roses in flower, and at the back of this house a lean-to structure is filled with white Arums, hybrid Perpetual Roses in flower, and a stock of the useful

south, with a path up the centre. Roses are trained against the back wall, and are planted out in the border along with two other rows trained bush fashion for supplying cut blooms. Addressing a question as regards kinds, one finds standard sorts well to the front in Devonshire as elsewhere. Niphetos first, Isabella Sprunt, Goubault, Madame Falcot, Marie Van Houthe, and Alba rosea, are foremost upon a very long list, which are all legibly named, so that he who runs may read. The stage in

season; and over 200,000 stocks are planted for working the present year. These numbers will give the reader an idea of the extent to which Rose growing is carried on. The next door is opened, and, lo! more Roses, but upon the roof this time—two giants, trained in opposite directions, in a cool-house, 120 feet long, and of considerable width. The sort is Marschal Niel, and the same house contains stocks of Gladiolus The Bride, coming into flower, young Myrtles, Marguerites, Solanums, Deutzias, Clematis,

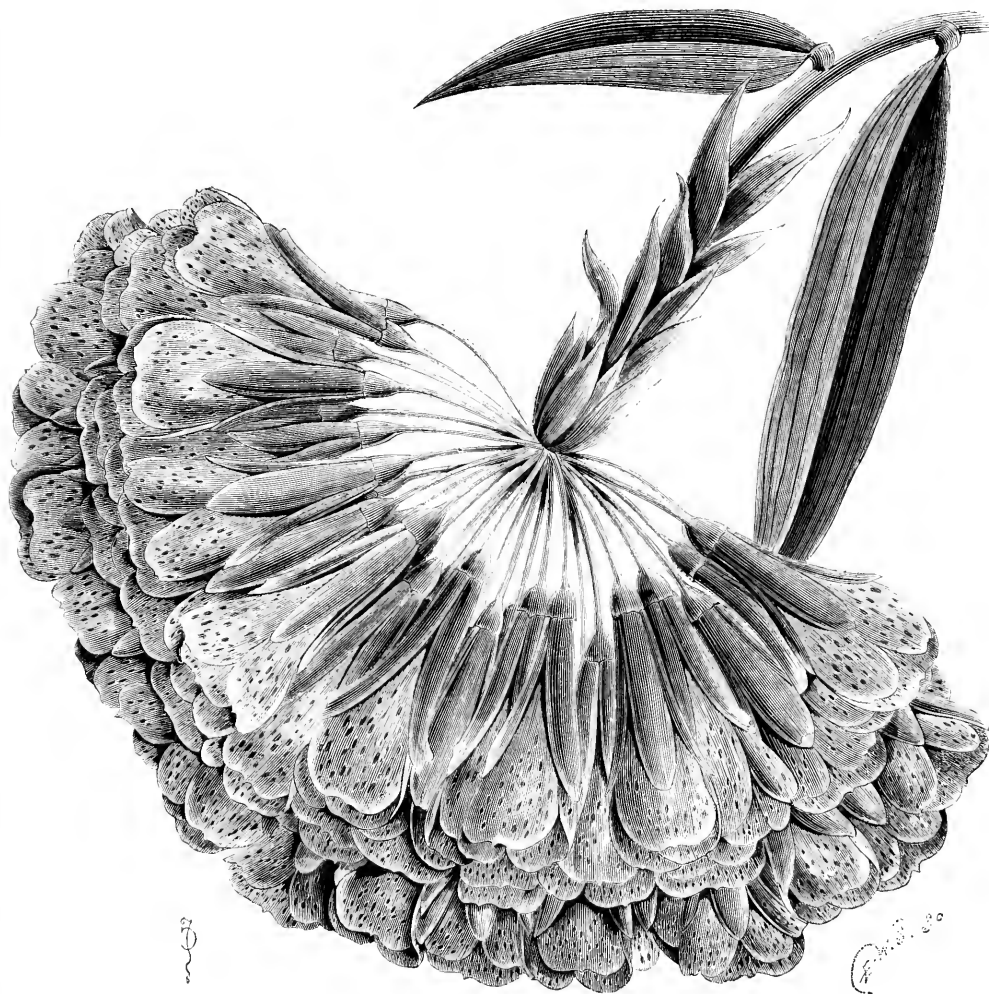


FIG. 102.—BOMAREA FRONDEA: FLOWERS ORANGE AND YELLOW WITH RED SPOTS. (SEE P. 668.)

Scolopendrium Morganii, which is beautifully crested. The next house, a fernery, contains a healthy stock of Adiantums (of sorts), Neopteris nidus, Pteris, Gymnogrammas, and others, and a large span-roofed house is filled with Camellias and Azaleas—the latter a very healthy, saleable lot just starting into growth. A house attached to one side of the Camellia-house is filled with Pelargoniums, which have done good service through the winter and are now enjoying a partial rest. The long Rose-house, in two divisions of 60 feet each, is, however, the chief attraction for visitors at present. It is a lean-to house facing the

front is gay with seasonable plants in flower of Arums, Azaleas, decorative Pelargoniums, Lilies of the Valley (very fine), Auriculas, Mignonette, and hosts of other flowers, showy or fragrant.

But Roses form the theme of our discourse. "I cut over eighty blooms out of this small border," said my guide, and there were hundreds of others in bud, many of which would be cut during the next few hours. Climbing Devonensis is grown extensively, but in order to avoid vagueness I will quote statistics. Over 150,000 Roses in pots, dwarfs and standards, are, I was informed, grown in the Devon Rosery in a

and other useful plants. The plant stove and Azalea-house, both 70 feet long, and only divided by a glass partition, are filled respectively with excellent stock, the former with plants of Medicinilla magnifica, Clerodendrons, Crotons, Gardenias, Dracaenas in variety, Palms, all the favourite sorts, and Marantas, and the collection of Azaleas is also very fine. Then follows a house 100 feet long, filled with show Pelargoniums and bedding plants, and another of equal length stocked with Marschal Niel Roses in superb health worked on the Brier stock. This house is in two divisions, the warm end being filled with Orchids,

Amaryllis, a large stock of *Eucharis amazonica*, and other miscellaneous plants. The propagating house is in two divisions of 60 and 30 feet each, and in this department the usual briskness is observable—thousands of plants are either rooted or rooting, and Rose grafting is also being conducted by experts at the work.

In the outdoor department the stock is also in first-rate condition. The Roses are planted in double rows at about a foot apart, and 3 feet between the rows. This is not the usual way of planting, but it admits of horse labour taking the place of hand labour in scuffling between the rows, and of course the purchaser shares the advantage of cheap labour with the proprietors, whose great aim is to produce the best article at the cheapest price. When the plants are staked the stakes lean towards each other until their points meet about half way between the two rows of plants, thereby avoiding contact with the implement employed in scuffling between the rows. Acres of Roses are to be seen treated in this way at the present time in the most vigorous and healthy condition, and the display of bloom promises to be earlier and of greater excellence than usual. The soil is rather largely impregnated with red oxide of iron, which, strange as it may appear, exercises a healthy influence in producing bunches of fibrous roots, thereby securing almost complete immunity from loss in transit however far the distance. It is a well-known proverb that he who can make two blades of grass grow where only one grew before deserves well of his country, and may not the proverb be made applicable where Onions are found growing between the rows of fruit stocks, and Potatoes between the rows of Rose stocks, as is the case in the Devon Rosery? "We keep no vacant spaces here," said my *chaperon*; "we crop heavily and change our quarters frequently, so that the land is never worn out with the same kind of crop." And the evidence is indubitable that what is stated is a fact. Provision is also made for abundance of water over several acres of the nursery, standpipes being fixed at certain distances to ensure a liberal supply. The general nursery stock consists of choice Conifers, ornamental trees and shrubs in variety, fruit trees, herbaceous and alpine plants, florists' flowers and bedding plants, well grown, and embracing nearly every novelty of approved repute for the embellishment of gardens of all sizes during the summer and autumn months, *Devonian*.

ALPINE PLANTS.

THE GENTIANS.—From a horticultural point of view we may distinguish two classes of Gentians—1, the large-growing species, which may be cultivated in the open border, and the stout roots of which are too much restricted in the narrow space afforded by our rockeries; 2, the smaller species, the fine and numerous roots of which are specially adapted to "alpine" cultivation. In the first series may be placed *G. lutea*, *purpurea*, *punctata*, *Charpentieri*, *Thomasi*, and *Gaudiniana*, as well as the two marsh-growing species, *G. asclepiadea* and *pneumonanthe*. The second series includes *G. verna*, *bavariae*, *brachyphylla*, *acutis*, *alpina*, *pyrenaica*, *ciliata*, and some allied species.

G. lutea, *L.*, is the most widely spread species of the genus. It is met with in all the mountain regions of Europe. In Switzerland it grows in alpine pastures at a height of 1000–2000 metres, but is often found at a lower elevation. This plant belongs specially to the mountain region, of the vegetation of which it forms one of the principal characteristics. Its tall habit and its bold broad leaves are very ornamental. This *Gentian*, the *Veratrum* and the *Rumex*, have the finest foliage of all our Swiss plants. *G. lutea* is almost always found in company with *Veratrum album*, the habit and the leaves of which are very like those of the *Gentian*, so that they are often confounded when not in flower, unless they are closely examined. *G. lutea* grows to a considerable height. I have seen specimens measuring 1.50 metres (4½ to 5 feet) in rich pastures. The numerous yellow flowers, arranged in cælebrum fashion, are unique in the genus. The cattle refuse its foliage and leave untouched the noble inflorescence, but on the other hand the shepherds and the natives make war upon it and dig up the enormous roots for distilling purposes and the formation of a liqueur. Such distilleries occur in all our

mountains, and this liqueur, which is useful to those who know how to partake of it in moderation, is a perfect cure to others of our mountain population, who cannot use it in moderation. The plant then is in process of extirpation, and if this be not checked it will become very rare.

G. lutea is easily cultivated. It is planted on grass in well drained soil, rich in humus. If it is wished to cultivate it on a rockery it must have a corner to itself where the soil is so deep as to admit of its deeply penetrating roots. Transplantation is not successful unless in the case of young plants. I have succeeded in propagating it by seed, but it requires five or six years before it will flower. *G. lutea* is in bloom from July to September.

G. purpurea, *L.*, has some resemblance as to foliage to the preceding, but differs in habit and flower. It is met with in the lofty pasture, and is very pretty and interesting. It flowers so late in the season as to be the last decoration of our mountains. This plant never attains a great height, and its flower-stem is provided with numerous thickly-set large flowers of the deepest purple. It is met with especially in moist places and on soils rich in humus. Its cultivation is the same as that appropriate to the four following species, and may be briefly summed up as follows:—

Soil peaty or of decayed leaves, aspect rather shady and moist, flat surface, or if it be desired to grow it on a rockery a deep pocket is required for it, as for *G. lutea*, but carefully drained, so that the water may readily get away. In the case of transplanted specimens, and which should be young and with all their roots, they must be cultivated in pots for a time, so as to allow them to become established and be more easily managed. Good plants are obtained from seed, but in order that the seed shall be well ripened it must be gathered late in the year—as late as October even.

G. punctata, *L.*, is a very pretty and remarkable species. Its yellow corolla is sprinkled with small reddish-purple spots, and in habit it is intermediate between *G. lutea* and *G. purpurea*. It is found especially in the Bernese Alps and in the higher Alps of the Valais.

G. Thomasi, *Gill*; *G. Charpentieri*, *Thom.*; *G. Gaudiniana*, *Thom.*, are three forms of hybrid origin; nevertheless, by reason of their very marked characteristics, some botanists consider them as species. They are rarely met with, and indeed are nearly confined to the mountain districts of Western Switzerland, as on the Dent du Morcle, the Croix de Taverne, and the grassy slopes of Anzeindaz.

G. cruciata, *L.*, is a very pretty species, with flowers arranged crosswise, in large heads, and of a celestial blue. It is found on all our limestone mountains and is common on the Jura range. This species does not belong to the higher alpine region, but to the lower mountain districts, and may sometimes even be met with in the plains. It is thus that in the plateaux and meadows which encircle the base of the Jura, *G. cruciata* occurs in admixture with the members of the Swiss flora, and bears the brilliancy of an almost Italian sun. Its foliage is handsome and bright, and it has the advantage of flowering late in the year, the roots being smaller than in the previously mentioned species, it may be more readily cultivated on the rockery, but the pocket must be large and well-drained. If a clump of it is grown in such a situation, the effect will be better than if grown as isolated specimens. I have seen it make a good appearance when used for edgings in the open ground. For this purpose it must be grown in a sunny situation, and in a rich limestone soil.

G. pneumonanthe, *L.*, is a very beautiful species, which is a marsh or bog plant. It grows on the plains and is not met with on the mountains. Its elegant habit, its deep green shining leaves and its large flowers, arranged in heads, are of the finest blue. They have precisely the colour and form of the flowers of *G. acutis*, but are smaller and arranged in groups of five or six. The height of the plant varies according to the soil. I have met with some which did not exceed 15–20 cm. in height, while others on the banks of streamlets attained a height of a metre. This fine species is met with in the marshy districts of Yverdon (Vaud), and generally speaking in all the marshes at the base of the Jura; and may (although not usually met with on the mountains) be seen near St. Croix, a village surrounded by peat bogs and at an elevation of 1000 metres above the sea. I grow this fine species in good leaf-mould mixed with sphagnum and sand in damp places, but fully exposed to the sun. On a rockery it should be grown in a deep pocket and plentifully supplied with water.

G. asclepiadea, *L.*, resembles the preceding, but is more alpine in its locality, and is only rarely met with in the plains; it is, nevertheless, a bog plant, but which occurs especially on the mountain sides. It is true that in the canton of Zurich, and generally in the lower Alps, it descends to the base of the mountains. It is met with thus all along the Albis-mountains. It descends even to the marshy grounds of the "petits cantons." Its habit differs from that of *G. pneumonanthe* in that its stems are taller, provided with broad, clear green leaves, while the flowers are arranged all along the stem in the axis of the leaves. It forms then long spikes of blue flowers, larger than those of *G. pneumonanthe*, but of a less bright colour. There is a white variety. This plant, which has been introduced among our herbaceous plants in gardens, requires no special care, and succeeds very well in the open border. Nevertheless, to cultivate it well it should be grown in peat, or on porous soil kept moist. Its immense roots afford an obstacle to its transplantation from the mountains, but if quite young plants be chosen success will ensue. This plant grows generally on the margins of woods, or in coppices, never fully exposed to the sun, but always where there is much moisture—conditions easily imitated in cultivation. I have seen in the woods which are near the Plan de Fremire above Bex, at 1068 metres elevation, plants of this species, the stems of which were more than a yard in height, and which were covered with flowers in their upper portion, producing a beautiful effect. *H. Correvon, Botanic Garden, Geneva.*

(To be continued.)

MANURES AS ABSORBENTS OF WATER.

BY A. STEPHEN WILSON.

(Continued from p. 641.)

FOURTH SERIES.

THE fourth series of comparisons consisted of some of the same manures as were used in the third series. They were taken from the same dried heaps, but put into cups of a different form, the intention being to have confirmation of results under various circumstances. The cups were placed in the same floor upon a board, so as to avoid adhesive moisture. Only a few of the weightings are recorded in the subjoined table.

1881.	I.		II.		III.		IV.	
	Cow-dung.	Turnip Manure.	Challenge Manure.	Challenge Manure.	Challenge Manure.	Challenge Manure.	Challenge Manure.	Challenge Manure.
June 13	100	100	100	100	100	100	100	100
" 23	110	109	110	110	110	110	116	116
July 4	115	116	117	117	117	117	130	130
" 15	119	121	122	122	122	122	143	143
" 30	119	125	127	127	127	127	159	159

In this experiment the cups were deeper and had less surface than in the previous case, but the order of absorptive power is nearly the same as before. The period of exposure was the same as in the third series, but the Potato manure—the most powerfully absorptive of the set—has here only taken up 59 per cent., while in the previous case it took up 92 per cent. Probably the difference is to be explained partly by the difference in area of surface exposed; but there are evidently other considerations involved, because in this case the deeper cup of cow-dung with less surface has the higher weight of absorbed moisture, namely, 19 as against 16. I shall not at present attempt to explain this difficulty, as it in no way affects the main contention.

FIFTH SERIES.

THE fifth series of comparisons was also with some of the same manures as above, dried in the same way, but tested in another form of cups, and in the same place as the others. Only a sufficient number of weightings are given to show the comparative rate of absorption:—

1881.	I.		II.		III.		IV.		V.	
	Earth.	Ground Coprolite.	Ground Coprolite.	Dissoled Coprolite.	Turnip Manure.	Turnip Manure.	Turnip Manure.	Turnip Manure.	Turnip Manure.	Guano.
June 13	100	100	100	100	100	100	100	100	100	100
" 21	102	102	102	103	103	103	105	105	105	105
" 29	102	103	103	103	103	103	108	108	109	109
July 7	103	103	103	103	103	103	111	111	111	111
" 15	103	104	104	104	104	104	114	114	114	114
" 30	103	104	104	104	104	104	117	117	117	117

Here the coprolite dissolved with sulphuric acid absorbs four times as much water as the same coprolite merely ground to a fine flour. In the third series the dissolved phosphate took up five times as much as the ground phosphate. The difference no doubt arises from causes acting in relation to difference of surface exposed; but that the superphosphate absorbs a large amount of moisture more than the ground phosphate is clear. It is clear also that the guano, as compared with the soil and the ground phosphate, has a high hygroscopic power.

DEDUCTIONS.

No new property in any of the substances here experimented with is assumed to be discovered; but only some of the well known properties assumed to be set perhaps in a new light. Into the composition of guano, superphosphate, and the various Turnip and Potato manures, enter large quantities of various salts of a highly deliquescent character—that is, salts which are highly hygroscopic. The large percentages of sulphate of potash and ammonia in Potato and Turnip manures, explain why, in the above experiments, these manures absorb such large quantities of moisture. A comparison of the composition of the superphosphates with the undissolved materials of which they are formed, also explains why these materials, after being treated with sulphuric acid, became more absorptive of moisture.

Now if in a dry season part of a Turnip crop, for example, is laid down with a hygroscopic manure and part with a non-hygroscopic, the plants in the first case will be better supplied with water than in the second case.

HOW ROOTS GET WATER.

But how do the roots of plants get water? In plants which grow in water in its liquid form, the roots are directly in contact with water, and the matter seems plain. But with plants which grow in drained land, where there is no water in a liquid form, the aspect of things is different.

I filled pots of clear glass with small stones and loose open soil up to near the brim and finished with a thin layer of good soil. Seeds of Oats, Wheat, and Barley were then planted close round the edge, so that their roots would come down near the clear glass through and amongst the openings made by the small stones and lumpy soil. Whenever a fresh growing root appeared in an available position, a low power objective was directed upon it, and it was found that the root-hairs were covered with innumerable vesicles of moisture. I therefore concluded that in dry soils the roots of plants do not go in search of water—the water comes in search of them. The water which they need is condensed upon their root-hairs, and thence absorbed into the tissue.

Now a manure which has a highly hygroscopic capacity will keep the soil around the roots of plants better charged with moisture than a manure of the opposite character; evaporation will fill the interspaces of the soil with vapour, and will thus enable the moisture withdrawn from the air to be condensed on the roots. Whether any part of the food of a plant may be condensed in solution upon the root-hairs in addition to mere water may be a question. "Liebig has suggested," say Johnston and Cameron, "that plants do not take up their food in solution, seeing that it is so sparingly soluble in the liquid present in the soil. It seems, however, improbable," they add, "that solid matters could pass into the organisms of plants, and we can hardly accept Liebig's theory, at least in its entirety, until our knowledge of the physical condition in which the food of plants exists in the soil is considerably enlarged" (pp. 229, 230, 11th ed.). The "solution" implied by Liebig was solution in liquid water. But if any part of plant food—ammonia, for example—may be vapourised and condensed within the vesicles on the roots, a different view is opened up.

Certain manures are characterised by giving a rapid growth to plants in the early part of the season. Two main causes combine to render hygroscopic manures rapid in their action; they are soluble, and they have the capacity of absorbing the moisture which renders them fluid, thus distributing their particles and rendering them highly available by the roots.

HYGROSORPTION IN RELATION TO FUNGI.

But other incidental consequences will arise from the hygroscopic action of a manure. From certain

experiments made by Mr. Thomas Jamieson, he has discovered that manures treated with sulphuric acid have a greater tendency to foster the development of club-root in Turnips than manures not so treated. His explanation is that the sulphur in the manure and in the Turnip is the predisposing cause of clubbing (see Report Aberdeen Agr. Assoc. 1880). This explanation does not seem to me to meet the requirements of the case. M. Woronin has clearly shown that the cause of clubbing in the roots of Brassicaceous plants is the simple spore-bearing parasitic fungus which he names *Plasmodiophora brassicæ*. His main conclusions have been all verified by the present writer. Now the spores of this fungus, which are minute hyaline spheres, lie quiescent through the winter. In the early summer, if they are supplied with moisture, they give off zoospores, which very soon "plasmodiate" or become fused together into a homogeneous, semi-liquid mass. A manure, therefore, of a hygroscopic character, is just the very manure to promote the plasmodiation of these spores, and render them fit to be absorbed in the form of a fluid plasm by the roots of the plants. We do not directly know that sulphur promotes the germination of this fungus, but we do know that the moisture accompanying a manure dissolved by sulphuric acid is a *vera causa* in promoting the germination of the spores of this fungus; in other words, the application of moisture to a spore previously kept dry is directly seen to cause it either to give birth to a zoospore or to plasmodiate retaining its contents—both results being essentially the same, and giving rise to a speck of granular plasm. But upon this view any manure of a highly hygroscopic character, whether containing sulphur or not, should be found promoting club-root. This, accordingly, is known to be the case. Land manured with sea-weeds, the salts forming which are highly absorptive of moisture, has had to be disused as a Turnip soil—owing to the prevalence of clubbing. But, indeed, all the manures here tested are more or less hygroscopic as compared with soil; and all manures are occasionally found associated with clubbing. The enormous clubbing of the Cabbage roots in the market gardens around St. Petersburg, referred to by M. Woronin, was not caused by the use of superphosphate. And the first recorded prevalence of this disease is found by that botanist in the writings of a Spanish king of a date earlier than the invention of dissolving manures with vitriol. Besides this fungus attacks the stock Gilliflower, and other plants which never receive dissolved manures. In cornfields where no superphosphate has been applied the Charlock is in many cases found to be clubbed. And the fact that clubbing in Turnips goes along with superphosphate, or along with manures containing deliquescent salts, finds its natural explanation as a corollary of the theory of hygroscopicity. The manures do not cause the club-root fungus any more than they cause the plants in which it grows—they simply promote the growth of both; and the more rapidly the host-plant grows, or multiplies its cells, the further through its tissues will the plasm of the parasite be carried.

The Potato manure in the above tables contains a high percentage of potash, and is the most hygroscopic of the set. There can be no doubt, therefore, that the growth of the non-parasitic system of the *Peronospora infestans*, or Potato fungus, will be promoted by such hygroscopic manures. The parasitic system of this fungus, as it exists in the Potato leaf, grows mostly during the night, when plenty of moisture is available; and the non-parasitic mycelium, arising from conidia and resting spores within the soil, can only grow and extend its lines when surrounded by a moist medium.

The manures here experimented with only began to promote the germination of certain moulds after the salts had been so far diluted by the water they absorbed as to be harmless to the fungi; for it is obvious that strong sulphuric or other acid would be destructive to all vegetable life. But if manures are favourable to the growth of phenogamous plants, all the more likely is it that they will be favourable to the growth of cryptogamous plants. Indeed hardly a speck of decomposing or rotting matter, in other words manure, can be found free of certain parts of some non-parasitic fungus. And if manures, which are simply plant-food, are thus favourable to non-parasitic fungi of all kinds, they must be favourable to the non-parasitic elements of those fungi which attain their perfect or fruit-bearing condition as parasites in the tissues of phenogamous plants. And that

the hygroscopic action of manures should favour the growth of certain Cryptogams is no more to be wondered at than that the same action should favour the growth of certain Phenogams.

But these effects on fungi are rather to be regarded here as incidental. The direct value of hygroscopicity in a manure is the supply which it draws of moisture from the air for the roots of plants. The manure requires to be so nearly in a liquid form, as that it may find its way osmotically through the cell-walls of the roots, and it has the property of being able to absorb from the air the very moisture required to liquify it. The process is still further accelerated by the condensation of vesicles of moisture upon the young and growing fibres of the roots. It is not water in the liquid form which agricultural plants require, but water in the form of condensable vapour, and this is what is partly supplied to them by the hygroscopicity of manures.

In their ordinary market condition these manures usually contain from 12 to 15 per cent. of moisture. But we see that they can add largely to this amount when exposed to the atmosphere. And the more powerfully a manure abstracts moisture from the air the more powerfully will it resist drying or the giving of it up again. During the night moisture will be drawn from the air, and during the day a part of this moisture, vapourised within the soil from the dead material of the manure, will be condensed upon the living roots and root-hairs in the form of minute dew-drops to water the plants. Farmyard manure, which keeps the soil open, has a mechanical value in creating air-chambers, from which vapour may be condensed upon the roots passing through them, succeeded by a chemical value consequent upon complete decomposition.

By what cause moisture is thus condensed upon the root-hairs is doubtful. My own experiments with masses of the young roots of Cress and Turnip growing through little wire baskets under a water-closed glass bell, and having a delicate thermometer which keeps the soil open, has a mechanical value in creating decided indication that the roots were colder or warmer than the surrounding air. Other trials made within the soil were not satisfactory. The matter deserves further investigation, and will probably bring into view some new facts regarding the relationship of plants and their food; and also some new facts in explanation of the theory of drainage.

MISS NORTH'S CRINUMS.

AMONGST the paintings in Miss North's beautiful collection, already hung in the new gallery which she has built in Kew Gardens and shortly to be opened to the public, are two Crinum from Borneo. One of them is the *Crinum angustum* of Roxburgh, which is perhaps the finest for decorative purposes of all the known species. This is already well known to botanists, and as I described it fully in the monograph which I contributed to your columns a year ago, I need not say anything further about it now. But the other species, which hangs over the doorway in the south-east corner of the gallery and is numbered 424, is quite distinct from any of those noticed in my paper, and I draw attention to it now in the hope and expectation that, as in the case of the Nepenthes, it will be looked after and brought into cultivation. The following is as full a description of it as I am able to give from the painting. The plant grows in water, and Miss North speaks of it as being plentiful in the locality, which is in the vicinity of Sarawak, and therefore easy of access. It belongs to the *Platyaster* section, but differs from all the known species (*erubescens*, *americanum*, *ameum*, *longifolium*, *Balfourii*, &c.) by its large asiaticum-like leaves, stout scape, and dense many-flowered umbel. In fact, in general terms it may be described as being a species with an asiaticum-like habit, but with the lanceolate perianth-segments of the *Platyaster* section.

CRINUM NORTHIANUM, n. sp.—Leaves large, lorate, bright green, erect, overtopping the umbel, apparently 3 or 4 feet long, and 3 or 4 inches broad. Scape stout, tall, probably 1 inch in thickness. Flowers thirty or forty in a dense, centripetal umbel; spathe-valves deltoid, 3–4 inches long. Perianth-tube greenish, as long as the segments; segments lanceolate, pure white, narrowed gradually from the middle to the acute point, 3–4 inches long, $\frac{1}{2}$ inch broad, spreading stately horizontally and equally. Filaments bright red, about 1 inch shorter than the perianth-segments; anthers linear. Style arcuate, bright red, about as long as the filaments.—Sarawak, Borneo. Miss North's drawings, 424, *f. G. Baker*.

NEW GARDEN FERNS.

ELAPHOGLOSSUM BACKHOUSIANUM, *sp. n.* (fig. 104).

Caudex stout, slowly creeping, densely covered with pale brown lanceolate scales. Sterile fronds large, crowded, erect, smooth, oblong-lanceolate, broadest upwards, the apex acute, the base narrowed acute or rounded, the costa rounded and prominent behind, where it is densely scaly, the margin decorated with a fringe of dark brown criniform scales; veins free, simple or forked near the base, parallel, extending at an obtuse angle towards the margin, and ending in a thickened point just within the edge, the stipes short, stout, densely scaly. Fertile fronds much smaller, narrow lanceolate, broadest upwards, entire, attenuate both at the apex and decurrent base, "thickly sprinkled with deciduous dark scaly hairs," the spore-cases covering the whole of the under surface, the stipes twice as long as in the sterile fronds, the scales of the stipes and costae very dark brown, criniform, affixed by a short broad base, resembling those which border the sterile frond.—Habitat, Mexico. Introduced by Messrs. J. Backhouse & Son, York, amongst an importation of epiphytal Orchids.

This noble species of Elephant's-tongue Fern, which was sent to us a short time since by Messrs. James Backhouse & Son, of the York Nurseries, appears to have been hitherto undescribed, and we have therefore much pleasure in connecting with it the name of Mr. James Backhouse, who, in the annals of pteridology, is not unknown to fame in connection with the discovery of some of the rarer British species. As a temperate stove Fern it will be welcomed by growers of these plants for its bold character, and for the very interesting fringe of peculiarly shaped dark-coloured ornamental scales which decorate the margins of the sterile fronds, and which are similar in form and colour to those that give a densely shaggy appearance to the short thick stipes, and to those also which, as Mr. Backhouse informs us, are thickly scattered over both surfaces of the fertile fronds like the hair-scales so familiar in *Hymenodium crinitum*. It is most nearly allied to the Brazilian *Elaphoglossum Prestonii* (*Acrostichum*, Baker), described in the *Gardener's Chronicle* for 1872 (p. 1555), but that has smaller long-stalked fronds, and differs greatly in the form of the scales with which its stipes and the margins of its fronds are invested.

Elaphoglossum Backhousianum, the subject of our present notice, has a decumbent slowly creeping caudex, as thick or thicker than one's thumb, which is densely clothed with pale brown lanceolate-subulate scales (fig. 103). From this caudex spring up at short intervals the erect subcoriaceous fronds, which grow from 1½ to 2 feet or somewhat more in length, including the thick densely scaly stipes of little over an inch long; the lamina is sometimes acute, sometimes rounded at the base, about an inch in width at or near the lower extremity, gradually widening upwards, so that at from 4 to 6 inches below the apex it measures 3 to 4 inches or more across, whence it gradually narrows and curves off to form the acute point, the margin being somewhat wavy. Thus, the upper half of the frond is conspicuously wider than the lower portion. The colour is a bright green, which shows off the fringe of dark brown scales which occupies the margin (fig. 105, A). These scales are of peculiar form (fig. 105, B), having a short broadly-ovate base and a much extended criniform apex several times longer than the base; the back of the costa is furnished with numerous scales of a similar character (fig. 105, C), as also is the stipes (fig. 105, D), but the former are deciduous and soon lost, while the latter appear to be more permanent.

The fertile fronds (fig. 105, E, F) are much smaller than the barren ones, not exceeding a foot in length, including a stipes of 2 inches, and a narrowly decurrent base of about the same length, while the width does not exceed an inch at the broadest part above the middle, whence it narrows gradually upwards to a longish attenuate apex, and downwards to the decurrent base already mentioned. The upper surface (fig. 105, F) is smooth and green, and the under surface (fig. 105, E) densely covered throughout, including the decurrent base, with light brown spore-cases, forming the usual universal acrostichoid fructification (fig. 105, G). According to Mr. Backhouse's observation, these fertile fronds are thickly furnished on both surfaces with dark chatthy scaly hairs, such as occur on the fronds of *Hymenodium crinitum*, but these appear to be soon deciduous, and do not occur except on the costa in the specimens which have reached us, The

margin is slightly repand, but otherwise entire, and is without the scaly fringe which appears on the sterile fronds. *T. Moore.*

DAVALLIA GRIFFITHIANA, *Hook., Sp. Fil., i., 168, t. 49 D; Hook. and Baker, Syn. Fil. 96.*

Fronds deltoid with an attenuate apex, coriaceous,

been met with in other parts of Northern India and in China. It may be regarded as an evergreen greenhouse plant, though how low a temperature may be compatible with its healthy growth we have no information. Perhaps Mr. Howard will state his experience on this point.

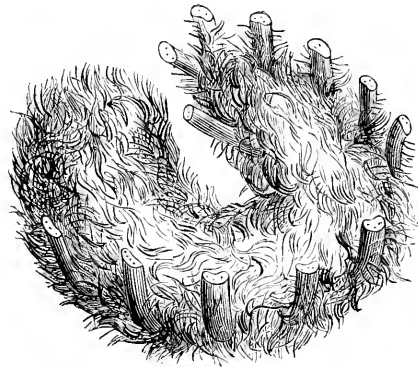


FIG. 103.—ROOT-STOCK OF ELAPHOGLOSSUM BACKHOUSIANUM.

tripinnate; pinnae acuminate; pinnettes oblong-lanceolate, obtuse, obliquely cuneate at the base, the basal ones again pinnate, the rest pinnatifid; lobes short, obtuse; sori large, cup-shaped, submarginal, usually with a marginal tooth projecting beyond them; indusium flat, membranaceous; rhizomes extensively creeping, as thick as one's little finger, densely clothed with whitish fibrillate linear scales; stipes erect, wiry, elongated.

This Fern is very remarkable for the silvery scales with which its rhizomes are covered, and as these grow freely and extend to a considerable length they soon make themselves seen hanging from the surface of the pot or basket in which the plant is grown. The fronds are thick and durable, elegantly shaped and elegantly cut, of a dark bluish shade of green, and of moderate size, 9–12 inches in length, and

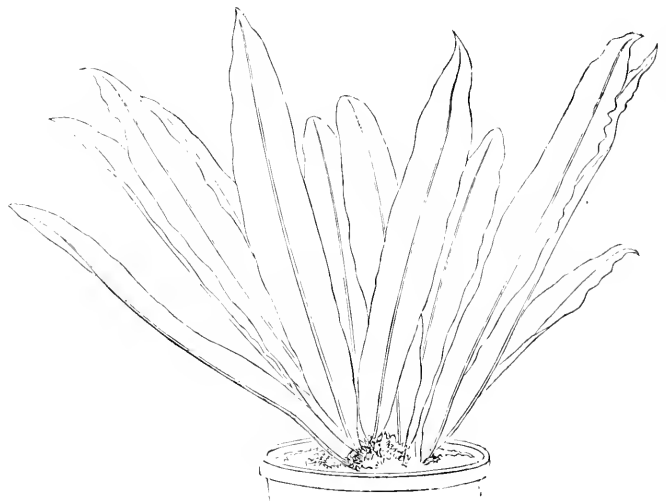


FIG. 104.—ELAPHOGLOSSUM BACKHOUSIANUM: SHOWING HABIT: REDUCED.

This elegant Fern was shown at the last meeting at South Kensington by Mr. Howard, of Southgate, and received a well-merited First-class Certificate as a desirable species for basket culture and other decorative uses.

It was originally found in Assam by the late Dr. Griffith, after whom it is named, but has since

4–8 inches in breadth, so that they never verge upon coarseness; while the abundant fructification and the paler under-surface of the frond, as seen in the various positions in which the plants and fronds are placed, add much to their interest.

We understand from Mr. Howard that his plants were picked out of an importation of Orchids—a way

in which many other Ferns have found their way to this country. As a free-growing and ornamental Hare's-foot Fern this species will, no doubt, soon become popular in collections where decorative plants are grown and appreciated. *T. Moore.*

countless number of ramifications, so that the plant forms a little green ball, studded over the whole upper surface with points innumerable, and very much resembles in its subdivision a branch of the leaf of an extra fine curled Parsley. The comparison

cushions of green velvet, and the effect produced by the tiny tufts of this curious Fern will be realised. As a variety amongst the British Ferns this is, for pteridologists, a gem of gems.

Surely the force of variation can no further go—no flat lengthened leaf-blade produced, but an indefinitely branched dense glomerate ball, bristling with little herbaceous points, so fine that the surface suggests the velvety texture of the mass. The change is marvellous, the result startling, bewildering, making sport of nice botanical definitions and distinctions—as Nature is apt to do.

The variety *densum*, as we learn from Messrs. Kelway & Son, of Langport, by whom it was raised, originated as a sport from, we presume, the variety *Kelwayi*, itself a crested form. It was shown by them at South Kensington on the 9th inst., the dozen plants which were staged affording good evidence of its constancy of character. On this occasion the Floral Committee unanimously awarded it a First-class Certificate, as a most interesting addition to a particular group of plants, which, if not bold and startling enough to suit all tastes, counts at least many admirers amongst those who appreciate the minute types of beauty to be found amongst the productions of Nature. *T. Moore.*

ASPLENUM (DIPLAZIUM) LAFFANIANUM, *Baker, n. sp.**

This is a Bermuda Fern, which we have had *sub judice* at Kew for a great many years, and looked on as a probable new species. A dried specimen was sent to us in 1874 by Lieut.-General Sir J. H. Lefroy, who at that time was the Governor of the islands, and took great pains to work out the botany and all other points of interest connected with the group, on which he has, since his return home, published a valuable monograph. Although the plant seemed to be distinct, I durst not venture to found a new species on the material obtained. In 1880 we received a pinna from Professor Eaton, gathered by Mr. Anson Allen, and the same year a living plant from Major-General Sir Robert Laffan, who succeeded Lieutenant-General Lefroy as Governor in 1877. This has now grown up to the fruiting stage, and I think there can be no room for doubt that the plant is really a distinct endemic species, allied to the well-known West Indian *A. crenulatum* and *Franconis*, coming in between them in character, and also to *A. diminitum*, a new species recently discovered by Mr. G. S. Jenman in Jamaica, and the Andine *A. Mildei* of Kuhn.

Caudex erect, rising in a short column above the surface of the soil, crowned by eight or ten fronds. Paleæ confined to the caudex and base of the stipes, lanceolate, dull brown, firm in texture, the largest $\frac{1}{2}$ —1 inch long, stipes 4—8 inches long, blackish and scaly towards the base, green above it, and quite naked, as is the rachis. Lamina oblong, deltoid, bipinnate, moderately firm in texture, bright green, and quite free from hairs or scales on both surfaces, attaining a foot in length and half a foot in breadth. Pinnae lanceolate, nearly sessile, imbricate, the lowest the largest about $1\frac{1}{2}$ inch broad, the central ones 7 —1 inch broad. Pinnules oblong, obtuse, serrate, unequal-sided (produced on the upper side, cut away on the lower side at the base), the upper ones broadly adnate to the rachis, the lowest free but sessile and shallowly pinnatifid, with short, rounded lobes; veins free, distinct, the upper ones of the pinnules forked, those of the lower groups pinnate, with 5—9 erecto-patent veinlets. Sori medial, running nearly from the costa to the tip of the veins, mostly simple, but the lowest diplozoid $\frac{1}{2}$ —1 inch long. Involucre glabrous, persistent. *J. G. Baker.*

LEIOPHYLLUM BUXIFOLIUM is one of the most ornamental of dwarf evergreen shrubs. At the present time its foliage is almost completely hidden by the terminal umbel-like clusters of small white flowers, which when in bud present such a pretty pink or rosy tint. It is the Sand Myrtle of the sandy Pine barrens of New Jersey, and, according to London, was introduced to this country in 1736. In nurseries it is generally found under the name of *Lesium thymifolium* or *L. buxifolium*. It flourishes thoroughly in any ordinary peat border, and remains a considerable time in bloom.

* *Asplenium (Diplazium) Laffanianum*, Baker, n. sp.—Caudex erecto, paleæ lanceolatis, sordid brunneis, stipulis semirepandibus supra basin nudis; frondibus oblongo-deltoidibus bipinnatis glabris viridibus pediculis, pinna lanceolatis imbricatis, subsessilibus infimis maximis, pinnulis oblongis serratis obtusis basi posteriori cuneato truncatis superioribus adnatis infimis sessilibus obscure pinnatifidis, venis pinnularum supero-ribus furcatis inferioribus pinnatis; soriis medialibus tubosis geminis; involucre glabro persistente.

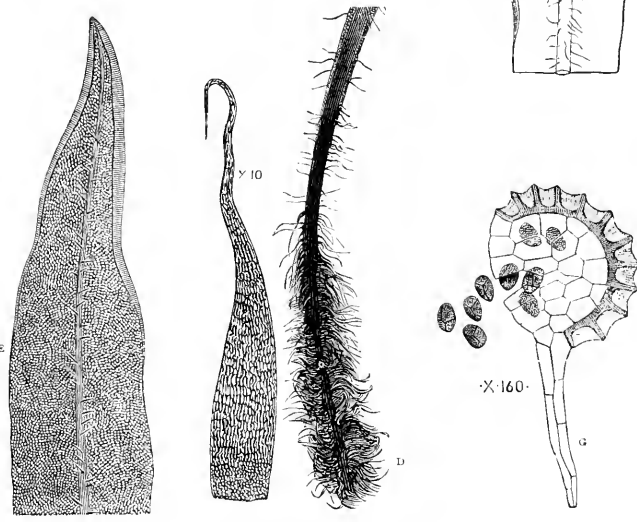
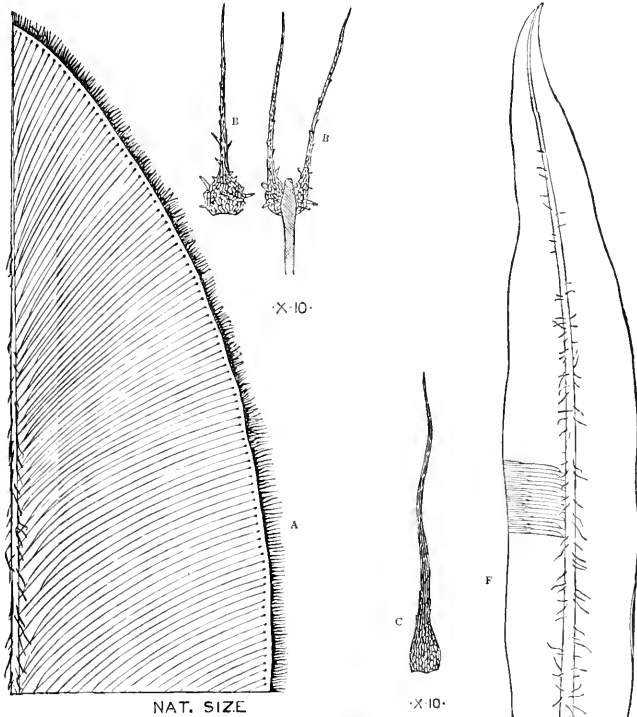


FIG. 105.—ELAPHOGLOSSUM BACKHOUSIANUM. (FOR DETAILS SEE TEXT.)

SCOLEPENDRIUM VULGARE DENSUM, *Kelway.*
In this remarkable variety of Hart's-tongue Fern the typical plane strap-shaped frond, a foot or more in length, is reduced in stature to about 3 inches, and amplified laterally by becoming branched into a

is not intended to be depreciatory, but flattering, for what is more pleasing in its way than the foliage of a really good strain of Parsley, with its countless and complicated contortions, and its rich full green colour? Compare the pigmy plants, if you will, with little

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—During the next two months the Orchid-houses will be more interesting than at any other season, as the great number of species and varieties that flower during the early summer months will keep the houses gay for some time. It is a trying season for plants that are flowering profusely unless they are very well rooted, as a large crop of flowers, if allowed to remain too long on the plants, will soon throw them into a debilitated condition. The first sign of exhaustion will be seen in the shrivelling of the bulbs, and when this occurs the sooner the plants are divested of their flower-spikes the better. All plants growing on blocks will now require frequent attention to keep them regularly moist at the roots. It adds much to the labour in attending to a collection of these plants where many of them are grown on blocks, and for this reason the system is fast dying out, as with few exceptions the plants will do equally well, or better, in baskets and cylinders. One exception is *Dendrobium pulchellum*. This we have never seen in such good condition as when grown on a round block, and the present is a good time to establish this plant on a block, as it is just past the flowering stage, and will shortly commence new growths, which must be encouraged in a warm moist atmosphere. After the growths are made up the plants must have a long season of rest in a cooler temperature, and in spring, when the flowers expand, it will be a perfect ball of blossom. The *Cyclogynis* will now be growing freely, and should be kept well watered. The same remarks apply to the *Pleiones*, but the latter need not be so heavily shaded as the *Cyclogynis*. *Chysis bracteosa* should be resurfaced as soon as it has finished flowering; and as the flowers and the young growths come together, the latter must be encouraged in a warm moist atmosphere as soon as the flowers are removed from them. Another distinct and pretty Orchid, now in right condition for potting, is *Eriopsis rutidobulbon*. It should be potted in rough fibrous peat, and should not at any time be allowed to become dry at the root. It generally flowers twice a year, and grows well in a cool part of the Cattleya-house. *Oncidium Marshallii*, one of the finest of the genus, may now be resurfaced and put in order before the young growths are far advanced. A cylinder is a more suitable receptacle in which to grow this plant than a pot. *Oncidium incurvum* and *O. ornithorhynchum* will now be pushing up their fragile spikes, and should be carefully guarded from damage. Most of the *Trichoplias* will now be over, and if any need potting the sooner they are seen to the better. These all do well in rough fibrous peat, with good drainage, and the temperature of the Cattleya-house will suit their requirements. It will be necessary to give the East India-house a fumigation occasionally to keep the thrips and other insect pests in check, for if these are allowed to gain a footing on the plants they soon disfigure them for the season. Any of the *Acerides* that are flowering should have their spikes removed before the flowers commence to fade and drop, as, owing to their sticky nature, if they are allowed to drop into the axils, or to remain long on the leaves of the plants, they are very likely to cause decay in the plants; but these should always be carefully sponged over after flowering. *J. Roberts, Cammersbury.*

CHATEAU DE ST. GILLES, near Liège, is prettily situated among the hills above this picturesque city, and is the summer residence of Mons. F. Massange de Louvrex. Orchids are grown here in large quantities, as well as new stove and greenhouse plants, Bromeliaceous plants, &c. In the cool Orchid-house were recently some fine well-grown specimens of *Odonotoglossum*, *Masdevallias*, &c., flowering freely; there was, at the time of our visit, a fine variety of *M. ignea* in flower, called *Masanganana*, as also *M. trochilus*, with several flowers, and *M. amabilis*, with a profusion of flowers. Amongst the *Odonotoglossum*, *O. Andersonianum* was in fine form, and the rare *O. polyanthum* and many others in bud. The new *Masdevallia rosea* was also showing flower. In the East India-house were some fine examples of *Cypripediums* and *Vandas*, well cultivated. Passing to the Cattleya-house we observed some fine examples of *C. Warneri*, *C. Mossie*, *C. speciosissima*, and a grand plant of *Lælia elegans*; these, as were all the

Cattleyas, were in good health, and showing sheaths. In the stove were some fine examples of new plants, some of the specimens of which took the leading prizes at the exhibition at Liège last year. I noticed a grand example of *Platyterium grande*, one of the finest specimens I have ever seen. The whole of the plants here are well cultivated, and great credit is due to M. Karl Kramer, the gardener, for the way in which he grows the plants, backed up as he is by his employer, who spares no expense to have the best of everything. *H. Williams, Holloway.*

ORCHIDS IN FLOWER AT TREDREA, CORNWALL.—There is now at this place a grand display of these attractive flowers, which to any lover of Orchids will amply repay a visit. There is here at all times much to interest an Orchid grower, as former visits can testify. Mr. Merton (the gardener) has long been known as a veteran in this department, and well he maintains his position, as proved by the health of his plants. There are now in flower many specimens (over sixty) that would delight the eye of a connoisseur. *Oncidium applanatum majus*, with a dozen spikes, and in rude health, is a most telling specimen; while *Lycaste cruenta* is another golden mass, with fragrance sufficient for a large house. *Lycaste Deppel* is another most interesting plant, but the grandest plant in the whole collection, now in flower, is *Dendrobium Falconeri*—this of itself is worth a long journey to see. Mr. Merton has evidently found out the right treatment for this gem of a *Dendro*, which many find so difficult to flower, but when seen as here amply repays any care that may be bestowed on it. *Masdevallia Hartmanni* catches the eye, and is a most excellent variety of these peculiar flowers. There are also in flower *Acerides vitens*, *Anguloa Closwey*, very fine; *Brassavola glauca*, *Brassia Lawrenceana*, *Burlingtonia fragrans*, *Calanthe veratrifolia*, *Cattleya citrina*, *C. Mossie* (two), *C. maxima*, *C. Skinneri*, *C. Warneri* (two); *Cypripedium barbatum*, *C. barbatum nigrum*, *hisutissimum*, *Lawrenceanum*, *niveum* (three plants), and *Pearecei*; *Dendrobium Bensonae*, *D. chrysotoxum*, *D. Devonianum*, *D. eburneum*, *D. Parishii* (three varieties), *D. infundibulatum*, *D. suavisimum*, *D. thyrsoiflorum*; *Epistedium macrochilum*, *E. Stamfordianum*, *E. elongatum*, *E. rhizophorum* (several), *E. vitellinum majus* (several); *Lælia majalis*, *Lycaste aromatica*, *Maxillaria tenuifolia*, *Odonotoglossum crispum*, *O. citrosomum*, *O. maculatum*, *O. vexillarium* (fine plant), *O. Koezii* (grand variety); *Oncidium aurosum*, *O. phymatochilum*; *Phalænopsis Parishii*, *P. Luddemanniana*, *P. Schilleriana*; *Phaius Wallichii*, *Scaccolabium ampullaceum*, *S. curviflorum*; *Sobralia macrantha*, *Trichoplia tortilis*, and *Vanda savais*. *R. G.*

TULIPS IN LANCASHIRE.

WHATEVER may be the character of the malady that at times affects so seriously the collections of show Tulips, it does not appear to originate from merely local causes, as the same phenomena appear alike in Lancashire, Derbyshire, Staffordshire, and Yorkshire. At Stakehill, near Manchester, Mr. S. Barlow's beds are this season grievously affected by it; the bloom of a great many of the finer varieties is lost for this season, and it may be for a year or two afterwards, while the very existence of fine strains is imperilled. Nothing could appear better suited for the Tulips than the soil used in Mr. Barlow's beds; they were made up, as usual, with great care and according to the best rules of practice, and planting was done at the proper time. For a period the growth appeared promising, then it began to turn brown, and the leaves withered up. In Mr. Barlow's best bed row after row has been affected in this way; here and there a plant flourishes, but they are unfortunately the exceptions. On lifting the bulbs it is found that no roots have been put forth; and the keel of the root from which the roots are thrown out is found decayed in some of its parts, endangering the very existence of the bulbs. In some cases small offsets are formed; but the parent bulbs become weakened and small in size. Mr. James Thurston, of Wolverhampton, who is also a severe sufferer from the disease, states that he has some magnificently marked blooms, but nearly every one has blemishes owing to the disease. The Tulip show takes place at Manchester on May 27, but owing to the earliness and dry character of the season it is doubtful if many good flowers will be forthcoming; what with drying east winds, cold nights and bright sunny days, the flowers fade quickly. The disease, in combination with the weather, must affect the number of the flowers up to show form.

The Flower Garden.

PLANTING HARDY BEDDERS.—As soon as the beds are all prepared, as before recommended, a beginning may be made towards refilling them, commencing with the edging, for which purpose there is no more substantial and useful plant than the *Echeveria secunda glauca*, and it will be best that the outlines of the whole of the design should be indicated by this neutral tinted edging; it harmonises well with any colour which may be placed in juxtaposition with it, and it is also a good outline for carpet bedding, and wherever hardy plants, such as *Mentha pulegium*, *Gibbularium* and the various *Saxifragas* are used for the groundwork, they may be planted at once, leaving the proper spaces to be filled with tender plants later on, when all danger of frost is over.

RHODODENDRONS, AZALEAS, MOUNT PAEONIES, form now the most attractive feature in the flower garden and pleasure-grounds, and in order that the enjoyment of them may be complete, all the surroundings should be kept in the neatest possible order; grass lawns and verges should all be kept well mown, the edges of the walks and also of the beds neatly cut, and the roller constantly at work both on gravel and grass. As an adjunct to the flower display, the plants in the herbaceous garden are beginning to make an interesting feature amongst the abundance of bloom now prevailing everywhere, and the plants should be kept neatly tied to stakes, and the borders hoed and raked. The same attention must be paid to the borders of shrubberies and plantations, which are now contributing their share of beauty to the general display, such as common and Persian Lilac, *Berberis Darwinii*, several crimson Thorns, both single and double, amongst which Paul's double crimson is the most conspicuous; the double-flowered Japanese Cherry, *Cerasus Sieboldii*, which, as it attains size, will become one of the finest flowering trees we possess; *Magnolia Soulangiana*, purplea, and others, all beautiful; *Viburnum plicatum*, one of the most showy plants for the shrubbery in existence. The walks and verges should be kept constantly rolled and swept; Box edgings may also be cut now.

ANNUALS.—If not already done, advancing seedlings of such annuals as were sown early in the month will be very much benefited by pricking out under glass for a short time, or if at all thick they will be drawn up weakly; African and French Marigolds, Zinnias, Helichrysums, and some others absolutely require it. Many of the tender bedders, such as *Coleus Verschaffeltii*, *Iresine*, and *Alternanthera*, will be very much strengthened by being turned out of the pots and plunged into light soil under glass for a time, also, if pots are much wanted, a great portion of the stock of *Pelargoniums* and other well-rooted bedders may be treated in the same manner; these will all require complete exposure very soon, but do not be in a hurry to plant out the general stock, as the prevailing east winds are very scathing.

ROCKERY.—Amongst the many beautiful objects which characterise the present season the rockery stands first and foremost, the variety is so charming, ever changing and full of novelty, and to a lover of plants the interest surpasses anything which can be derived from the gorgeous inflorescence of bedded-out plants, so that every exertion should be used to keep up evidence of caretaking and neatness, not, however, carried to the extreme of formality, as the effect to be produced is what I should style a cultivated wildness. The *Tropeolum speciosum*, amongst other desirable plants, is well adapted for planting among the little interstices of the rockwork, and should have the assistance of branchlets of *Birch* to assist them in trailing about. The *Ivies*, too, should be assisted in their endeavours to attach themselves to the surface of the rocks. These should be confined to the small-leaved varieties, which are just now in their juvenile growth, and a very striking and important feature, worthy of every possible attention. The golden yellow of *aurea spectabilis* is very attractive, as is *nana marmorata* and many others. For rockwork on a large scale the abundant flowering *Genista hispanica* will be found one of the most desirable, its brilliant colour and compact habit of growth render it peculiarly suitable for planting amongst large masses of rocks. *John Cox, Rellap.*

The Hardy Fruit Garden.

THE disbudding of young trees of Peaches, Cherries, and Plums, ought now to be completed, observing that no more growths are retained than are needed. Nail in the most forward shoots requiring such attention at once, but do not secure them too near to the growing points, or the advancing growth will push forward and become crooked and twisted. Complete the general disbudding of Peaches and Nectarines as soon as possible. Carefully remove all shoots and leaves on which there are evidences of greenfly; disbud entirely the lower side of each branch as a means of shortening the work of selection, but make an exception of all growths with fruits at their bases by pinching back to a few leaves, and retain no more on the upper side than will be required to supply the place of those to be removed at the next pruning. In the interior of well-furnished trees it is thus plain that only one growth from the base of bearing shoots is in general wanted, and that all others may be removed, or pinched back where placed by fruits and at the point of the shoot. The growths may be entirely removed down to the best-placed base one where there are no fruits on the shoot operated upon, as no object will be served by retaining them. In disbudding extensions and branches required to furnish weak parts of the tree it will be well, after removing all growths on the lower side, and also all forelight shoots, to select the required number of growths for laying-in, and to pinch back a few of the others instead of removing them, as such spurs often prove useful on the main branches of the tree by yielding shoots to fill up any vacancies that may occur; but this remark must not be understood to apply to the work of disbudding generally, which would lead only to crowding and confusion, but only to branches intended to form the framework of the tree. Remove crowded and deformed fruits as the work proceeds, leaving the general thinning-off of fruits for a little while longer. Much attention will now be needed to the walls of the fruit garden, and the varied work of disbudding, pinching, and thinning fruits, will require, with the nailing-in of the more forward shoots, much labour that cannot be delayed without injury to the well-being of the trees. Continue the use of the garden-engine frequently, using it with such force as to dislodge all insects, while avoiding injury to the still tender foliage. If there is the slightest appearance of blister on Peaches or Nectarines it will be advisable to remove at once all affected leaves, and to give an application of Ewing's Mildew Composition at the strength recommended by the maker. An attack of mildew, should such unfortunately occur, may also be effectually combated by the same remedy. Complete the thinning of Apricots as soon as possible, leaving at this time no more than may be considered sufficient for a fair crop, which will depend more upon the state of the tree as to vigour, and the quantity and quality of the root-run, than upon any rule that could possibly be given as to the average distance apart at which fruits may generally be allowed to remain. Nail-in the growths as they advance sufficiently to require such attention; continue to keep a sharp look-out for the leaf-rolling grubs, and make their quarters as uncomfortable as possible by keeping the trees frequently washed.

Gooseberry caterpillars are making their appearance, and where the outbreak is not too widespread, can be best held in check by pinching the affected leaves with the fingers; as in all but the worst cases the depredators will in the earliest stage be found to affect only a few leaves, where they can be easily destroyed by the score before they have had time to distribute themselves. Proceed with the planting-out of Strawberries that have been forced; and if the ground has been prepared for them, as recommended in a previous Calendar, there need now be no delay in putting out the later batches as soon as the fruit is gathered. See that the balls are thoroughly soaked through with water before proceeding to put them out; plant firmly and deeply, and assist their establishment by watering freely, if the weather prove dry, before they have time to make fresh roots. Vines on walls are now sufficiently advanced to enable a selection to be made of such shoots as will be required for extension, and for furnishing the existing canes. Where the long-spur system is adopted it will be

necessary to retain the lowest break to replace each spur, as well as the growth selected to carry the bunch. If it be intended to replace old canes by young ones, decide at once upon those to be carried up for that purpose, and see to making them secure against wind by keeping them fastened in as they advance in growth. *R. Crossings, Castle Gardens, St. Fagan's.*



Grapes and Vineries.

GRAPES that are ripe will do without any fire-heat now that the weather is bright and fine. Admit air freely on the back and front ventilators in the daytime, but reduce towards evening, so that the house will be nearly closed through the night. Only a little air should be left on the back ventilators, which must be increased early in the day. Give sufficient water at the roots to keep the berries plump and in good order.

If red-spider has been troublesome, after the Grapes are cut use the engine freely on the foliage every evening, when it will soon disappear. Succession Hamburgs as they commence to colour must have liberal supplies of warm air; a little fire-heat in the daytime is very beneficial. Leave a little air on the front and back ventilators night and day, and increase it as the temperature rises until mid-day; afterwards reduce it as the sun-heat declines, always being careful to avoid cold draughts. A night temperature of 65° to 68°, with a rise of 10° by day, will be quite hot enough for Hamburgs. Let the laterals now run without stopping within reasonable limits. Damp the house down thoroughly in the early part of the day with tepid water, so that it will dry up while there is plenty of air on, and let the evaporating pans go dry. Those Vines that are swelling their fruit must have liberal supplies of tepid manure-water, and must be looked over with the scissors for the last time, taking out any berries that are likely to become crowded, but still left thick enough to support each other when cut and laid on a dish. Close the house early in the afternoon with plenty of atmospheric moisture, and keep the evaporating pans filled with weak manure-water. The latest Hamburg-house must now be closed if not already done, as a little beat helps to draw out the bunches. No fire-heat will be necessary for a few days after closing if the weather is bright and fine, but I always use a little fire-heat as they come into flower, as it makes the atmosphere light, and the pollen disperses better. Give a good soaking of tepid water to the inside borders before starting; the outside borders will be generally wet enough for some time yet. Stop the shoots at about four joints beyond the bunch, and tie them down as they require it. Muscats can be kept at a night temperature of 70°, with a rise of 10° by day, closing the house early in the afternoon, and on bright days with sun-heat the thermometer may be allowed to range from 90° to 95° if plenty of moisture be given. It is a good plan to damp the houses down occasionally with weak manure-water. If red-spider appears sweep the leaves either with clear water or 4 oz. of Gishurst Compound to the gallon of water. Do not sulphur the pipes until the skin of the berries is hard enough to stand it, or it will rust them. The late varieties of Grapes, such as Alicante, &c., will now be ready for thinning, and must be more severely thinned than other varieties, so that the air can circulate among the berries. Take out all the inside or cross berries, leaving only those that point directly outwards, and the result will be handsome bunches that will keep well. After the thinning is completed give the borders a thorough soaking with tepid manure-water. Keep the night temperature 65° to 70°, with a rise of 10° by day, and close the house early in the afternoon.

Vines in newly-planted vineries will now be growing fast, and will take liberal supplies of clear tepid water. Admit air freely on bright days, and close early in the afternoon. Vine-eyes in pots for early fruiting next year must have liberal treatment, so as to get the growth matured early. Tepid manure-water must be used when the pots are filled with roots, and stop the shoots when they have grown to the required length. *Joshua Atkins, Loking Gardens, Wantage.*

The Pine Stove.

FOR the next two or three months all available space will be required for fruiting plants, succession, and young stock. Extra accommodation can be got by putting a number of succession plants into large frames, placed on hotbeds. The plants do well in these places, and lay the foundation of a robust constitution. Those short, thick, and broad leaves are formed, a point so desirable in Pine growing. These plants should at all times have their own quarters, therefore the space in spring is at times circumscribed. By the addition of frames, other conveniences are obtained, and a larger number of plants can be fruited without the aid of additional permanent houses. When the fruiting plants are drafted out, the plants from the frames can be gradually cleared off to fill up all vacant places. Attend to the linings of pits and frames, in which the heat should be steady and continuous. Those plants that should fruit in early autumn are ripening, and at this season and afterwards the fruits have that luscious, juicy flavour no other fruits have. Let down the shadings every night as before advised, for any covering, however slight, greatly assists in keeping up the temperature. All frames should be covered over at night with Frigi Domo, or thick mats; and if these are not sufficient for top-heat, a double mat will greatly assist in raising the temperature during the night. Keep the temperatures the same for the present as advised in my last, and do not neglect early closing, so important in all forcing, which makes the most of solar heat. Start the fires early in the afternoons, which will prevent the day temperatures falling too rapidly, and these should be well maintained up to 10 P.M. as before advised, which reduces the firing when the external temperatures are at their lowest point. Study the atmospheric conditions, and those varied remarks given in former Calendars will answer either for hot-water pipes, flues, or fermenting materials. If the crowns of the fruits are likely to get too large this arises from different causes—being too far from the glass, excess of moisture in the atmosphere, or too much liquid-manure. Pines should at all times and in all stages be grown close to the glass. If succession plants are inclined to become drawn or otherwise weakly in their young growth, two of the most primary causes are being too far from the glass, or the atmosphere too humid; if these conditions are reversed this can easily be corrected. Take suckers from plants from which the fruit has been cut, and subject the old stools to the treatment previously recommended. By this process if a little brown-scale is on the old plants the young suckers come up clean. Another way of inducing the old plants to form suckers, after the fruit is cut, is to shorten back the leaves to within 8 or 10 inches of the stems. Plunge them thickly together in a bottom-heat of 90°. Pot the crowns of the good varieties of Charlotte Rothschild and Smooth Cayenne, as these varieties are very shy in reproduction. Those plants that showed fruit in January and February are swelling fast. Stake all fruits before they become too large, and water them every time with liquid-manure. The temperature for the water for syringing and watering should not be under 55°. If the pots dip on one side make them level; as the bed decomposes and shrinks the pots require attention. If the plunging materials are very dry give them a good soaking with tepid water. *D. Wilson, Castle Hill, Devon.*

FRUIT NOTES.

Apple Sturmer Pippin.—This tolerably well known kind is now in splendid condition for dessert; it makes a showy and attractive dish at this part of the year, and is certainly one of the best late-keeping dessert Apples we have; the tree is hardy, and a good bearer, and the fruit keeps very plump and firm, and almost equals a Nonpareil for flavour. Another good late variety not so well known as the former one is Ord's Apple; this promises to be a good cropper and keeper, and is also of very good quality. The tree, depending in habit, and vigorous; the fruit light green on the shady side, changing to a pale yellow, and dark red next the sun, which becomes brighter as it ripens; flesh crisp, firm, and juicy, and of good flavour. *W. H. Davis, Buryley.*

The Alexander Peach.—From what I have seen of the Alexander Peach I am of opinion that it is a very valuable early variety. I gathered the fruit from it on April 22 this year and May 2 last year, growing it in an early house against such as Early Rivers, Early York, and other early varieties. I find it to ripen a month earlier than any of these. The fruit is of a good size and colour, and I think it will become a great favourite among Peach growers. *E. Smith, The Gardens, Kewville, Cosham.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	May 23	Royal Horticultural Society: Great Summer Show (three days); Meeting of Fruit and Floral Committees, at H.A.S. 4; Scientific Committee, at F.S. 4; Sale of Plants at the Jerildon Nursery, by Protheroe & Morris; Presentation of Testimonial to Mr. Moore, at Cannon Street Hotel.
WEDNESDAY,	May 24	Annual Meeting of the Linnean Society, at 37, St. James's Place; National Horticultural Exhibition opens at Manchester.
FRIDAY,	May 26	Sale of Plants at the Church Walk Nursery, Stoke Newington, by Protheroe & Morris.

MANY of our nurserymen have now experienced great difficulties in the transit of their plants to the Vine-growing districts of the Continent and of our colonies, by reason of the enactments in force in various Continental Governments with reference to the PHYLLOXERA. In view of the facts mentioned in the following communication, those difficulties are not likely to diminish.

Nothing but experience will convince the powers that be of the futility of their policy. Facts and argument are thrown away when a *douanier*, or custom-house officer, is suffered to be judge whether any particular dispatch is likely to be the means of introducing the dreaded insect. Meanwhile, in order to provide an imaginary safeguard to one industry the interests of many others are sacrificed.

By the rules of the Berne Convention those countries which have signified their adhesion to that document are more or less favoured; but those countries which have not given in their assent are, as it were, left out in the cold. If custom-house regulations could suffice to exclude the insect there would be some sense in the restrictive enactments, and so far as those enactments are directed against the importation of Vines in any shape, there is nothing that can be reasonably complained of; but in the case of other plants—of Potatoes, bulbs, seeds, &c.—the case is quite otherwise. The Royal Horticultural Society has not been backward in protesting against these regulations, and we, while upholding all reasonable restrictions, have taken many opportunities of exposing the ridiculous nature of many of the supposed safeguards. So little support, however, have we received from those most interested that we can but believe, either that the matter is unimportant to our exporters or that means have been found of evading the provisions of the law; and if so, the value of the enactments is, after all, not great. Indeed, we have had reason to believe that the law as put in practice is not so severe as it appears to be on paper, in spite of the remonstrances of those who have had their bouquets taken from them on the frontiers, while hay carts were allowed to pass. In any case, we would counsel those about to send consignments of plants abroad to make an affidavit before the Consul of the country to which the goods are consigned that the plants in question not only are not Vines, but that they have not been grown in the same establishment with Vines. Belgium has, if we are rightly informed, become one of the contracting parties, and has thus a *locus standi*; and if this be so, her nurserymen, having, under certain conditions, the right to send plants into other countries, will not be such sufferers as heretofore, and the risk of Belgian competition in this country, already considerable, will not be so great as it promised to be when the Belgians, having no outlet from their own country to their Continental neighbours, began to invade our territory.

The following is the official document, which has been transmitted to us for publication.

“(Copy).”

“Foreign Office, May 15, 1882.”

“With reference to the letter from this office of December 20 last respecting the International Phylloxera Convention, I am directed by Earl GRANVILLE to state

to you that his Lordship has received a despatch from HER MAJESTY'S Minister at Berne reporting that the ratifications of the revised Convention have been exchanged by Austria-Hungary, France, Germany, and Switzerland; Portugal has not yet ratified it. Mr. ANAS adds that in addressing the Swiss Legislature on the subject in April last the Vice-President of the Confederation observed that Italy had refused to adhere to the Convention, not because she considered it too severe, but because she thought it was not severe enough; she will not, therefore, be a dangerous neighbour to Switzerland. The Vice-President also stated that Switzerland was winning the battle against the Phylloxera, and must persevere in the road leading to that success.—I am, &c., “CHARLES W. DILKE.”

—*TELOPEA SPECIOSISSIMA*.—When Sir GEO. MACLEAY recently showed, through his gardener, Mr. GREEN, a fine flowering branch of this noble Protead, we intimated our intention of giving an illustration of the plant. We now redeem our promise (fig. 106), and only regret that the black and white of the engraving cannot do justice to the clear pink-coral colour of the flowers or the rich crimson tint of the environing bracts. We may refer to our statement at p. 500 for a brief account of the history of the plant and its mode of culture by Mr. GREEN, merely reiterating the fact that the specimen produced by that skillful cultivator is not only superior to all that have been figured before, but surpasses the ordinary condition of the Waratah in its native country (New South Wales). We can but hope that Mr. GREEN'S success may be the means of inducing others to undertake the cultivation of these noble plants with those sumptuous grandeur our forefathers were much better acquainted than we are. Abundance of water during the growing period, dry heat during the process of maturation, and something approaching drought during the resting stage, would seem the necessary conditions of success.

—*AUCUBA POLLEN*.—So many applications have reached us relative to the supply of this, that we think nurserymen might find it worth their while to advertise, or at least supply, it. Better still would it be if those desirous of securing the scarlet berries would purchase a male plant and plant it in their shrubberies. From our own experience we should say that one male plant is sufficient to fertilise all the female plants within a range on all sides of at least a quarter of a mile. In those cases where the male flowers open before the female we would recommend that the male flowers be gathered and kept in a dry place for a week or two, and the pollen then applied with a camel-hair pencil. We have never experienced any difficulty in the matter, and we know from experience that the pollen may be kept in a dry place for many months without losing its vitality. The plan has been tried of grafting the male on the female plant, with the result that it in time outgrows the stock, and the plan found to answer best is that of growing the male plant in a pot, and setting it when in flower among the female bushes, or alongside of them.

—*GARDENERS' ROYAL BENEVOLENT INSTITUTION*.—We learn that it is proposed to institute a simultaneous collection throughout the country on Monday, July 31, for the purpose of increasing the Pension Augmentation Fund. It will be remembered that the object of this movement is to provide sufficient funds to increase the scanty annual stipends now paid to decayed gardeners or their widows. A large number of annual pensioners is now on the list, subscribers to the Society for a certain number of years having the right to claim the benefit of the Institution without the trouble and expense of election. It is obvious that to secure these benefits annually and to increase the pensions as proposed a large reserve fund is requisite, as well as annual subscriptions. It is, therefore, most desirable that every effort should be made to compass these ends. It is not every gardener who can afford his annual ginea (though none who can do so should neglect to contribute in this way, on the grounds of self-interest no less than on that of beneficence to others less favourably placed), but every gardener, and every garden labourer even, can afford his mite to increase the pensions. It is with the special object of securing these mites that the simultaneous collection is organised, and we trust it will meet with the success it deserves. Nurserymen, head-gardeners, and employers generally may do a good service by bringing the matter under the notice of their *employés*, and by

reminding them that the smallest subscriptions will be welcome. Possibly the committee might see their way to accord the privileges of a life subscriber to those who shall collect in this way funds equal in amount to those requisite to constitute a life subscriber, and in this way to stimulate charitable effort. The annual dinner of the Institution will be held on June 29, under the Presidency of the Lord MAYOR, who will be supported by the Sheriffs, the Master of the Fruiterers' Company, and others. The Society has a reserve fund of over £15,000, but before the pensions can be augmented in value at least an additional £5,000 must be raised. The collection of this amount should not require any very lengthened period if every gardener would do his best, by example and influence, to facilitate it.

—*SIR JOHN BENNET LAWES, BART.*—It is satisfactory to have to record, that the life-long services of this eminent man to chemistry and agriculture have at length been officially recognised. Few men have rendered the State more service than he. His merits have long since been acknowledged by the scientific institutions of the country and of Europe, and the agriculturists themselves have not been unmindful of the laborious experiments carried on for so many years with the aid of Dr. GILBERT. If we cannot boast many agricultural stations and experimental institutes, as they may do in Germany or America, at least we may boast of one wherein it is hardly too much to say that the work done has exceeded in amount and intrinsic value that of all the rest put together. We could wish that the State could devise some special order of merit for such recipients as Sir JOHN LAWES, and not put them on a level with political partisans, municipal dignitaries, or successful traders. Meanwhile Sir JOHN LAWES honours the baronetcy more than the baronetcy honours him.

—*OTHONNOPSIS CHEIRIFOLIA*.—Plants that will flourish by the seaside are not so numerous but that additions to the list are welcome. Mr. T. BUNYARD, of Ashford, sends us specimens of this long known but rarely seen Composite shrub, said to be hardy by the sea, but as the plant is a native of the Cape of Good Hope we should imagine that it will prove hardy only under exceptionally favourable circumstances. In any case it is a striking plant or undershrub, with long fleshy ovate leaves tapering to a long stalk, and with yellow flower-heads about 1 inch across, and surrounded by an involucre of one row of oblong erect bracts.

—*ANNUAIRE GÉNÉRAL D'HORTICULTURE*.—An international directory of nurserymen, seedsmen, and gardeners holding public appointments throughout Europe and America is in course of publication at Toulouse. Communications should be addressed to M. le Directeur de l'Annuaire Général d'Horticulture, 7, Rue Mataubau-Bonnefoy, à Toulouse, France.

—*EXHIBITION AT BORDEAUX*.—A great exhibition of agricultural, horticultural, and industrial objects will be held at Bordeaux, under the auspices of the Philomathical Society, from June 1 to October 31. The horticultural portion comprises classes for horticultural buildings, apparatus, tools, flowers, seeds, vegetables, and forest products. Exhibitors of all nations are invited, but prizes will only be awarded to exhibitors belonging to France, Algeria, the French colonies, Spain, and Portugal. For plants, &c., there will be ten series of exhibitions, each lasting a fortnight. The programme is very comprehensive. Communications on the subject should be addressed to M. le Président de la Société Philomathique, Bordeaux France.

—*PRIMULA MOLLIS* is a most distinct Primrose, first introduced to this country from Himalaya nearly thirty years ago. For many years, however, it was probably lost to cultivation. A good specimen in fine flower may be seen in No. 6 house at Kew, and also another planted out on the rockwork. The species was figured in the *Botanical Magazine* for 1854, tab. 4798, and is there stated to be intermediate between *P. sinensis* and *P. cortusoides*. It has long stalked cordate leaves, hairy on both surfaces, the petioles clothed with spreading white hairs. The scapes are a foot or a foot and a half in height, and bear three or four whorls of flowers, the calyx and corolla tube being red and the spreading limb deep rose with a dark blood-coloured ring round the eye.

FIG. 105.—TELLOPIA SPECTABILIS: FLOWERS CORAL-RED, BRACTS CRIMSON. (SEE P. 676.)



— THE RECENT HURRICANE.—Every additional storm visitation does but serve to show us the greater need of shelter-breaks, and these formed of trees that have in them something more substantial than the Elm has. Though one of our noblest of forest trees—perhaps in some soils the very finest of them—yet it is found to be the most dangerous, for when it has reached those dimensions which extort our admiration it also becomes a source of danger to all brought within its range. The national antipathy shown on the part of landowners of all sections to lop large trees is too well known to need special mention, but were this antipathy less prevalent, and the ordinary requirements of common sense and experience practised, many thousands of the noble trees that have fallen from their high estate during the past few months might still be standing, and would, if for a time less grand, be yet serving the useful purpose of forming shelter and assisting to stay the rage of other storms. Trees, however, have not alone been injured, and tree shelters alone have not been missing. Over many large breadths of Peas the damage done has been excessive, and specially so is this the case where the rows ran lengthwise to the wind and there were no hedgerows to break its force; such hedgerows, whipped and twisted by the wind have suffered severely, whilst in other cases, where the rows ran in the cross direction, the harm done has been but trivial. With an anxiety that is always on special occasions made manifest, and is, perhaps, but natural, we have had from various quarters all sorts of suggestions as to the cause of so much injury to leafage, but the right one seems to have been studiously ignored. The real causes, as elsewhere explained, are to be found in the excessive friction caused by the terrible force and pressure of the wind, allied to the very tender structure of the immature foliage. Where salt might have equally fallen, and where frost might have been equally destructive, no harm was done, if the wind did not play directly upon the tender growth.

— DEIMYS WINTERI.—This plant is now flowering freely in the winter garden at Kew; it is an evergreen, with umbels of creamy-white flowers. In sheltered places of many parts of England it will succeed in the open air, but the pleasing green of its foliage and the large umbels of flowers render it a desirable object for cultivation in the cool conservatory. Its bark is the "Winter's Bark" of commerce, so called by reason of its use having first been brought into notice by Captain WINTER, who accompanied Sir FRANCIS DRAKE, in the year 1578, to the Straits of Magellan, where it was first discovered; the species, however, extends all along the west coast of the vast continent of South America.

— HARDHOOD OF CYCADS.—Baron von MUELLER writes from Melbourne:—

"I see by one of the December numbers of the *Gardener's Chronicle* that *Cycas siamensis* resists the freezing point. But in all probability the grand *Cycas media* would also endure open-air temperature, sinking occasionally quite as low, if the plants were well established previously by shelter culture, and if the position of such a 'Pine Palm' be not exposed to cutting winds. I kept *Cycas revoluta* with impunity in the open air of the Melbourne Botanic Garden through several years-winter, though sometimes the thermometer sank as low as 21° Fahr for a few hours." In Southern Japan, far outside of the tropics, though in an insular climate, it will have to submit naturally to some frosts also. Hardier still than the *Cycas* species are the *Macrozamia*, of which *M. spiralis* grows naturally as far south as 37° in East Australia, and *M. Fraseri* as far as 35° in West Australia, and I believe that they are quite hardy in Southern Tasmania as far as 45°. I have no doubt that all the other *Macrozamia* could also stand some frost, unless perhaps *M. Demsoni*. As is well known, one genuine *Zamia* is indigenous in Florida, and several extend into extra-tropical regions of Mexico while in Central America *Z. Chigua* or an allied species ascends to 7000 feet. All these will have to encounter some amount of frost. In fact, it is clear that many *Cycadeoid* could with safety be placed unprotected in localities occupied in gardens by the hardiest of Palms, and there is every reason to believe that within British ground in Europe they could be kept in the open air of the Channel Islands, at not even at Arran. That even very tall *Zamia* and *Cycas* stems can be exported at very long distances packed as dead goods in closed wooden cases deprived of leaves and soil, for subsequent revival

in gardens, I have shown very many years ago. The South African species of *Enephalartos* endure the night frosts of Melbourne also perfectly well."

— ATRAGENE ALPINA.—Many authors do not consider that this plant should belong to a genus apart from *Clematis*, the only difference between the true *Clematis* and the *Atragene* being that the former have sepals only, whilst the latter have both sepals and petals. *A. alpina* is a pretty deciduous climber, with long-stalked drooping blossoms. In colour these vary from white and sulphur to dark blue or reddish. *A. sibirica* of nurseries, and books, too, is identical with *A. alpina*.

— HERBACEOUS CALCEOLARIAS AT BEDFORD HILL HOUSE, BALHAM.—The named varieties of herbaceous *Calceolarias*, such as raised by many of the celebrated growers of these plants that were going twenty or thirty years back, were remarkable for two things—the perfection of form and marking of the flowers, according to the florist's standard, and for their weakly, indifferent constitution. To the latter serious defect was, no doubt, attributable the majority getting so much out of favour amongst the majority of those who cultivate plants for ordinary decorative purposes, and who reasonably avoid things that are found wanting in stamina, such as the *Calceolarias* in question. The continual selection for seed-bearing purposes of plants that, however beautiful the flowers were in form and colour, were yet scanty in number, and the foliage deficient in size and quantity, was sufficient cause to account for the neglect into which they had fallen. Of late years a different course has been followed by a few growers who have taken this section of these beautiful plants in hand, and have made strong and vigorous growth, with a dwarf compact habit, the basis on which they have worked, and after securing this have gone in for the properties of the flowers afterwards, and so successful is the result that, as with *Cincratias*, *Gloxinias*, *Primulas*, and some other things that to secure flowers of the required character it used to be necessary to propagate from the old plants, they may now be had from a good strain of seed possessing all the requisite properties in the flowers, combined with habit and vigour of growth, that it would be difficult to improve upon. Amongst the most successful raisers of these greatly improved *Calceolarias* is MR. RAPLEY, gr. to J. BRAND, Esq., Balham, who in recent years has frequently exhibited groups of his seedlings, alike excellent in every way. An opportunity we lately had of seeing the stock, which consists of some 400 plants, enables us to pronounce them even better than they have ever been before. They fill a wide front stage in a lean-to house about 100 feet in length. The self colours range from ivory-white, through light to the deepest yellow, from pink through the various shades of red to the darkest velvety crimson and maroon, combined with others that have the blotched face of the pouch edged with a distinct colour, and again others that are spotted and freckled with every imaginable shade. They are grown in pots from 6 to 8 inches diameter; with this limited root-space many of them ran from 18 inches to 2 feet across, measured through the dense head of flowers which literally lie packed so closely as to overlap each other; the biggest plants are from 15 to 18 inches high, standing without any need for sticks. The broad massive foliage which half covers the pots all but hides the stems, forming a groundwork to the mass of bloom which each plant presents, and effectively tones down what otherwise would be an overpowering amount of colour; the individual flowers are well formed and of unusual size, some of the largest measuring just 2½ inches across the pouch. It would be difficult to imagine anything more effective for greenhouse or conservatory decoration, especially as when once in flower they may be stood about in places where one would hesitate before putting plants of a more costly character.

— RANUNCULUS GRANDIFOLIUS.—In the *Botanical Magazine*, tab. 4625, this fine plant is figured under the name of *R. cotuifolius*, by which probably it is more widely known. It is by no means a common plant, and probably does not succeed everywhere; where, however, it does grow well it makes a splendid show. We have a lively recollection of seeing a profusion of it some years ago in a wonderful garden near Farnham (that of the late MR. GILES MUNBY), where large self-sown clumps of it made a

grand show. The letterpress accompanying the above-mentioned figure states it "is unquestionably the handsomest of all the Buttercups yet known to botanists. The flowers are not only large—more than 2 inches across—but of a singularly glossy yellow colour; and although a native, as it would seem, exclusively of the Canary Islands and of Madeira, it is quite hardy." It attains a height of from 2 to 4 feet; the large root leaves, between round and kidney-shaped in outline, have long hairy stalks, and the large flowers are borne in cyme-like panicles. Now in flower at Kew.

— CAMELLIAS AND CLIMBING ROSES.—At Furze Down, Tooting, there is a large house with two rows of *Camellias* planted out in the body of the house, and the back wall occupied by these plants as well, the rafters being covered with climbing *Roses*. There are few arrangements that do better than this, for several reasons—the extra warmth that is beneficial to the *Camellias* whilst making their growth suits the *Roses*, which, so treated, grow away vigorously, supplying a large quantity of flowers, at the same time giving a little shade, which the *Camellias* enjoy. Another advantage is, that the insects—aphides and red-spider—more or less inseparable from the cultivation of *Roses*, but which little affect the *Camellias*, can be easily kept from being injurious if the syringe is freely used.

— LINNEAN SOCIETY.—The anniversary meeting for the election of Council and officers, and President's address, will be held on Wednesday, May 24, at 3 P.M.

— CYTISUS PRÆCOX.—This beautiful and free flowering shrub, stated to have been raised by MR. WHEELER, of Warmister, between *C. albus* and another species, perhaps the common *Broom*, is, it appears, distributed in gardens under the names of *C. odoratus*, *C. albus* var., &c. From MR. PARKER, of Tooting, we learn that seedlings of this plant revert to *C. albus*.

— THE EFFECTS OF THE RECENT GALE.—Perhaps nowhere else can the effects of these gales on vegetation be more strikingly traced than at High-bridge, between Bridgewater and Weston-super-Mare. Here there is an immense flat plain stretching away to the seaboard at Durham. Over this plain the wind must have sped with terrific force, for the hedgerows, Thorns, and other trees are as brown as if they had been scathed by fire. For a considerable distance the traveller sees but little of green leaves, and it will occupy a season—if that does not prove short—for the stricken plants to regain their spring verdure. The rich green of the pasture-land is in marked contrast to the withered hedgerows, &c.

— SINGLE DAHLIAS AS POT-PLANTS.—It is probable that some of the more striking varieties of the single *Dahlia* will make good exhibition specimens grown in pots. At the recent exhibition of the Torquay Horticultural Society, Mr. R. T. VEITCH exhibited a few varieties growing in small pots, and though the plants had been pushed on to get them into flower they were very pretty indeed, and bloomed with great freedom. If grown on generously into good size in sufficiently large pots till the plants become somewhat pot-bound, and then treated to a little liquid manure, the plants would no doubt make fine decorative objects in a conservatory, and carry on a supply of cut flowers till a period some time after the plants were cut down in the open air. The experiment is worth trying.

— LIGHTNING-STUCK TREE.—The conversion of tall trees into lightning conductors is a common event, and usually one attended with very disastrous results to the tree. The moral of such an event, doubtless, is that our finest and specially most valuable trees should have the protection of an artificially constructed conductor, but perchance the expense would, to be really effective for all trees, be greater than many owners of trees would care to meet. Early last week a heavy thunderstorm passed over the Reading district, and during its presence the electric current struck a noble deciduous Cedar that stands in the grounds of the Wilderness at Earley, and, singularly enough, did little harm to it. The current struck the tree at its highest point, and thence descending the surface of the stem plunged into a groove from the bark from 1 to 2 inches in width, sending the

bark flying from the tree in small shreds to a distance of 30 feet. At about 2 feet from the ground the current, which in all cases had avoided limbs, here met with a large one, and dividing produced two distinct grooves, and finally entered the earth, though here it first ploughed up the turf to a depth of 6 inches, and for several feet round the tree. Though thus struck, it is satisfactory to find that the tree shows no further injury. When the tree was struck the effect resembled that of an instantaneous discharge of musketry. Phenomena of this kind tend very forcibly to illustrate the danger of standing at the base of a big tree when a thunderstorm prevails.

— **BERRERIS SINENSIS.**—According to LOUDON this species was first discovered during Lord MACARTNEY'S mission to China, and was introduced into England in 1860. It is the most graceful of all the numerous species of *Berberis* cultivated at Kew, the branchlets from the base to the crown of the plant weeping, and being loaded with long racemes of yellow flowers. The figure in LOUDON'S *Encyclopedia of Trees and Shrubs* gives no idea of the graceful habit of this species.

— **CAMELLIA-COVERED WALLS AT BEDFORD HILL HOUSE.**—If evidence were wanting of what plants are the best for covering the walls of greenhouses and conservatories, a sight of the Camellias on the back walls of a long lean-to greenhouse and conservatory here would completely settle the matter. In the greenhouse in question the wall is not only covered with the shoots secured to it in the ordinary way so as to form a covering, but the plants have made growth that is in a great measure left to itself, so that the branches of each stand out from the face of the wall, 3 to 4 feet, presenting a close mass of shoots, covered with the densest of healthy leaves from bottom to top. The plants are turned out in the border, requiring a minimum of attention in the matter of water, and yielding thousands of flowers. In the conservatory, which is a lofty structure, the plants have reached the top, and are in a most luxuriant state, although the position is such that not every thing would thrive through want of light. So late as the middle of May there were dozens of fine blooms open on them, in fact, where planted out and in healthy condition, after they have attained size and strength, the time they keep on blooming is such as to lengthen their season of flowering beyond that which occurs when their roots are confined in pots or tubs. A selection of the best kinds are here used.

— **MEDINILLA MAGNIFICA.**—A plant growing in a 16-inch pot, and which measures 7 feet in height and 6 feet in diameter, is now in bloom, with sixtysix magnificent racemes, in the Royal Gardens, Wilhelmshöhe, near Cassel, Germany. The average length of the racemes is 21 inches, and the plant is greatly admired by all visitors.

— **THE DALKEITH YOUNG GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—The session of 1881-82, which has just been brought to a close, has been the most successful of any since the institution of the Society in 1878. The programme for the past session extended to a wider range of subjects than has been the rule hitherto, and papers were read by several young men from neighbouring gardens, which added considerably to the interest of the meetings, and aided the discussions on the various questions brought forward. The meetings are held weekly from October to April, and the attendance during the past session has been very regular and exemplary on the part of the members, with whom, of course, it is voluntary. Mr. WILLIAM MILNE performed efficiently the duties of Secretary during the session. The following subjects, among others, have formed the text of really useful and interesting papers:—"Notes of Interest from a Holiday Tour," "Stoves and Stove Plants," by Nimrod Sherwood; "Vine Culture," and "Peach Culture," by John McKinnon; "Nutritive Organs of Plants," and "Reproductive Organs of Plants," by William King; "Floral Decorations," by James Dickie; "Rose Culture and Forcing," and "Asparagus Culture," by John Clark, Newbattle Gardens; "Landscape Gardening," by Alexander Westland; "Insecticides," by William Milne; "The Wants of Man," by James Grant; "Agriculture," by Thomas McKenzie, Newbattle Gardens; "Lessons of Chemistry," by James McDonald; "The Potato," by David Ramsay,

Drum Gardens; "Vegetable Growing for Seed Saving," by Robert Davidson; "The Chrysanthemum," by John Lindsay, Newbattle Gardens; "History and Culture of the Dahlia," by Isaac Milson; "Wall and Fence Climbers," by James Nicoll, Newbattle Gardens; "Roots," by Thomas Donaldson, &c. A marked improvement was shown in the general composition of the papers, and the points touched upon were criticised with intelligence and interest. Questions upon various interesting and useful subjects were frequently laid before the meetings, and brought out much useful information in the discussions which followed in reply to them. The questions embraced such matters as "What is the Best Method of Preserving Hardy Fruits during Winter?" "The Best Method of Packing Fruits and Flowers for Travelling Long Distances?" "The Proper Definition of the Term 'Florists' Flower'?" "The Electric Light: will it ever become beneficial to Horticulture?" "Large or Small Gardening Establishments: which are the better of the two for young gardeners learning their profession?" "Peaches and Vines: which are the easier managed to attain good results?" "High or Low Night Temperatures: which are the most beneficial to plant life?" "Is it advisable to flower *Eucharis amaranica* oftener than twice a year?" and other queries on topics of a similar nature. Such instructive meetings and well-conducted discussions must prove beneficial to the young men in after-life.

— **WINTER GREENING APPLE.**—Miss FAWCETT has sent us a Winter Greening Apple gathered in her garden at Springfield, Knowl Hill, near Twyford, on the 8th inst. It had, with a dozen others, remained on an espalier tree throughout the winter, and appears to have only thoroughly ripened amid the fresh blossoms now adorning the tree.

— **THE CONSERVATORY AT FURZE DOWN, TOTTING.**—The conservatory here affords a good illustration of what may be accomplished in the way of effective grouping where there is a large, well-appointed structure, occupied by plants of a character alike suitable for the purpose, and that will thrive in the description of house in which they have to be located; for the house in question, like many others attached to a mansion, has been built with quite as much view to external appearance as to the well-being of the plants it was intended to contain. It is a handsome, roomy structure, consisting of glass and massive stonework on the side which forms the front overlooking the lawn; on the opposite side there is no glass, but the surface of the wall has been judiciously dealt with by forming narrow recesses enclosed with glass, that can be opened or shut at will. These are filled with Ferns, Palms, and other suitable things, mostly planted out, the rest in pots. A fair amount of light reaches the body of the house from the roof, but in front this all-essential element is only admitted in limited quantity through the presence of the masonry; the body of the house is connected with one of the rooms of the dwelling by an extension, in the shape of a short corridor. No stages of any kind are used, on the floor along the middle are three moderate sized circular groups of plants, each of which has a noble Tree Fern, with a straight tall trunk for its centre, surrounded with suitable material round the large boxes in which they are growing; on these are arranged, as also hanging from the trunks of the Ferns, a quantity of Orchids in flower, consisting of *Odontoglossum*, *Oncidium*, including *O. Lanceanum*, *Dendrobium*, *Cyrtopodium*, and others: these have a pleasing and natural appearance. Right and left, on either side of the narrower portion of the structure which leads to the room already mentioned, as likewise on both sides of the body of the house, and its opposite end, there are groups of plants arranged so as to present an irregular outline; they consist of lofty Palms, *Dracenas*, Ferns, and the like, intermixed with flowering plants of whatever may be in season, and of which large quantities are brought on in other houses. All the groups are edged with *Selaginella Kraussii*, grown in wire troughs filled with moisture-holding material. Mr. LAING manages to arrange the whole so that each group, from the floor level up to the top line of the tallest plants, is well broken up, avoiding the even slope so often apparent where grouping in the natural style is attempted, and which is frequently spoilt through want of the surface being sufficiently relieved. The plants are all grown in pots or boxes, yet the grouping is so managed that scarcely anything of them is

seen; the great advantage of this over the planting out system is, that the entire appearance of the house can be varied at will, by altering the position and character of the groups from time to time as deemed desirable, which, with plants that are stationary, as where planted out is impossible.

— **PHYLOXERA IN AUSTRALIA.**—The most strenuous efforts, it is stated, are now being made by the Victorian authorities to stamp out the *Phylloxera*, which is seriously threatening the ruin of all the vinegrapes in the colony. Every vineyard in the Geelong district has been, or is to be uprooted, and so completely is the work being carried out that even Vines trailing over verandahs round a country house are ruthlessly sacrificed. When the work has been finished, the nearest vineyard will be separated from the infected districts by a belt of some 30 miles of country. This has been fittingly considered a proper case for compensation, and the adjoining Colonies have agreed to bear their fair share of the cost. The value of the Vines destroyed has been appraised, and it is estimated that the total sum to be paid to the vigneronists will amount to some £25,000.

— **TUBULAR FLOWER AND TREE STAKES.**—Messrs. DROOKES & Co., 4, Cathcart Street, Manchester, have lately introduced a new iron tubular flower and tree stake, for which they claim the advantages of cheapness, lightness, durability, strength, resistance to wind pressure, stand driving in deep, withdraw easily, and pack away conveniently. The new stake aims at superseding the rapidly decaying wooden stake, and is made in sizes ranging from 2 feet long, $\frac{1}{2}$ inch thick, and weighing 7 oz., to 7 feet long, $\frac{3}{4}$ inch thick, and weighing 3 lb.

— **FRUIT BOXES.**—Messrs. THOMAS CHRISTY & Co., 155, Fenchurch Street, have sent us a sample box made for a dozen Peaches, or other early valuable fruit, desired to be sent away as presents or otherwise. We need only further add that they are cheap, simple, and handy.

— **PRESENTATION TO MR. MILLER OF CLUMBER.**—On the retirement of Mr. MILLER from the management of the Clumber Gardens, he was recently presented with a purse of gold by a few old friends and well-wishers, as a slight mark of the esteem and respect in which he has been held during his twenty years' residence in the neighbourhood of Worksp. His departure from Clumber is much regretted, and his friends hope soon to hear that he is in harness again.

— **THE WEATHER.**—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending May 15, issued by the Meteorological Office, London:—The weather has been generally dry and fine, though some thick fog was experienced during the earlier part of the period at many of our western stations. The temperature has been about equal to the average in the south and south-west of England and south of Ireland, but 1° or 2° below it in all other places. The maxima which were registered on the 11th were as high as 71° in "England, S.," and 70° in the "Midland Counties," while on the 9th the thermometer fell as low as 31° at Durham and Cirencester, and to between 33° and 35° in most other places. The rainfall has been equal to the mean in "England, N.W.," but considerably less in nearly all other districts. Bright sunshine has been more than that recorded for some weeks past, the percentages ranging from 44 in "Scotland, E.," to 64 in "England, N.W.," and 62 in "Ireland, N." Depressions observed:—During the greater part of this period a large area of high pressure held steadily over our southern coasts and France, while some small shallow depressions moved from west to east over, or to the northward of Scotland. The wind was consequently from the westward, or north-westward, and generally light, or moderate in force; in Scotland, however, it reached the force of a gale for a brief time on the 12th. By 8 A.M. on the 13th the high pressure area had extended northwards, and during the remainder of the period moderate easterly or north-easterly winds prevailed on all our coasts.

— **GARDENING APPOINTMENTS.**—Mr. BROOKS, Gardener to J. P. CROSS, Esq., has left that gentleman's place at Morthfield, Bolton, to take charge of the gardens at Colthorpe Towers, Rugby, also the property of Mr. CROSS.

RABY CASTLE, DURHAM.

(Continued from p. 646.)

LEAVING the Castle, and again passing through the porter's lodge—the keeper of which, by the way, is an old Guardsman of huge stature, intelligent, well versed in the history of the place, proud of the situation he holds, and as worthy an example of an English veteran as one could well meet with—in a north-westerly direction lies the garden; the space intervening slopes considerably for a short distance to a hollow, the garden occupying the gentle rise opposite, thus lying nicely to the sun, well sheltered from the north and east by the higher ground at the back. On the southern side of the garden, outside and continuous with the wall facing the park, there is a slip of ground some 250 yards in length; this wall is well stocked with healthy trees of Pears, Plums, and Apples, carrying nice crops; the borders occupied by their roots is planted ribbon-fashion, with the usual summer bedders, backed with Phloxes and Hollyhocks, not standing so near as to injure the fruit trees.

On the opposite side of the walk there is a wall supporting this slip, which is raised above the park adjoining; on the top of this wall there is an iron palisading planted with Clematis Jackmanni, in front of which at intervals are standard Roses—the whole, including the ribbon border, which is well planted, giving a very nice effect. Here also at the end of this border is the noted Raby Castle Fig, brought from Italy by one of the family 150 years ago. It is planted against the garden wall, occupying a house 18 yards long, and completely covering the wall the whole length of the house, and is trained down the rafters from back to front as well. It is a strong, healthy old tree, yearly bearing quantities of fruit. The entrance to the principal walled garden from this slip is at the opposite end to the Fig-house. The garden, I may here say, is irregular in shape; one of the good old-fashioned descriptions, combining the useful with the ornamental.

On the higher side to the north are a number of glasshouses, devoted to various purposes, which will be noticed hereafter. Fronting these there is a long broad walk leading from the entrance already mentioned to Mr. Westcott's house, which stands at a considerable distance, yet within the garden; right and left of this walk there is a moderately wide border filled with an immense quantity of flowering and fine-leaved plants, varied in their character and arrangement. Commencing at the entrance, the filling consists of the different varieties of bedding subjects, including Lobelias, Verbenas, Ageratum, variegated Alyssum, and Saponaria calabrica, sown late, so as to bloom in the autumn, at which time the place is required to be gayest. The border here is backed with a dense close line of Fuchsia Riccartoni. On the opposite side of the walk the planting is different, consisting of a good selection of herbaceous plants, amongst which are strong clumps of Tritoma uvaria. Further on, a space, irregular in shape, is filled with fine-leaved plants, green and variegated, such as Bamboos, Yuccas, Tobacco plant, coloured Beet, and a variety of similar things; still further on the arrangement is again varied, the border running parallel with the walk being laid out in half circles. Yellow, white, and purple Pansies are here freely used with good effect, associated with Tropæolum Hunteri, bronze and silver Pelargoniums, and Golden Gem Calceolaria, which here was very fine, and stands much better than *C. aurea floribunda*. Following the walk, the garden to the left is intersected by divisional walls and Vew hedges; the first of these divisions contains a combination consisting of Pentstemons, Gladioli, pink and white Anemone japonica and white Marguerites, grouped with summer bedders, having standard Roses at intervals to still further relieve the surface. Here is an assemblage of plants, such as even those who have the greatest dislike to the formality of bedding could see little to find fault with. To the back of this is a small Rose garden. On the border to the opposite side of the walk the filling in consists of Pelargoniums, Violet Hill, May Queen, and Christine, in circles set in Blue Bell Pansy, with yellow Fyretbrum back and front. In the next division, confined within the Vew hedges before mentioned, the arrangement differs; a large centre bed in grass has a Yucca for centre, surrounded with Veronica variegata pegged down, Verbena venosa, Ageratum Countess of Stair, Pelargoniums, Clematis Jackmanni pegged down, and

Blue Bell Pansy. Four large circles, occupying the corners of this grass space, are each filled with a specimen Cordyline australis encircled with Iresine Lindenii, Pelargoniums, Pansies, variegated Alyssum, &c. The continuation of border opposite is here arranged in chain fashion, the plants employed being Harrison's Musk, Lobelia speciosa, white-leaved Pelargoniums, and scarlet Tropæolums. The next of the divisions, which is fronting the conservatory, is laid out in geometrical beds round a large central one filled with succulents consisting of Yuccas, Agaves, Sempervivum, and Echeverias in a setting of Saxifragas and other things of like habit. There are here also four beds of Raby Carnation, a pale pink variety, a late bloomer flowering in succession; the remainder are filled with ordinary bedders. The beds in this division are in box, the paths gravelled with material from the lead works, which is of a nice yellow-brown shade, and keeps its colour well. To the left of the walk continuing up to Mr. Westcott's house the border is planted ribbon-fashion, with subjects giving enough, but not too much colour. The opposite side is occupied by a good selection of herbaceous plants, of which the best varieties of Phlox are a prominent feature, combined with Tritomas, Lupins, Aquilegias, and a host of others. The Phloxes are taken up every other year, and divided; in this way they bloom profusely in rich soil. I have thus gone somewhat into detail in describing the way that flower gardening is carried out at Raby, in which, by a judicious selection and arrangement of many plants widely different in their habit and general character, there is an absence of the monotony in form and glare in colour which is the objectionable feature in modern bedding. In place of the even balance in form and colour, the absence of which is often looked upon as a fault, there is no place in the whole length of this long walk where the opposite sides are exactly alike, and the same applies to the sectional portion of the garden divided in the way described, in each of which the planting is wholly different. The free use of good kinds of herbaceous plants prevents the ground at all seasons from having the bare appearance too often present, and independent of this there is always something in bloom from spring to late in autumn.

There is a large number of fruit and plant houses, a portion of which are in this garden. Fine-leaf plants have long been well grown here, the collection of these often holding the post of honour at the noted Lishop Auckland shows. Mr. Westcott is well known as a most successful fruit grower, Grapes, Pines, Peaches, Melons, and Figs, as well as the commoner kinds, being produced in a condition that only ability and unflinching attention can command. Beginning at the point nearest the entrance from the Castle, the first we come to are a couple of lean-to Peach-houses, each about 60 feet in length. The front border is sunk some 2½ feet below the level of the back path, with the trellis on which the trees are trained correspondingly lower than usual; in this way those with which the back wall is planted do not suffer from want of light. The Peaches are Barrington, Bellegarde, Noblesse, and Royal George, with Pitmaston and Newington Nectarines. *T. B.*

(To be continued.)

ELY COURT.

ELY COURT, the residence of J. H. Insole, Esq., is a modern building, having been erected by the present proprietor, who is one of those large colliery owners who have made names for themselves and found employment for thousands, and have converted the comparatively thinly populated vale of Glamorgan into a centre of trade and industry teeming with a dense population, which has, however, suffered during the last few years, in common with other districts, from the general stagnation of the coal and iron trades. One of the lodge entrances abuts upon the road from the Great Western Railway Station to the singular old city of Llandaff, which is in reality but a large village, with little of interest to the stranger except the cathedral itself, which stands on the site of the original "Church of the Taff" (from which the name Llandaff is derived), destroyed at the Conquest. A plain, but beautiful and substantial, restoration of the cathedral has been accomplished, which was rendered the more necessary from ill-directed efforts at restoration attempted in 1730, which had quite destroyed the character of the building.

Entering the grounds of Ely Court from the upper lodge, one is at once struck by the beautiful situation of the place, being on a rising ground gently sweeping up from the narrow alluvial plain lying between the rivers Taff and Ely. Sheltered by higher ground and excellent timber to the north, a beautiful view stretches out in front over the widening valley as the rivers reach the Channel, between the ports of Cardiff and her younger sister, Penarth; thence over the wide waters, dotted with a few islands distinctly visible, on to the Somersetshire coast beyond, just dimly seen, except when gleams of sunshine give sufficient light and shade to display the irregularities of its varied conformation. The constant movement on the water of numberless craft of all descriptions, from the largest of Atlantic steamers to the tiniest boat, the relief afforded by an expanse of perfectly level meadows immediately in front, and the bold undulating scenery crowned with luxuriant vegetation to the right and left, combine to form a picture harmonising as a whole, and beautiful in detail.

The mansion is a handsome Gothic building with a tower and observatory 85 feet high. On the west, or entrance front, is a spacious lawn, with fountain, &c., and bounded by banks planted with Rhododendrons, hardy Ericas and Azaleas, amongst which the growths are rapidly appearing of a varied collection of bulbs. Beyond this rises a very effective piece of rockwork which has been planned to hide a blank wall leading to the stables, and has been carried, partly by mounding and partly by large masses of natural rock brought from some distance, to a height of 30 feet. The planting has been effectively carried out, the intervening slopes of earth stretching from one mass of protruding strata to another have afforded accommodation for a considerable collection of rock and alpine plants. The conservatory is situated on the southern front of the house, and is effectively arranged with many nice specimen plants of Camellias, Palms, some good Tree Ferns, Dicksonia antarctica, *D. squarrosa*, and Clotium princeps, also large plants of the variegated forms of *Yucca aloifolia* and *Agave americana*. Amongst the Epacris, Epiphyllums, Hyacinths, &c., with which the house was gay were some particularly well grown specimens of Mignonette in the most robust health and covered with bloom, and the prettiest semi-double strain of *Fimula* we have seen. The flowers, which are either white or magenta, are of perfect form and substance, and have a small rosette of petals in the centre, suggestive of the double form of the Paper-white Narcissus. The roof is furnished with the usual climbers, which do not call for special comment.

A terrace in gravel and grass commands a view of the flower garden on the east front; the beds being furnished with shrubs and bedding plants for spring effect which are not particularly interesting in January. To the left of the flower garden a winding path is entered, with shrubby borders and rockwork which has been skilfully blended with its surroundings and hidden from the lawn; over fifty Camellias are here planted out, varying from 2 to 5 feet high, and, except where they receive the drip from trees, are the picture of health, and may possibly prove a success, as the position chosen is well sheltered. Winding paths amongst clumps and specimen trees and shrubs make the most of the limited extent of pleasure grounds, and lead amongst nice specimen Conifers, past collections of Rhododendrons, through a long trellis-covered walk, which must be beautiful in summer, with its covering of Roses and Clematis, and back through another Beech-covered way to the tennis-ground, surrounded by the herbaceous borders, which brings us to the bottom of the grounds, and to a recent addition to its extent taken from the park in front, and just converted into a rock garden with a small streamlet gradually widening to a pool at the lower end, where it is terminated by a rocky grotto some 30 yards long. The planting is not yet completed, but the general effect is already good; and being mounded and planted with shrubs, entirely hides the existence of such a garden from the carriage approach which passes this point. There is little doubt that it will be exceedingly effective when completed, and when the subjects planted have had time to become established; and it certainly does great credit to the artistic taste of the gardener, Mr. Julien, who has had to superintend the placing of every stone.

The kitchen garden is well stocked with choice fruits, the walls being furnished with the usual stone

fruits, looking very promising, and the borders being planted with all the leading sorts of Pears and Apples, trained in the various modes of pyramid, vase-shaped, espalier, and cordon, some of the trellises being carried to the height of 9 feet, covered with cordons which, we are informed, bear heavy crops each season. Roses are largely planted in this garden; and the vegetable crops show skilful cultivation, and testify to the mildness of the winter by their verdant hue. Here the principal houses are situated, and we commence by entering a stove full of the usual occupants of such structures, besides Ferns and a small collection of Orchids. Large plants of *Adiantum Farleyense*, *Eucharis amazonica*, *Cycas revoluta*, and several others seemed to be crowding their lesser and perhaps more useful neighbours; amongst which may be noticed nice table plants of some of the newer *Crotons* and *Dracenas*, whilst the old *Euphorbia splendens* and *jacquiniflora* were as bright and floriferous as usual. The next house entered is a span-roofed Cucumber-house, in which the plants have not done so well as usual this winter, but where, nevertheless, some useful fruits are hanging; only one side of the house is planted, the other being devoted to the propagation of bedding stuff, which has just commenced.

Following this is a house devoted to present to Fines, which were clean and healthy-looking. Crossing a portion of the kitchen garden an imposing block of cruciform shape, with lofty lantern-topped roof, is reached; the wings are devoted to late and early vineries, while the body is used as a greenhouse or intermediate plant house. The late vinery is planted with Lady Downe's, Muscat of Alexandria, Alicante, and Gros Colmar; of the latter many fine examples of large and perfectly coloured bunches remained hanging in the house, although it was filled with the store boxes, and pots of *Pelargoniums* for bedding out. Equally well finished examples of Lady Downe's were hanging in the fruit-room, showing that the house of Grapes must have been a fine one. On one of the stages in this house were equally good *Primulas* of the semi-double strain previously referred to. The central division, 42 feet by 24, was very gay with *Camellias*, the earliest *Azaleas*, *Orange trees* in fruit, *Epacris*, *Cinerarias*, and *Callas*; while a portion of staging devoted to a collection of succulents was interesting, and of climbers heavily laden with bloom may be mentioned *Clianthus puniceus* and *Acacia Kiceana*. The early vinery is planted with Black Hamburg and Foster's Seedling, not yet started, which present that robust promising appearance that Vines only three years planted ought to do. A long line of *Belladonna Lilies* were just breaking very strongly out of the ground in front of these houses, a position where they ought to prove very effective when in bloom.

Capacious pits in front of the stove, Melon, and Cucumber-houses provide commodious quarters for bedding stuff. An orchard-house was being turned to good account in forwarding Tea Roses, *Spiraeas*, &c., whilst its wonted occupants were plunged outside, and a similar use was being made of a cool-Teach-house 90 feet long, where bulbs were being brought on, and *Chrysanthemums* stored after blooming. The trees are trained to the back wall, and to a trellis in front, which only reaches half way up the rafter, and consequently only shades the border of the house, leaving the trees on the back wall fully exposed to the sun's influence.

With this rapid survey we conclude our account of a place where an endeavour is made to make the most of every inch of space, and most credit reflects upon the proprietor and his able gardener for the manner in which this is accomplished. R. C.

COFFEE IN CEYLON.—According to *The Colonies and India* hot weather has so prevailed in the Coffee districts of Ceylon that the prospect is favourable to good crops, though it now seems doubtful whether the estimate of 600,000 cwt. will be attained. The *Ceylon Observer* doubts if more than 550,000 cwt. will be shipped, and fears that there can be no improvement in the exports for the season 1882-83 unless the leaf disease disappears. Librarian Coffee, according to that journal, is doing exceedingly well, those plantations of it which are in bearing yielding satisfactory crops, the ripe berries being picked almost throughout the year. It is considered that the most sanguine anticipations formed as to the result of the cultivation of Librarian Coffee will be realised. As regards Tea, the estimated produce of which was put down as 500,000 lb., it is likely that the shipments will be nearer 1,000,000 lb., and that this will be doubled during the year 1882-3. The cultivation is extending with rapid strides.



HOME CORRESPONDENCE.

Funkias.—Among herbageous plants few, if any, will compare with these for beauty of foliage, which is strikingly handsome at all stages, for almost as soon as it appears it arrests attention by the peculiar way it is folded, and the rich delicate shades of green it presents. The most noble of all is *F. sieboldii*, which has grand leaves of a bluish metallic hue, and the plant forms a fine mass, and looks bold and commanding in any position. This variety does best among hardy Ferns, where it can have a little shade and plenty of moisture, and when so situated its foliage attains a very large size, and comes more glaucous and richer than it ever does in a border. Being fond of rich soil, the ground where it to be planted should be heavily manured and deeply dug so that its roots may get down and ramify freely. There is also a variegated form of this, which has its leaves margined with a creamy-yellow, and among the different kinds of *F. ovata* there are several, some of which are exceedingly beautiful. The most noteworthy and desirable are *F. ovata aurea variegata*, *F. ovata undulata aurea*, *F. ovata elegans*, *F. ovata sinensis marmorata*, *F. ovata glaucescens variegata*, and *F. ovata viridis univittata*. These are all worth growing, and some at least of them should be in every herbageous border, as, besides the highly ornamental character of their leaves, they all send up numerous spikes of fine Lily-like flowers, which are very showy-looking, and of great value for cutting, as they dress well, and last a long time in water. The season to divide and plant Funkias is in spring, just as they are starting, but as some nurserymen supply them in pots they may be got even now, and transplanted or turned out at once. J. Sheppard.

New Kinds of Potatos.—A short time since Mr. Kerr of Dumfries pointed out in these pages that not only had the Potatos *Crowwell* and *Ingliston Fluke* been offered in commerce in Scotland prior to season 1881-82, but also that his firm had previous to this same season offered in commerce the new American kinds *Queen of the Valley* and *Adirondack*. Waiving any further mention of the two first-named kinds, I wrote to Mr. Kerr, and asked him to favour me with his trade list of the previous year, showing conclusively that the kinds named had thus been offered as stated. Up to the present time no reply has come nor has any trade list. To prevent any such questions arising in the future, I would advise that the committee of the International Potato Exhibition, having regard to the facts that the exhibition is held in London, and that as moreover it is the headquarters of the horticultural press of the United Kingdom, I should insist that no new kind of Potato shall be regarded as having been offered in commerce, until it has been duly advertised as such, in the columns of at least two of the London gardening papers; that would-nosen constitute not merely an offer to a few in a remote locality, but a general offer to the public, which, if stock were plentiful, all might take advantage. A. D.

Lithospermum prostratum.—This is one of the most lovely hardy plants in existence, almost rivaling the *Gentianella* in the rich deep blue of its flowers, which are borne in the greatest profusion on prostrate creeping stems, which on old plants spread themselves out some 2 or 3 feet round, and quite carpet the ground. As a rock plant *Lithospermum prostratum* is quite unsurpassed, as it is specially adapted for growing on elevated positions where it can trail over, and when so cultivated it shows off its graceful habit and beauties to the greatest advantage. The soil it likes best is that which is sharp and gritty, such as the turfy parings from roadsides or peat and sand, in either of which it does well and roots freely if layered. Cuttings put in on a shady border under handlights strike readily if inserted any time after the young shoots get a little firm, but to encourage them to do this they must be kept close, and the atmosphere around them moist by occasionally sprinkling them over. J. S.

Cleaning Boilers.—Common saddle boilers are seldom fitted with cleaning plugs, though most of the better class of "improved" ones are; it is merely a question of price, as the cost of inserting two 2-inch screw-plugs in a wrought-iron boiler when first ordered is only a few shillings; but to drill and fit these after all is fixed, and especially in a cast boiler, the expense would be trebled. The 2-inch hole noted by "J. R. H." is only for the purpose of drawing over the water—not for cleaning out the mud. No doubt

some boilers are rendered inefficient by the filthy water used, but there is little excuse for this, because the trouble of roughly filtering the water when the apparatus is first filled would be very slight, and once done there is no further risk unless the water is drawn off in considerable quantities and allowed to be replaced from an open cistern, into which all sorts of dirt finds its way. The actual waste of water in a large apparatus need not be more than a quart a week if properly arranged. A piece of old calico stretched loosely over the supply cistern will allow the water to pass slowly through while filling it, and to become sufficiently pure for heating purposes. Many boilers are covered with a thick deposit even when clear pipe water is used, but it is incrustation caused by boiling the hard water continually. I have seen one so crusted over as to be useless in three years, and another fed from a pond for twelve years which did not require cleaning all the time. Unless there is a sufficient quantity of mud accumulated to stop the return inlets of boiler the deposit will not do much harm at the bottom sides of a saddle; if there were tubes there or waterway fire-bars they would probably choke up and then break. If there is a "return" on each side of the boiler close to the bottom it may be less trouble to pick out and disconnect the joints of the elbows there, and so clean out that way for once than it will be to clean out the whole of the boiler, and to take it for new plugs, but the latter, once in, are always available. B. W. W.

I think it is possible that "J. R. H." (see p. 643) may find on examination that his return pipes require cleaning out more than his boiler. The fire has generally the effect of driving all sedimentary matter out of the boiler and flow pipes, to be deposited as the circulation becomes more languid in the return pipes, and these, from the condition of the water he appears to have used for the purpose of filling his boiler and pipes, I should expect to find more than half filled with a deposit of mud, over which a small portion of water will continue to flow, until such time as the deposit increases to such an extent as to seriously interfere with the circulation of the water. I hardly understand why "J. R. H." should have used such water as he describes, to have filled his boiler and pipes, or why he should require the continued supply he appears to do, as if there is no leakage, and if the lid of the expansion cistern fits closely, it is thought to do, the water in water should hardly exceed a gallon in a month. Clean rain-water should always be used for the purpose of filling boilers and hot-water pipes. Hard water is objectionable, as it mostly forms a chalky deposit inside the boiler and pipes, which might in time to some extent retard the radiation of heat; but whether hard or soft water be used for the purpose it may not be of much importance, but it certainly ought to be clean. P. Grive.

Mulching Strawberries.—Mulching is both necessary and beneficial at this period of the year; necessary to ensure the cleanliness of the fruit, and beneficial in that it prevents the evaporation of moisture at the root in dry seasons. It also assists in keeping down weeds. Long stable litter is the best material; it washes perfectly clean with the first rain, and the fruit soon becomes dry. Grass or hay imparts a disagreeable flavour to the fruit, though it is more easily applied and obtained in many gardens. The vinery mulching. I always do the heels of the plants, underneath the foliage, and the whole of the ground, with finely sifted air-slaked lime; this prevents and destroys slugs until the season is past. Mice, which are very destructive to this crop, are trapped with figures-of-fours, which any garden labourer can make out of a few laths of deal, and which are therefore inexpensive, quickly and easily set. D. C. P.

Wistaria sinensis.—At Llechryd, near Cardigan, I saw last week a *Wistaria*, which, if not extending its branches so far as those mentioned by your correspondent, is perhaps worthy of notice. It was planted near the centre of the east side of the house (J. W. Stephens, Esq.), and branched either way, meeting at the back, completely encircling the house, i.e., in one direction, 57½ feet—the other 50 feet; but not one branch merely, but by so many as to cover the whole surface of the upper storey. When viewed the pleasure of seeing it the south end was in full bloom, and being by the roadside it is much admired. F. G.

Hemerocallis.—The *Hemerocallis* or Day Lilies are fine border flowers, of bold type and habit, the stronger varieties, such as *H. fulva* and *H. Kwanso*, being so much coarser than the others, being specially adapted for semi-wild places, where, if they can have moisture and room, they look quite at home, and are so hardy and vigorous as to be quite able to take care of themselves. The variegated forms of these would be trebled. The 2-inch hole noted by "J. R. H." is only for the purpose of drawing over the water—not for cleaning out the mud. No doubt

well known *Pandanus Veitchii*, which at first sight it somewhat resembles. *II. fulva variegata* is nearly as good, and they are both quite well growing in pots for slight forcing to get them in early for the embellishment of greenhouses or conservatories, where they stand well, and make quite a show. The most valuable, however, for that kind of work is *H. lutea*, which grows about 2 feet high, and produces umbrella-like heads of rich yellow flowers. They are as large as an ordinary size *Amarellis*, and being of a colour so scarce and of such a bright shade, plants in bloom make a fine display among others. We grow ours up in the borders or any odd spare places, and take them up in the winter, after which they are stood in frames and slowly brought on as required. Like most herbaceous plants they are fond of good soil, which should be light and open, and if they are watered now and then during the summer, they develop strong crowns, and flower with the greatest of freedom. *J. S.*

Early Tulips.—Your correspondent, writing on early Tulips, at p. 602, names *La Belle Alliance* as the best scarlet or crimson self. I have this variety growing beside *Vermilion Brilliant*, which is far superior to *La Belle Alliance* as a bedding variety; the flower is much larger and more effective. It is after the style of *Van der Neer*. The tips of the petals are slightly streaked with white; some might object to it because of this. I find that *Chrysolora* is better than *Yellow Prince* for bedding; the flowers are larger and more telling. *Vermilion Brilliant* and *Chrysolora* flower at the same time and would bed well together. Of variegated Tulips *Couleur Ponceau* promises to be a very fine variety, but it is not yet in bloom. Considering the rich effect Tulips have for bedding, their season of flowering, and the cheap rate at which they can be purchased, the wonder is that they are not more extensively planted. *J. S.*

Stephanotis floribunda.—The most floriferous example of this universally admired stove climber that I have ever seen I saw at the residence of Mr. E. K. Wootton, the residence of Frederick H. Gossage, Esq. It may be stated that the plant is extremely vigorous, is planted at one end of the stove in which it grows, and has a run of about 60 feet. The foliage and the numerous branches which clothe the plant from the base to its farthest extremity, all testify to the robust health it is in. The main branches are divided when they reach the roof, and are carried along from end to end of the house longitudinally, each wire being about 16 inches apart, thus securing ample light for all their occupants growing underneath. But the most remarkable feature of the plant was the unbroken masses of flowers which sprung from every joint from end to end of each festoon. Individually the flowers are large, a considerable proportion of them being characterised by six segments to the corolla, while the trusses also are large, and contain an average of eight to ten pins in each. It has been in bloom since February more or less, but is now at its best, and a sight worth seeing. It ranks the highest credit on Mr. Jellie's management and skill, as everything else does at *Campbell, W. Sutherland*.

Dinner-table Decoration.—That floral decorating, or, as it is called in the metropolis, furnishing, is growing in importance every year, no one, it may be presumed, will attempt to deny. Although it cannot—or at all events does not—rank as a high art, it certainly is fast leading up to that which in the opinion of some persons would justly give it a claim to such a dignified term. Every year we see something fresh, and each year brings with it some slight improvement in some shape or form on its immediate predecessor, and that it will continue its onward march in the path of progress—slowly it may be yet surely—is a question which is beyond all doubt. In itself it is obviously a luxury in the strict sense of the word, and one which resolves itself into a question simply of supply and demand. Taking this fact as our starting point we may safely assert that with our annually increasing wealth so there will be an increasing low corresponding demand for something in the future—and as a matter of course more costly—in the way of floral decorating than that which has been accomplished in the past. To many the idea of writing or talking about improvements on existing modes of decorating will doubtless seem to be not a little absurd, and the accomplishing of anything superior to what we now see is regarded as an impossibility; so also it may be retorted would a dinner-table decorated *à la* Versailles have been regarded in the same way half a century ago by our great-grandfathers? What will be done in the way of decorating in the future no one can say; if, however, the rate of progress is anything like proportionate to what it has been in the past—and it is only reasonable to suppose that it will be—who is there who dares to say that he does not lose himself in vague conjecture if he tries to imagine what a well decorated table will be like fifty years hence? Where high-class floral decorations are a *sine qua*

non the resources to cope with the same must of necessity be on a large scale, the labour also attaching to it must be of a skilled order; indeed, in many large private establishments it is found quite necessary to employ special persons for this kind of work, those of the taste and skill in the art. The amount of glass and other sundry matters connected with the growing and supplying of suitable subjects for the decorator, together with the cost of plants themselves, need not be entered into here; suffice it to say that it is the same with this as with most other things, and if the highest standard of excellency is required the longest purse, so to speak, will invariably secure it. It must not for a moment be supposed from the preceding remarks that the writer clings to the idea that no prettily effective, and telling floral combination can be obtained other than those which are the most costly. Many very effective and pleasing devices and arrangements may be produced by taste and skill, with the very commonest of wild flowers, Ferns, grasses, and leaves, so also they may be with many more occupants of our hardy herbaceous and shrubby borders. But notwithstanding this, it must be acknowledged, that the most chaste, beautiful and gorgeous decorations are those in which the best tropical plants predominate. No display of our common hardy flowers, no matter how skilfully arranged, can bear favourable comparison with an arrangement or display consisting wholly of tropical plants, such as Orchids, Palms, Ferns, and many other different genera and species of plants, which in our climate require glasshouses to grow them in. We will now enter a little more closely into the subject, and note a few of the practical points connected therewith. In the first place the best decorated tables are those on which not only tropical plants, flowers and leaves, are used, but fruit also, and this in some cases in a growing state, Grapes and Strawberries for example. To explain my meaning more clearly, I must ask the reader to draw a little on his faculties of imagination, and to assist in decorating a table in writing, so to speak, as follows: The table may be of an indefinite length, and large enough to line any number of persons from twenty to a hundred. From the ends, and with a group of plants arranged in a pyramidal form, a circular board 2 feet in diameter; the tallest plant must be from 2 to 3 feet high, any of the following being admirably adapted for the purpose—*Aralia Veitchii*, *Cocos Weddelliana*, *Draecena Cooperi*, or any of the other bright coloured and graceful leaved varieties, and *Pandanus Veitchii*; the other plants forming the group may consist of such as have ornamental foliage; finish off with a row of Fern fronds placed round the edge of the board so as to hide the same, and to drop over on to the cloth. It may be as well to remark that the majority of plants used in this way will have to be turned out of the pots, otherwise it will be difficult to arrange a sufficient quantity of plants on each board; the soil and roots should also be hidden from view with common moss, and be faced over with *Selaginella Kraussiana*. At a distance of 6 feet on either side of the centre group others must be placed, and made up principally of flowering plants and *Maidenhair Ferns*, if of medium small pots are contained so much the better—use only those, however, which when in flower have a chaste and graceful appearance, such, for instance, as many of the *Odontoglossums*, *Phalenopsis*, *Acridies*, *Coleogyne*, *Cypripediums*, and other still erect flowering kinds should be avoided; if such delicately tinted kinds as *O. Alexandrae*, the lighter varieties of *P. Schilleriana*, or *Coleogyne cristata* are used, a couple of small plants in each group of *Anthurium Andreanum*, or *A. Schottianum*, with each having two or three of their bright coloured spathes would heighten the effect considerably. Other groups of flowering and foliage, corresponding as nearly as possible with the above, should be placed in a line, 6 feet from each other down the middle of the table; half way between the groups, and about a foot outside of the centre line of the same, small eperges of cut flowers should be arranged in pairs, one on each side. Along the whole length and width of the table a row of Strawberry plants from 4-inch pots, each bearing put into a small vase, and bearing from six to ten ripe fruits on each, should be placed at a reasonable distance from each other; these, with their bright coloured fruit overhanging the sides of the vases, have a charming effect. Nothing further than the above is needed, with the exception of a few plants of *Selaginella Kraussiana aurea* dotted about here and there, which must be divested of every particle of soil and be placed on the cloth on small pieces of stiff brown paper. It may also be well to give a word of advice to those who are engaged in such a plan, that if such plants as have been named are used, a few neat stakes and ties here and there will be necessary to give the requisite form to the whole. Pot Vines are exceedingly useful for decoration, and may be employed in a variety of ways, but when grown for table work the canes should always be run through a 6 or 8 inch pot, which should rest on the top of the fruiting pot, and be filled with soil previous to starting into growth. By

this means they become, when the fruit is ripe and the small pots severed from the large ones, very serviceable either for the dinner-table or sideboard. They may be trained in the spiral form, or may be grown so as to form arches between the groups of plants; when used in this way they leave little or nothing to be desired. *F. Horsfield, Heytesbury.*

Late Frosts.—We have had several sharp frosts during the last week, and this morning it has cut the Frost down quite black in places. The wind is still north-east and very cold. The fruit crop is all right at present. *G. Merritt, Kington Hoo Gardens, Woburn, May 17.*

Hardy Flowers adapted to Town Gardens.—Very few good hardy border flowers are to be met with in town gardens as a rule. Probably the selection of unsuitable sorts, which quickly die out, leaving only the remembrance of failure, is the principal cause of the rare appearance of any except the most robust of this class of hardy flowers in neighbourhoods where smoke and other pollutions of the air abound. Perhaps a more judicious selection of sorts, and varieties having some pretensions to beauty and good constitution, and our efforts to resist the effects of smut and foul air would lead to their more general adoption in the class of gardens alluded to, and the improvement of taste in them. That such a selection may be made if sought after, may be judged of by the following list, which was noted in the Botanical Gardens, Liverpool, in the second week of the present month. These gardens may be regarded as the best test-ground in the kingdom for smoke-resisting plants;—on three sides the breadth of the roadway only intervenes between them, and the railways, with their huge engine sheds, chemical and other manufactories, and the vast extent of the city, with its thousands of chimneys spreading out in every direction and combining to produce as foul an atmosphere as can well be imagined; and as if to aggravate the evils of the position, the prevalent winds blow direct on the gardens over the greatest length and breadth of the city, leaving their smutty deposits everywhere. The only spaces and openings are on the majority of the hardy plants, particularly on the trees and shrubs; it may, therefore, be safely inferred that any plant which is found to succeed here will thrive in any similar atmosphere. I have some confidence, therefore, in recommending the plants named below to those of your readers who may have gardens to decorate in smoky parts: all were in full flower when they were noted:—

<i>Aquilegia Vitmanni</i>	<i>Orobolus canescens</i>
<i>Aubrietia Mooreana</i>	“ <i>repens</i>
<i>Armeria plantaginifolia</i>	<i>Phlox maculosa</i>
“ <i>valisaria</i>	“ <i>verna</i>
<i>Baptisia lutea</i>	<i>Potentilla alba</i>
<i>Cardamine asarifolia</i>	<i>Ranunculus repens fl.-pl.</i>
“ <i>pratensis fl.-pl.</i>	“ <i>Gouan</i>
<i>Campanula glomerata</i>	“ <i>uniflora</i>
<i>Delyria eximia</i>	“ <i>hectori fl.-pl.</i>
<i>Desmodium hybridum multi-</i>	<i>Saxifraga oppositifolia</i>
“ <i>floribus</i>	“ <i>spathulata</i>
<i>Dodecatheon giganteum</i>	“ <i>platyphylla</i>
<i>Geranium acutifolium</i>	“ <i>rotundifolia</i>
<i>Erys. coriaria</i>	“ <i>granibata</i>
“ <i>sempervivens</i>	<i>Silene maritima fl.-pl.</i>
“ <i>tenoreana</i>	<i>Scilla vesica</i>
“ <i>suecica</i>	<i>Stellaria Holstea</i>
“ <i>linifolia</i>	<i>Tulipa perna</i>
“ <i>saxatilis</i>	<i>Trollius asiaticus</i>
<i>Iris pumila</i>	“ <i>alpestris</i>
“ <i>germanica</i>	<i>Uvularia puberula</i>

H. S.

Tsuga Pattoniana.—In your issue of March 25, p. 400, you query whether the cones of the *Tsuga Pattoniana* are erect. I have never seen the very young cones, but long before they are mature they are certainly pendent, resembling in this respect the cones of *T. Mertensiana* and *T. canadensis*. The specimens of *Abies grandis* noted by Dr. Engelmann and those shown by Messrs. Veitch are from the same very local locality, possibly from the same tree. They correspond in all essential characteristics to specimens from all parts of Oregon. *E. H. Collier, Eugene City, Oregon.*

New Melons.—Messrs Dickson, Brown & Tait had doubtless found out “Best of All” to be a good Melon, or they would not have stated its merits so confidently in their advertisements of it. Mr. Tait may rest assured that I would not have made the statement if I did without good grounds. First, let me say, that “Best of All” is of fair flavour, and a remarkably free grower and setter, one plant having seven good fruit on it. What I maintain is—and I know I have with me Mr. Fish and Mr. Lumsden—that it is not equal in flavour to William Tillyer and Dickson's *Exquisite*, which have been distributed now for four years, and either of which may well be taken as a criterion. No Certificate has been awarded to it by the Royal Horticultural Society, and one occasion when exhibited before it the report in the *Gardener's Chronicle* was the opposite of complimentary. My

own experience, both in June and November, taken with this report and the opinions of the above-mentioned gardeners, caused me to give an unqualified opinion. How often have judges declared such and such Melon to be "the best they ever tasted?" The expression is hackneyed. As Mr. Ruskin says about a severe thunderstorm, which the crowd "shout together" to be the most awful they ever saw, "because they compare it, not with the thunderstorm of last year, but with their own faded recollection of it." If it was the best Melon the judges (four better ones it would be hard to find) ever tasted, why did it not beat, or, perhaps (if I know not which is the case), why was it not shown against, a rival of nearly the same coloured flesh—Héro of Lockinge—which Messrs. Sutton may well be proud of distributing? *H. Carmichael.*

Fruit Prospects in Staffordshire.—Fruit trees of all kinds promise well, except Pears on walls, which are a thin crop, while standards and pyramids promise well, being a blaze of beauty. Plums have been one mass of bloom; on walls, dessert varieties have set well, and, we may safely say, are past all danger. Cherries have been a sight worth going a long way; they have set a wonderful crop and are swelling fast. Apples are everywhere showing well, and we may look forward, if the weather proves favourable, for an abundant crop of this esteemed fruit. Apricots are better with us than they have been for years past, having a full crop of healthy fruit. Peaches and Nectarines are thin, the trees having suffered from the past severe winters. Small fruits of all kinds promise well. Strawberries will soon be in full bloom, and are strong and healthy. *E. Gilman, Ingestre Gardens.*



Reports of Societies.

Royal Botanic: May 17.—The first summer show, held on Wednesday, was an unqualified success. The large marquee was filled to overflowing; Mr. Coomber's grouping left nothing to be desired, and the weather was as it should be for a flower show—bright and fine. It is seldom at a first summer show that such a number of good plants, "in to the day," are brought together, and it is a question if a brighter or better display will be seen in the metropolis this season, as most of the subjects seen here will have to go the rounds, and cannot improve in the process. The stove and greenhouse flowering plants were a capital lot. For instance, open to amateur, Mr. Tudgay, gr. to J. F. Grosvenor Williams, Esq., Henwick Grange, Worcester, came in 1st, his finest examples being of Erica Cavendishiana, E. ventricosa magna, Clerodendron Balfourianum, Franciscana confertiflora, Azalea magnifica, A. Criterion, and Dracopis hillii gracile, all large and thoroughly well bloomed; Mr. Chapman, gr. to J. Spode, Esq., Hawksley Park, Kugeley, was 2d, with, amongst others, a fine Darwinia tulipifera, Isora Dixiana, Erica depressa major, Aphelandra macrantha, &c.; Mr. C. Rann, gr. to J. Warren, Esq., Handrove Park, was 3d. For 1st, Mr. Chapman was placed 1st, Mr. Tudgay 2d, and Mr. J. Child, gr. to Mrs. Torr, Grandbaird Hill, Ewell, 3d. In the nurserymen's class for twelve Mr. Cypher, of Cheltenham, a new exhibitor here, came in 1st, with a very good collection, including Stephanotis floribunda, some large Heaths, Andros, &c., all well-flowered. Messrs. Jackson & Son, Kingston, were a good 2d, most conspicuous in their group being a large, well-flowered plant of Rhododendron Dalhousiae, which is not often seen. Messrs. B. Peed & Son, Northury Nursery, Streatham, were 3d. The best-named specimen of the late Mr. Cypher was 1st. The fine-foliaged plants were exceedingly good all round. Mr. C. Rann took the lead amongst amateurs with a superb group of six, composed of a noble plant of Erica sapida, a large Latania borbonica, a large Croton Hendersonii, a magnificent specimen of Croton intermedium, about 7 feet through and perfect in foliage, and a very good Gleichenia Mendelii. Mr. Tudgay was a good 2d, with his large Latania borbonica, and very fine plants of Cycas cirinalis and Croton Andreanus, &c. Mr. G. Wheeler came in 3d, and Mr. Butler, gr. to W. F. Gibbs, Esq., Regent's Park, was represented by an extra prize. The trade class for the same number brought Mr. James Cypher to the front with a remarkably handsome Latania borbonica, and large well finished examples of Croton majesticus, C. Jamesi, and Gleichenia Mendelii. The Orchid class, at James's Nursery, Lower Norwood, coming in 2d, and Messrs. Hooper & Co., Covent Garden, 3d. The Fern classes call for little comment, large plants not being the rule. Mr. Douglas took the lead amongst amateurs, Mr. G. Wheeler being a good 2d. The Orchid bank, as usual, presented a very gay appearance, and introduced one or two new competitors. The nurserymen's class was the weakest, and for the first time in about thirty years our old friend, Mr. B. S. Williams, was not represented. The 1st prize in the amateur class

was taken by Mr. C. Coningsby, gr. to C. Dormer, Esq., The Firs, Sydenham, who had a superb mass of small-toglossum vexillarium, about a foot through, and smaller, but nice examples of Dendrobium Falconeri, Oncidium concolor, Cattleya Mendelii, Odontoglossum Halli leucoglossum, Aln-devalia Haryana, &c.; 2d, Mr. H. J. Noble, gr. to a large and well-flowered Dendrobium nobiliss, Cypripedium villosum, C. caudatum roseum, Dendrobium Wardianum, &c. 3d, Mr. A. G. Cutt, gr. to W. Cobb, Esq., Sydenham, with Thunia Marshallii, Vanilla suavis Veitchii, Oncidium concolor, Odontoglossum citrosimum. With a very neat collection Mr. H. James, Esq., Ladbroke, had a most interesting group, amongst other well bloomed specimens of Cypripedium novitii, C. barbatum, Odontoglossum citrosimum, Oncidium Marshallianum, Masdevallia Lindenii, &c. Messrs. Jackson & Son, Kingston, were 2d, having Odontoglossum carolinense, Lepa purpurata, Succisa guttatum, Vanilla suavis, &c. For nine specimen Roses Messrs. Grand & Son, Cheshunt, had the field to themselves, taking the 1st prize with a grand lot of plants, among them being one of the very finest Charles Lawsons ever seen, being over 8 feet through and superbly bloomed, and another well bloomed example of Madame Victor Verder, Perfection de Monplaisir, Madame de St. Joseph, superb; Anna Alexiis, Cheshunt Hybrid, and Marquise de Castellane. For twenty small plants the Messrs. Paul were beaten by Mr. Turner, whose examples, including the larger, were in this respect, in this respect, being indeed very fine. Azaleas as a rule are not so full of flower this season as usual, but those shown here were of fair average quality, and made a bright display. There were no particularly new sorts among them, so we need not name them, the leading prize winners were Mr. Ratty, Mr. Chubb, Mr. Turner, and Messrs. Jackson & Son. The specimen Heaths seem, if anything, to be getting smaller, medium sized plants only being the rule to-day.

The Pelargonium classes were also below the mark, and call for no comment. Mr. Wiggins, gr. to H. Little, was 1st, amongst amateurs, and Mr. Cypher 1st among nurserymen, the latter being lucky in having his plants judged superior to a smaller but much more highly finished lot from Mr. Turner. Miscellaneous collections and groups of new and rare plants were both numerous and good. Messrs. G. Jackson & Son, Woking, contributed the most remarkable group of Clematis that have yet been seen, the specimens being larger and the individual flowers much finer than they have ever before produced. The leading varieties were Blue Gem, Robert Hanbury, Sensation, Madame Van Houste, Mrs. G. Jackson, of Purpurea elegans, Lady C. Neville, Contesse of Lovelace, Henryi limosa, and Prince of Wales. Another group, showing excellent cultivation, but which, being smaller, suffered somewhat by comparison, came from Messrs. Richard Smith & Co., of Worcester, whose best flowers were on plants in Grand Duchesse Lawsoniana, Verschaffeltii, Impatrice Eugenie, Sensation, Gloire de St. Julien, and Lord Neville. Large and very effective groups of flowering and fine-foliaged stove and greenhouse plants, including a number of novelties, came from Mr. E. S. Williams and Messrs. John Laing & Co.; and Messrs. James Veitch & Sons had a very fine group of Japanese Acer, alongside of them being another group, equal in size, of pop Rosess, half-specimens, and admirably good from Messrs. Paul & Son, Waltham Cross. Messrs. James Carter and Co. had an interesting group of small alpine and hardy herbaceous plants; and Mr. Golder, gr. to H. Lea, Esq., Montague Grove, Hampstead, sent half-a-dozen beautifully grown specimens of Adiantum cuneatum, &c. Mr. Waltham Cross had some nice cut Roses, &c., and Mr. Hooper, of Bath, had an extensive display of Pansies, Tulips, and other florists' flowers, in the cultivation of which he is known to be an adept. Many new plants came under the notice of the judges, and the following awards were made:—

- Botanical Certificates.*
- To Mr. B. S. Williams, for Kentia costata.
- To Mr. E. S. Williams, for Pellaea Domiana.
- To Mr. B. S. Williams, for Croton Bar Schneider.
- To Mr. B. S. Williams, for Phalangium elegantissimum.
- To Mr. B. S. Williams, for Agapanthus umbellatus aureus.
- To Mr. B. S. Williams, for Reseda odorata prolifera alba.
- To Mr. B. S. Williams, for Adiantum dolabrifolium.
- To Mr. E. S. Williams, for Pescatorea Klachoborum.
- To Messrs. James Veitch & Sons, for Pratu angulata.
- To Messrs. James Veitch & Sons, for Acer polymorphum decompositum.
- To Messrs. James Veitch & Sons, for Acer polymorphum linearifolium.
- To Messrs. James Veitch & Sons, for Acer polymorphum ribesifolium.
- To Messrs. James Veitch & Sons, for Acer cratægifolium.
- To Messrs. James Veitch & Sons, for Acer japonicum aureum.
- To C. Dormer, Esq., for Trichopilia Backhousiana.
- To M. Vervae, Ghent, for Pescatorea Lehmannii.
- To Messrs. Paul & Son, for Corylus aurea.
- To Messrs. Kewley & Son, for Scolopendrium vulgare densum.

- Floral Certificates.*
- To Messrs. John Laing & Co., for Caladium album lotum.
- To Messrs. John Laing & Co., for Caladium This Rose.

- To Messrs. John Laing & Co., for Begonia Wm. Beaily.
- To Messrs. John Laing & Co., for Begonia Arthur G. Somes.
- To Messrs. John Laing & Co., for Begonia Marquis of Bute.
- To Messrs. Wm. Paul & Son, for H.P. Rose Queen of Heaths.
- To Mr. Balchin, for Reseda odorata prolifera.
- To Mr. Hooper, for Pansy Eclipse.
- To Mr. Hooper, for Pansy General Garfield.
- To Mr. Knapley, for Calceolaria Claret of Gold.

Torquay Horticultural: May 15.—The Devon County Agricultural Society having this season selected Torquay as the site for its annual show, advantage was taken of the circumstance by the Torquay Horticultural Society to hold a large flower show in connection with it, and a huge tent, 300 by 40 feet, was erected in one part of the show ground. Here a large quantity of things were somewhat roughly and irregularly staged, a good portion of the central staging being quite empty. There were some very fine stove and greenhouse flowering and foliage plants present, and if these had been grouped in the centre in an effective manner, leaving the ends to be filled up with such collections of plants as could have been utilised for this purpose, the effect would have been much more satisfactory. The class for eight stove and greenhouse plants in flower brought together some superb plants. J. Lawless, Esq., Exeter (Mr. G. Cole, 2d), was far away 1st, with plants of very high-class quality, consisting of foreoresis varium Chandleri, Erica tricolor Wilson, Anthurium Scherzerianum, Aphelexis macrantha purpurea, and A. macrantha rosea, Erica affinis, Clerodendron Balfourii, and Azalea Rubens, a very fine, clean, healthy, fresh, admirably grown lot. 2d, Mr. H. Amory, Esq., Bath. The class for six plants the specimens were considerably inferior, the best coming from Colonel Glossop (Mr. John Sterly, gr.), and John Luscombe, Esq. (Mr. J. Dane, gr.). Large-flowering Pelargoniums were scarce, and poor in quality; plants were plentiful, and better as flowering plants; Calceolarias small, but good. Some special prizes for tuberous-rooted Begonias brought some very nice plants, well grown and flowered. Roses in pots were poor, and unworthy of a company supposed to be favourable to their production. Groups of plants arranged in groups were numerous, there being three classes for them. In the nurserymen's class Messrs. Curtis, Sandford & Co., Rose Nurseries, Torquay, were 1st, with a good representative group of ordinary nursery stock, clean, well grown and bloomed, and arranged with taste, though a little flat, this was characteristic of all. 2d, Mr. W. Burridge, nurseryman, Paignton, a very bright group, flatly arranged, and in need of foliage to tone down too much of floral glare. 3d, Mr. W. B. Smales, nurseryman, Torquay. In the open class decidedly the best group came from Mr. G. Lock, and here were good plants arranged with taste, and with less of the fitness complained of; 2d, Mr. W. Selway, with a very nice group, a little overdone with specimen Azaleas; 3d, Mr. J. Dane, with a bright group of effective groups. In the other class appeared nothing calling for comment.

The class for eight stove and greenhouse foliage plants brought a fine competition. Here Mr. Lock was 1st, with an even well-balanced lot of plants in good condition; 2d, Mr. G. Cole; 3d, Mr. G. Selway. In the class for nine exotic plants, the 1st was shared by the miscellaneous groups shown by nurserymen were a leading and excellent feature. Foremost was a large extent of plants from Messrs. Lucombe, Pince & Co., of the Exeter Nurseries; Messrs. K. Veitch & Son, Exeter, had an admirably good group also. Messrs. Curtis, Sandford & Co., and H. Phillips & Co. also staged nice decorative groups. Captain Hildford Thompson, Clarendon, had a good collection of fancy Pansies in pots, of an excellent strain, and cut blooms of the same, and Mr. G. W. Eschey, Fluder, Kingswearwell, had a collection of cut blooms of bedding Pansies and Violas.

Meteorological.—The usual monthly meeting of this Society was held on Wednesday last, at the Institution of Civil Engineers, Mr. J. K. Loughton, F.R.A.S., President in the chair. The following papers were read:—"On the Diurnal Variation of the Wind and on its Relation to Isobaric Lines," by the Hon. Ralph Abercromby, F.R.S. By constructing synoptic charts at different hours of the same day, and by comparing the wind and weather records at the different hours, and examining their relation to mean curves of atmospheric variation, the author shows that the mean diurnal increase of the wind's velocity is explained by the fact that for the same gradient there is more wind by day than there is by night. The mean diurnal veering of the wind is explained by the fact that at night the wind is a little more incurved, and in anticyclones a little more curved, by night than by day. The mean diurnal increase of the frequency of rain during the day hours is explained by the fact that in any given cyclone the area of rain is larger by day than at night. The diurnal changes of every element are supposed to be due to general changes, and are independent of each other. Great stress is laid on this point, both as explaining and classifying many meteorological questions, and as simplifying the problem of the forecasting. The author gives a simple hypothesis, from which it appears that a diurnal veering and increase of rain follow as a natural consequence of the diurnal increase of velocity.—"Mechanical Conditions of Storms, Hurricanes, and Cyclones," by W. F. Stanley, F.M.S.

Foreign Correspondence.

CEDRARS OF LEBANON AT GENEVA.—We have at Geneva two magnificent specimens of this fine tree, which are contemporary with those in the Jardin des Plantes recently mentioned in your columns, and which were planted at Beaulieu, near Geneva, by Jussieu himself. The two trees in question are, for what reason I do not know, much handsomer than the one in Paris—so much so that when I first saw the latter I doubted whether it could have been planted at the same time as those in Geneva. It was, indeed, explained to me that there had been some earthworks which had concealed a large part of the trunk. The lower branches of our Cedar trail on the ground, and give the tree a magnificent appearance. Travellers who have seen the Cedars on Lebanon assure me that the Geneva specimens compare favourably with the native specimens. I am indebted to M. Chauvet, the present possessor of Beaulieu, for the following particulars:—"Bernard de Jussieu brought seed from England in 1735, and from this were derived the Cedar in the garden at Paris, the two at Beaulieu, and another at Montigny (Seine et Oise)." The Cedar is so thoroughly established at Geneva that it may be seen in almost every garden. Among them are some fine specimens. M. Meyer possesses one, the seeds of which germinate on all sides, so that M. Meyer showed me recently young plants along the roadside in the cracks of the wall and the garden paths. We may therefore consider the Cedar as quite established in this part of Switzerland. *T. & S. Corvecon.*

[We presume this is the tree spoken of by M. Alphonse de Candolle as being so much at home that, were it not for the scythe of the mower or other untoward circumstances, the tree would form forests by the shores of Lake Leman. Of the Cedars in the Chelsea garden only a wreck of one remains. Miller says in his time (1766) there were four which were planted in 1683 when about 2 feet high. The trunks had, when Miller wrote, a girth of 12 feet and upwards at 2 feet from the ground, and their branches extended 20 feet on each side of the stem. ED.]

The Weather.

STATE OF THE WEATHER AT BLACKHATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 17, 1882

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRICAL DEVIATIONS FROM GLAISHER'S TABLES (6th Edition).		WIND.	RAINFALL.
	Mean Reading According to 39° Fahrenheit.	Average of Day and Night.	Lowest.	Range.	Highest.	Barometric Depression of Mean Temperature of Month.	Dew Point.	Degree of Humidity.			
May 11	In. 30.00	+ 0.32	50.0	47.0	51.0	57.0	+ 6.2	59.3	78°	S.S.W.	0.00
12	30.11	+ 0.37	50.0	46.0	51.6	54.6	+ 3.5	49.4	64	N.E.	0.00
13	30.15	+ 0.30	50.0	46.0	50.3	53.3	+ 2.2	41.1	64	E.	0.00
14	30.11	+ 0.38	50.2	46.2	50.7	50.7	+ 0.6	38.5	63	N.E.	0.00
15	30.11	+ 0.38	50.2	46.1	51.4	57.3	+ 4.6	37.0	69	N.E.	0.00
16	30.22	+ 0.40	50.6	48.5	54.8	58.8	+ 3.3	34.6	58	N.E.	0.00
17	30.28	+ 0.54	53.5	49.5	54.0	59.0	+ 3.2	40.1	79°	E.N.E.	0.00
Mean	30.15	+ 0.41	47.0	42.2	51.6	51.6	0.0	40.7	67	N.E.	0.00

- May 11.—A very fine bright day, sun shining brightly, overcast at times. Fine night.
- 12.—A very fine bright warm day, sun shining brightly, blue sky. Fine clear night.
- 13.—A very fine bright warm day, sun shining brightly, blue sky. Fine clear cold night, cool breeze.
- 14.—Fine day, deep blue sky. Dark sky, cold N.E. wind at night.
- 15.—A fine bright day, cold N.E. wind, overcast at intervals. Fine clear cold night.
- 16.—A very fine day; overcast from 2 P.M. till 3 P.M.; afterwards fine and bright. Fine clear night.
- 17.—A partial eclipse of the sun. A fine bright warm day, sun shining brightly. Fine clear night.

LONDON : Atmospheric Pressure.—During the week ending May 13 the reading of the barometer at the level of the sea decreased from 29.97 inches at the beginning of the week to 29.43 inches by 3 P.M. on the 7th, increased to 30.53 inches by 9 A.M. on the 9th, decreased to 30.36 inches by 3 P.M. on the 10th, increased to 30.38 inches by midnight of the

same day, decreased to 30.17 inches by midnight on the 11th, increased to 30.30 inches by 9 A.M. on the 12th, decreased to 30.26 inches by 3 P.M. on the 12th, and was 30.34 inches at the beginning of the week.

The mean reading for the week at the level of the sea was 30.25 inches, being 0.43 inch higher than last week, and 0.32 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 70°, on the 11th. On the 9th the highest temperature was 58° 5'. The mean of the seven high day temperatures was 64° 7'. The lowest temperature in the shade in the week was 41° on the 13th; on the 10th the lowest temperature was 49°. The mean of the seven lowest temperatures was 44° 9'.

The greatest range of temperature in one day was 28°, on the 13th; the smallest was 15°, on the 8th. The mean of the seven daily ranges was 19° 9'.

The mean temperatures were, on the 7th, 53° 8'; on the 8th, 49° 7'; on the 9th, 49° 7'; on the 10th, 64° 8'; on the 11th, 57°; on the 12th, 54° 6'; and on the 13th, 53° 3'; of these the 8th and 9th were 1° 9' and 1° 8' respectively below their averages; the rest were 2° 1', 3° 5', 6° 2', 2° 0', and 2° 2' above their averages respectively.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 139° 5 on the 11th; the highest on the 9th was 91° 5. The mean of the seven readings was 114° 7'. The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 36° 9, on the 9th. The mean of the seven readings was 40° 5'.

Rain.—No rain fell during the week. Lightning was seen at night in the north and north-west on the 7th.

ENGLAND : Temperature.—During the week ending May 13 the highest temperatures were 76° at Sunderland, 74° 8 at Nottingham, and 73° 3 at Cambridge. The highest temperature at Bolton was 64° 5, at Bradford 64° 7, and at Plymouth 65°. The general mean was 68° 1'.

The lowest temperatures in the week were 35° at Hull, 34° 3 at Nottingham, and 35° 5 at Sheffield. The lowest temperature at Liverpool was 41° 4, at Blackheath 41°, and at Bradford 40° 1'. The general mean was 37° 7'.

The greatest ranges of temperature were 40° 5, at Nottingham, 39° at Sunderland, and 36° 3 at Cambridge. The least ranges were 24° 5 at Liverpool, 24° 6 at Bradford, and 25° 2 at Plymouth. The general mean was 30° 4'.

The mean of the seven high day temperatures was highest at Cambridge, 65° 6, at Sunderland 65° 5, and at Blackheath, 64° 7; and was lowest at Bolton and Bradford, 58° 5, and at Liverpool, 58° 7. The general mean was 61° 7'.

The mean of the seven low night temperatures was highest at Plymouth, 46° 4, at Brighton 45° 4, and at Truro 45°; and was lowest at Wolverhampton and Bolton, 39° 6, and at Hull 40°. The general mean was 42° 0'.

The mean daily range was greatest at Sunderland, 24° 1, at Nottingham 22° 6, and at Wolverhampton 22° 2; and was least at Liverpool, 14°, at Bradford 15°, and at Plymouth 16°. The general mean was 18° 8'.

The mean temperature for the week was highest at Blackheath, 53° 3, at Plymouth 52° 7, and at Truro 52° 3; and was lowest at Bolton, 47° 3, at Hull 47° 8, and at Wolverhampton and Bradford 49°. The general mean was 50° 6'.

Rain.—The largest falls were 1.02 inch at Sunderland, 0.97 inch at Bolton, and 0.94 inch at Leicester. The smallest fall was 0.03 inch at Bradford. No rain fell at Truro, Plymouth, or Blackheath. The general mean fall was 0.27 inch.

SCOTLAND : Temperature.—During the week ending May 13 the highest temperature was 63°, at Dundee and Paisley; at Greenock the highest temperature was 57°. The general mean was 61° 1'.

The lowest temperature in the week was 34°, at Dundee; at Leith the lowest temperature was 38°. The general mean was 36° 3'.

The mean temperature for the week was highest at Paisley, 47° 9; and lowest at Greenock, 46° 5. The general mean was 47° 3'.

Rain.—The largest fall was 1.41 inch at Greenock; the smallest fall was 0.64 inch, at Aberdeen. The general average fall was 0.95 inch.

JAMES GLAISHER, F.R.S.

THE YELLO PARADISE APPLE.—This Apple is described in the *Revue Horticole* as having all the advantages of the ordinary Paradise stock without its disadvantages. It withstands drought better, and as it grows till late in the season it may be grafted till the appearance of the frosts, while the Paradise cannot be grafted after the end of August. It is extensively used as a stock in the nurseries of MM. Simon-Louis, of Metz.

Enquiries.

It is that questioneth much shall learn.—BACON.
FRUIT-GROWING IN CALIFORNIA.—Can any of our numerous readers give me any information on the growing of fruit in California? From what one reads on the subject it seems to be a perfect paradise, but the experience of practical men would be of more value in forming an opinion as to the advisability of going there. *Banana.*

RATING GREENHOUSES.—I rent a number of glass-houses in the way of my trade as a florist, and in a re-assessment of property in this town the overseers have put the assessment at the amount of rent paid. Is it usual to assess nurserymen's greenhouses at all? I have always understood they were exempt beyond the ground occupied. *F. W.*—Having built a range of glass-houses for private use, I am anxious to know if it is liable to assessment for the borough rates, and if so at what percentage? *W. B.* [Will some correspondent who has had practical experience of the work of Assessment Committees, kindly give us their opinion on these points? ED.]

Answers to Correspondents.

BEE ORCHID : *P. Walker.* The Bee Orchid, or Bee Orlchus, is *Ophrys apifera*, a British plant. What may be the Bee Orchid of the West Indies we do not know.

BOOKS : A. Burbidge's *The Improvement and Propagation of Cultivated Plants* (Blackwood) is the only work likely to suit you.

CELERY AND PRIMULA : *B. C. No.*; both are worthless.

GALL ON OAK : *J. Hopkins.* The Woolly Oak-gall,

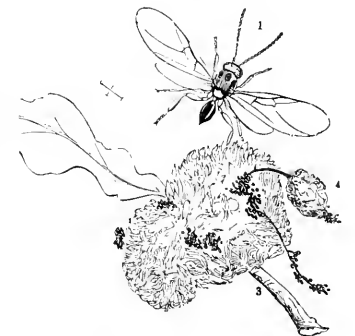


FIG. 107.—THE WOOLLY OAK-GALL : THREADS WHITE, SILKY.

the work of a gall-fly, *Cynips Quercus ramuli* of Linnaeus. (See fig. 107).

CLOVER SEEDS : A. In judging Clover seeds cleanliness of the sample should be the first consideration; size of the seeds and evenness of the sample the second; and colour the third. It is difficult to lay down a general rule as to colours, and different varieties of Clover vary in colour. Our correspondent should state if he refers to any particular sort of Clover. All varieties of Clover seeds become brown with age, but bad weather will have the same effect on a sample of new seed. If any particular samples of Clover can be forwarded an opinion shall be given on them.

DOUBLE-FLOWERED APPLE : *T. F.* Such flowers are not uncommon on the midsummer shoots. It is unusual to see them on the "spurs," as in your case, but then all the buds except the one are in this case leaf-buds instead of flower-buds. Thus the whole arrangement is abnormal.

MALFORMED GLOXINIAS : *A. W.* See *Masters' Vegetable Teratology*, p. 451, c. 1c. *Gard. Chron.* 1865, p. 895; *L. Morten, Bull. Acad. Belg.*, t. XIV., p. 224, t. 1.

MEDICINA ANABAPTIS : *C. W. Cassel.* Yes, the same colour as *M. magnifica*. We shall be glad to hear from you occasionally.

MELONS : *H. C.* We can give you no idea what may be the cause of the disease without seeing some of the leaves.

NAMES OF PLANTS : *A. H. Smea.* *Oncidium reflexum.*—*W. S. G.* 1, *Schizostylis coccinea*; 2, *Celsia cretica.*—*A. E.* *Schizostylis coccinea.*—*F.* *Helium.* *Lonicera Ledebourii.*—*C. W.* 1, *Cerastium vulgatum*; 2, *Spergularia rubra.*—*H. L.* 1, *Brasavola nodosa*; 2, *Oncidium concolor.*—*C. P. & Co.* *Leucothoe* or *Andromeda axillaris.*—*H. W. P.* Yellow flower, *Doronicum caucasicum*; blue flower, *Omphalodes verna.*—*F. L.* *Staphylea pinnata.*—*W. Z.* *Glossaria.* 1 and 4, *Saxifraga capitata*, var.; 2, *S. hypnoides*; 3, *Tiarella cordifolia.*

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 GERANIUMS, from single pots, Scarlet, Pink, &c., 2s. 6d. per dozen, 16s. per 100.
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 COLPUS, 12 beautiful distinct sorts, 2s.
 FUCHSIA, 12 fine distinct varieties, 2s.; 100 in 100 varieties, for 10s.
 DAHLIAS, 12 fine named sorts, 2s. 6d.; 100 in 50 or 100 sorts, as preferred, 17s. 6d.
 PENTSTEMONS, 12 beautiful sorts, 3s.
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 CARNATIONS and PICOTTEES, 12 distinct sorts, 6s.
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 BEDDING PANSIES and VIOLAS, in splendid variety, all colours, 1s. 6d. per dozen, 12s. per 100.
 ALL SHOW and FANCY PANSIES, 12 beautiful kinds of either class, 2s. 6d.; 1s. per 100.
 DOUBLE PYRETHRUMS, 12 fine sorts, 6s.
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 PHLOXES, 12 beautiful varieties, 3s.; 100 in 100 sorts, 25s.
 PELARGONIUMS, 12 beautiful distinct varieties, 6s., 9s., or 12s.
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 ERICA CAVENDISHII, 4 feet by 5 feet through, splendid specimen, well set with bloom.
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 Prices, names, and sizes on application.
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 have still a few hundred strong PELARGONIUMS to offer, in small 6-pots, 2s. per 100; in 4s. 6-pots, strong and bushy, 5s. per 100.
 DAHLIAS, in about 45 varieties, 4s. per dozen, 25s. per 100, strong hardy stuff, in large 6-pots.
 CALCEOLARIAS, Golden Gem, in 60-pots, 15s. per 100; strong, from 6-pots, 7s. per 100.
 GERANIUM Flower of Spring, in 60-pots, 16s. per 100; from store pots, 10s. per 100.
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 AGERATUMS, Dwarf, in 60-pots, 12s. per 100; from stores, 6s. per 100.
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 3d. per bushel; 100 for 20s.; truck (loose about 2 tons), 100s. 7s. 6d. per 100 bushels, 40s. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 5 sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 25s.; 5 sacks, each.
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 Manures, Garden Stocks, Vergo Cork, Tobacco Cloth, Russia Mats, &c., for Free PRICE LIST.
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 Are now sending out the following
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 ABUTHON, Waverley, the finest Yellow Croton, Archibald, awarded a First-class Certificate 21s.
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 Descriptive Priced CATALOGUE now ready.

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STANDARD TEA-SCENTED and NOISETTE ROSES, Established in Pots;
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CLEMATIS, DAHLIAS, &c.
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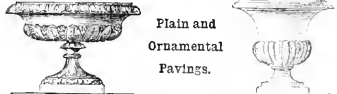
GISHURSTINE keeps feet dry, softens hard shooths, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

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Use **SMITH'S** celebrated WEED KILLER, 4 gallons of which, sufficient to make 100 gallons when mixed with cold water, sent as a sample, carriage paid, price 7s. 6d. Thoroughly destructive to all vegetable growth. Manufactured only by **MARK SMITH,** Chemist, Louth, Lincolnshire.

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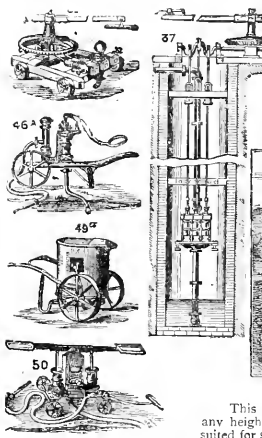
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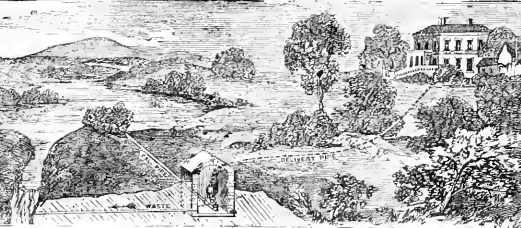
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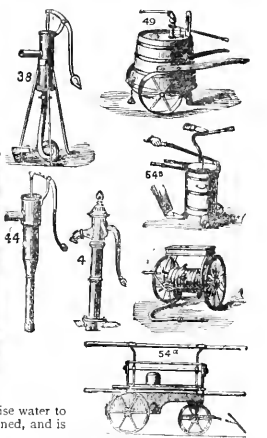
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This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 20 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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"Firefield Park, June 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, which I candidly admit was the best we ever had. Address Varnish to Purcellford, Park, Chepstow.—I am, Sirs, yours respectfully, Wm. Cox."

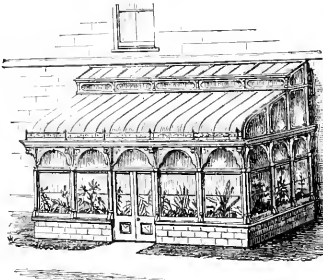
CAUTION—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'S Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade mark as above, without which none is genuine.

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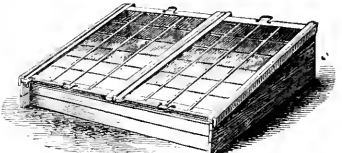
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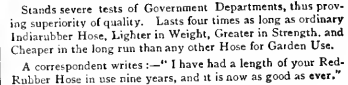
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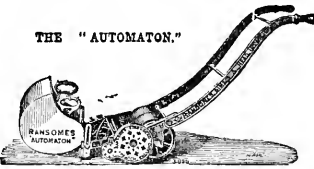
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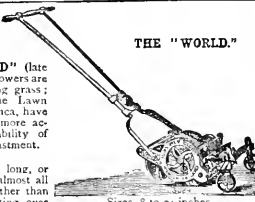
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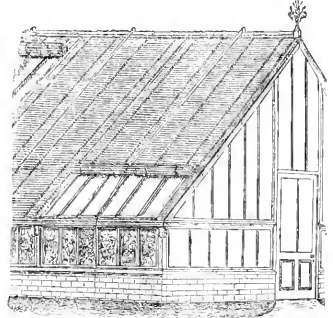
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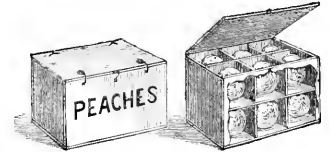
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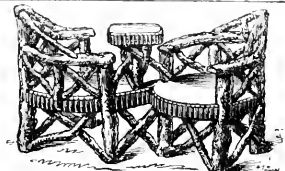
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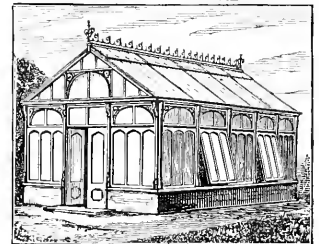
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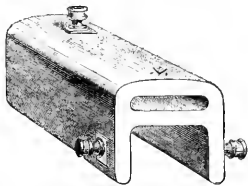
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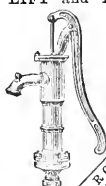
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Established 1841.

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N.B.—Those who have received Prize Lists will please send to Classes 12 and 13—Pelargoniums, Show or Florist, instead of Show and Fancy.

WEST OF ENGLAND ROSE SHOW.

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Cattleya, Franksii, monium albosignum and D. formosum
giganteum, many other Dendrobies, and importations, of
which further particulars will appear in next week's Gardeners'
Chronicle.
On view morning of Sale, and Catalogues had.

Odontoglossum Alexandræ (crispum).
MESSRS. PROTHEROE AND MORRIS
have received instructions from A. Colborne, Esq.,
New Malden, to sell by AUCTION, at the Mart, Token-
house Yard, City, E.C., on TUESDAY, June 27, at 12 o'clock
precisely, the importation of the above ORCHID, in splendid condition.
A large quantity were gathered in flower, and comprise several
of the most beautiful and valuable varieties of ESTABLISHED
ORCHIDS, from Mr. Colborne's collection.
Further particulars will appear.

West Dulwich.
MR. J. C. STEVENS, -In Liquidation.
MESSRS. PROTHEROE AND MORRIS
are instructed to sell by AUCTION, on the Premises,
The Nursery, Plumstead, S.E., on TUESDAY, June 6, at 12 o'clock precisely, the first portion of the extensive
Stock in Trade, comprising about 10,000 beautifully grown
and well established plants, nearly all new varieties of 1882, 4800
Show and Royal PELARGONIUMS, very fine plants, and consisting
almost entirely of varieties raised by Messrs. Smith, a
choice collection of EUPHYLIUMS, 2000 ERICAS in
flower, and other MISCELLANEOUS STOCK.
May be viewed. Catalogues had on the Premises, and at the
Auctioneers, 3, New Bond Street, E.C., and at Leytonstone, 4800.
S.E. The old establishers, and a BUSINESS to be
DISPOSED OF by order of the Mortgage in possession.
Particulars may be obtained of the Auctioneers.

FOR SALE, a FLORIST and JOBBING
BUSINESS near London. New-removed Horticultural
Shop, Show House, Six Span-roof Greenhouses, Good Trade
done. Lease 51 years at £6 per annum. Price for the whole,
£1500. See DEBON'S, 154, Leadenhall Street, E. C.

To Private Gentlemen and Professional Florists
FOR SALE, at Horsey, Middlesex, together
or Separate, EIGHT GREENHOUSES, now standing
from 12 feet by 12 to 96 feet by 15, fitted with 4-inch hot-
water pipes, furnaces, and other very superior internal arrange-
ments, all in first-rate working order. The total area of glass
is about 3000 feet. Owing to building operations, the whole
must be immediately disposed of.
Apply to Mr. F. W. COOPER, Engineer, General Agency Offices,
corner of Lordship Lane, High Road, Tottenham, or to Mr. J.
BELL, Contractor, Wood Green, N.

Market Garden Farms at East Ham, Essex.
TO BE LET, 450 acres first-class LAND, in
high condition, producing heavy and successive Crops of
Vegetables for the London Markets, extent only 6 miles.
Present occupiers, retiring from business, are prepared to hand
this over at Michaelmas as a going concern. Live and dead
Stock, Crops, and fittings at a valuation. Can be subdivided
into three Holdings, with separate Homestead to each.
View, by appointment with Mr. DENNISON, Surveyor,
St. Ham, Essex.

PROTHEROE AND MORRIS, HORTICUL-
TURISTS, 3, NEW BOND STREET, E. C., and at LEYTONSTONE,
and VALERIE'S, 8, NEW BOND STREET, E. C., and at LEYTONSTONE,
are Monthly Horticultural Register had on application.

Hyalcynth, Tulips, &c.
BUDDENBORG BROTHERS, BULB
GROWERS, House Bloomsbury, Hilgum, near
Hearthen, Holland. See CATALOGUE now ready, and
will be sent, post-free, on application.

To the Trade.
ROSES.—Marchal Niel, Gloire de Dijon,
Chaboue Devonians, Yellow and White Banksia,
Good stuff, all in 2 1/2 inch pots, 75s. per 100.
J. H. GARDNER, 250, CANAL, The Nurseries, Bath.

To the Trade.
HARTLEY'S SUPERB SHORT-TOP
SWEET.—Superior stock. Price on application.
EDMUND PHILIP DIXON, 17, Queen Street, Hull.

CHOICE BRITISH and HARDY EXOTIC
PERENNIALS.—Forty distinct kinds, 20s.; twenty varieties,
10s.; all strong plants. Names on application.
HUSSEY, 208, SPITHEAD, St. Paul's Church, Norwich.

DAHLIAS, finest Show and Fancy kinds,
including the new and improved varieties, Madame
Thalut, White Vesuvius, Wonderful, &c., strong plants, 12s.
per 100. Show named PHLOXES, 20s. per 100. VER-
BENAS, best Show kinds, 20s. per 100. TULIPS, strong
roots, Victoria Regia, The Earl, Napoleon, &c., 5s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

BATH and WEST of ENGLAND SOCIETY
(Established 1777) and
SOUTHERN COUNTIES ASSOCIATION.
Patron—His Royal Highness the PRINCE OF WALES, K.G.
President—The Right Hon. LORD TREVIER.



CARDIFF MEETING,
May 29, 30, 31, June 1, 2, 3, 1882.
EXHIBITION OF
HORSES, LIVE STOCK,
POULTRY, MACHINERY, IM-
PLEMENTS, WORKS OF ART,
HORTICULTURAL SPECI-
MENS, EXHIBITION OF BEE
MANAGEMENT AND APPLI-
ANCES, COMPETITION OF
SHOEING SMITHS, &c.
JOSIAH GOODWIN, Sec.
4, Terrace Walk, Bath.

FLOWER SHOW,
SOUTH KENSINGTON,
MAY 23 to JULY 5, 1882.

TWO SILVER MEDALS,
ONE BRONZE MEDAL,
SPECIAL CERTIFICATE OF MERIT,
AND THE
GOLD MEDAL
AWARDED TO
J. J. THOMAS & CO.

For the Excellence of their Various Exhibits,
viz. —

- AVIARIES, for the Lawn.
AVIARIES, for the Drawing Room.
BIRD CAGES, in Great Variety.
ARCHWAYS. FLOWER STANDS.
ROSE TEMPLES.
TENTS and AWNINGS.
GARDEN BORDERING.
FLOWER STAKES.
GARDEN SEATS. TABLES.
VASES. SUSPENDING BASKETS.
LAWN MOWERS.
WATER BARROWS.
GARDEN ENGINES.
POULTRY FENCING.
ESPALIER FENCING.
GALVANISED WIRE NETTING.

And a large assortment of Miscellaneous
Horticultural Requisites.

J. J. THOMAS & CO.,
87, QUEEN VICTORIA STREET, E. C.;
285 and 362, EDGWARE ROAD, LONDON, W.

CLEMATIS.—The finest varieties for
Climbing and Bedding, from 12s. to 24s. per dozen.
Descriptive LIST on application.
RICHARD SMITH and CO., Nurserymen and Seed
Merchants, Worcester.

Novelty.
GRAND NEW BEDDING PLANT.
LOBELIA "ANDREW HOLMES."
This splendid variety is now offered as the best Lobelia
extant. It is possessed of a hardy growth, compact, cushion-
like habit, and excessive floriferousness, combined with the in-
tense deep blue colour the Yorkshire Horticultural Society
"Elber" remarkable, having, at the same time, a small, well-
defined white eye, being brighter and of much evener growth
than that variety, and lacking its tenderness. Confidently
recommended by the expert, who is now distributing it,
as superior to every kind cultivated.

The following testimonial is from Mr. J. FIELDEN, Head
Gardener to the Yorkshire Horticultural Society:—
"THE MUSEUM GARDENS, York, May 22, 1882.
"LOBELIA ANDREW HOLMES I consider in the fore-front of
the many really good Lobelias now before the public. It has a
good compact habit, very floriferous, and in colour not unlike
Gentiana verna, one of our loveliest alpine gems, and must soon
become a popular favourite." J. FIELDEN.
"TO THE GENTLEMEN, &c.
Price 1s. each, 5s. per dozen, 60s. per 100.
The usual discount to the Trade.
ONE DOZEN HOLMES, Florist, York.

GOOD VALUE FOR MONEY.
Only the best grown, all true to name, and strong Plants.
12 choice splendid ZONAL GERANIUMS for 3s., 50 for 10s.
12 choice splendid BRONZE GERANIUMS for 3s. 6d., 50 for
12 choice splendid DAHLIAS for 1s., 100 for 20s.
12 choice splendid GOLD TRICOLORS for 3s. 6d.
12 choice named PHLOX for 3s. 6d.
12 choice named PHLOXES, 20s. per 100.
12 choice striped single PETUNIAS, 2s. 6d. per 100.
See Descriptive CATALOGUE. Cash with order. Package
free. They are honestly worth double the amount.
CHARLES BURLEY, Brentwood, Nurseries.

Primulas—Primulas—Primulas.
Thirteenth Year of Distribution.
WILLIAMS' superb strain, 1s. 6d. per doz.,
per 100. CINERARIAS same price. Package
and carriage free.
The above are quite equal to those I have sent out in previous
years. Cash with order.
JOHN STEVENS, The Nurseries, Coventry.

SINGLE DAHLIAS.
The Grandest Collection extant.
CATALOGUE post-free upon application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham,
London.

"Special Offer of Bedding Plants."
H. I. HARDY, F.R.H.S., offers fine strong
unusually healthy Anemone Plants.
GERANIUMS, Vesuvius and other scarlets, from single
pots, 1s. 6d. per dozen, 10s. per 100; Master Christie,
M. Vaulcher, Happy Thought, from single pots, 2s.
per dozen, 12s. per 100.
MISS TOITIE HARDY (Hardy's New), beautiful rosy-
crown, 4s. per dozen.
QUEEN OF PINKS (Hardy's New), fine magenta-pink,
4s. per dozen.
STOUR VALLEY BEAUTY (Hardy's New), delicate
peach, 4s. per dozen.
DZAZLER (Hardy's New), dark crimson, grand truss, 5s.
per doz.
CALCEOLARIAS, aureo-floribunda, from single pots, 1s. 6d.
per dozen.
VERBENAS, best named sorts, from single pots, 1s. 6d.
per dozen; single, 1s. per dozen.
LOBELIAS—Empress William, brilliant blue, the very best
Dwarf for Bedding and Borders, from single pots, 5d.
per dozen; from stores, 3s. per 100, 20s. per 1000.
DAHLIAS, fine Show varieties, in single pots, 1s. per dozen.
Terms cash. Packages free, extra plants for carriage; a
reduction made for quantities. CATALOGUES post-free.
Stour Valley Seed Growers, Hares, Suffolk.

SPECIAL CHEAP OFFER.
LOBELIA SPECIOSA and BLUE STONE, from
cuttings, 1s. 6d. per 100; 20s. per 1000; 8d. per dozen.
GERANIUMS, Scarlet and Rose, 7s. per 100; 1s. 6d. per
sample dozen; Tricolor Italia, Uota and Glen Eyre
Beauty, 4s. 6d. per 100; 2s. 6d. per dozen.
IRESINE, 6s. per 100, 1s. 10d. per dozen.
HYLOTIOPES, 6s. per 100, 1s. 2d. per dozen.
C. LINDSEY, eight new varieties, 12s. per 100, per dozen.
CHRYSANTHEMUMS, best varieties, 10s. per 100, 1s. 9d.
per dozen.
FUCHSIAS, all the leading varieties, 6s. per 100;
newer varieties, 8s. per 100; 2s. 6d. and 1s. 6d. per dozen.
VERBENAS, Purple, White, Crimson, Pink, Rose, and Scarlet,
6s. per 100, 20s. per 1000, 1s. 2d. per dozen.
GOLDEN BIRD, 12s. per 100, 20s. per 1000.
Sample dozen post-free, others package free. Cash with all
orders.
T. FLETCHER and SON, Florists, &c., Chesham.

New Ready.
BALCHIN'S Double White MIGNON-
NETTE.
For Description, see Advertisement in Gardeners' Chronicle,
April 29. Strong plants, now ready, in 5-inch pots, 7s. 6d.;
ditto, in 3-inch pots, 2s.
Usual Discount to the Trade. Terms Cash.
W. BALCHIN, Hassoak Gate Nursery, Sussex; or, 27, West-
ern Road, Brighton.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out
of 4 1/2-inch pots, 1/2 per 100, for cash.
MAIRIS and CO., Weston-in-Gordano, Bristol.

Verbenas—Verbenas.
VERBENAS—Strong, healthy, well-rooted
Cuttings, perfectly free from disease, of White, Purple,
Scarlet, and Pink, 6s. per 100, 50s. per 1000; 100 strong rooted
Cuttings, in twelve most splendid varieties, First-prize Flowers,
for 10s. per dozen.
EXECUTORS of the late H. BLANDFORD, The Dorset
Nurseries, Blandford.

PRIMULAS, PRIMULAS, &c.—
Fine young plants of the beautiful strain we have supplied
for some years, 1s. 6d. per dozen, 10s. per 100; do., extra
strong, 2s. per dozen, 15s. per 100; do., in 5 1/2-inch pots,
3s. per dozen, 20s. per 100. CINERARIAS, fine young
plants, 1s. 6d. per dozen, 10s. per 100.
WHL. CLIBRAN and SON, Oldfield Nursery, Altrincham.

F. W. COOPER offers the following to the
PYRETHRUMS, Double, in sixteen fine varieties 12 0
... .. in twenty-four fine varieties 25 0
PHLOXES, Herbaceous, twelve finest sorts 20 0

Bedding Plants in Separate Pots.
GERANIUMS, Vesuvius, and other scarlets 12 0
... .. Lady Sheffield, Master Christie, and other pinks 12 0

CALCEOLARIAS, yellow and dark 12s. to 14 0
VERBENA, Purple King 12 0
LOBELIA SPECIOSA 12 0
... .. VANDYKENSIA 12 0
ZONAL GERANIUMS, Choice, in twenty-five fine sorts 14 0
Most other kinds of Bedding Plants at like reasonable rates.
Cash with order from unknown persons. Packing free, but
baskets to be at once returned, carriage free and advised.

F. W. COOPER, Florist, Huntingdon.
NEW GOLDEN BEDDING PANSY,
THE KING OF YELLOWS—the largest, freest, and
brightest of all golden-yellow Pansies; strong plants, 1s. each,
9s. per dozen.
PANSY THOS. GRANGER, rich glowing Crimson, 5s. per
dozen.
PANSY SUNBURST, fine Red, 16s. per 100, 3s. per dozen.
Fine collection of all leading sorts.
RODGER, McLELLAND and CO., Nurserymen, E.C.,
Newry.

Grape Vines for Present Planting.
THE BRITISH HORTICULTURAL
COMPANY (Johns Company), Limited, The Vineyard,
Garston, Liverpool, have still on hand a fine stock of strong,
well ripened GRAPE VINES suitable for present planting,
consisting of all the best varieties, all at a very strong Fruit-
ing Cases. CATALOGUES free. The Trade supplied.

Australian Orchids, &c.

THE NEW PLANT and BULB COMPANY have to advise the safe arrival of Rare Australian ORCHIDS of the following families, viz. Diuris, Thelymitra, and Caladenia; also of South American Orchids, consisting of Cattleya gigas, Odontoglossum veitchianum, & O. Rozellii, Cypripedium Schlimii, var. Masdevallianus, &c.

Price Lists on application.

Lion Walk, Colchester.

Bulbs! — Bulbs! — Bulbs!

To SUPPLY the TRADE.

SEGERS AND CO., Bulb Growers, Lisse, near Haarlem, Holland, beg to announce that their Dutch Bulb Farms, especially HYACINTHS, look very promising. CATALOGUES may be had free on application. No Auction Sales or Retail Trade supplied, but the Wholesale only. Please observe name and address.

New Coleus.

LADY MARJORY GORDON.—This Coleus is beautifully rayed in the centre veins with magenta-crimson, and patches of dark carmine edged with bright green; one of the prettiest yet introduced, is of excellent habit, and free growth. This beautiful Coleus was raised by Mr. John Forrest, Gardener to the Earl of Aberdeen, who has kindly entrusted us with the distribution of it, and from whom we have obtained the entire stock. Plants are now ready. Price 2s. 6d. each. The usual discount to the Trade. JAMES COCKER AND SONS, The Nurseries, Sunnyspark, Aberdeen.

SPECIAL OFFER of some Thousands of BEDDING PLANTS and OTHERS.—Asters, Victoria and Chrysanthemum flowered, 2s. 6d. per doz.; Calceolaria The Gem, 2s. 6d. per doz.; Dahlias, finest Show, 4s. per dozen. Dahlias, Fumipen, in beautiful colours, 4s. per dozen; Echeverria, 2s. 6d. per doz.; Fuchsia, a fine assortment, 2s. to 5s. per doz.; Geraniums, Bronze and variegated, in sorts, and Crystal Palace Gem, 2s. 6d. to 4s. per dozen; Vesuvius, fine Seedling, 4s. to 5s. 6d.; Zonal and Pansy Pelargoniums, a fine assortment, 4s. to 6s. per dozen; Scarlet, in various colours, 2s. to 3s. per doz.; Pansy, in named sorts, 2s. 6d. and 3s. per dozen; Violas, 2s. 6d. per dozen; D. grandiflora, 2s. 6d. per doz.; Golden Feather, 2s. per doz.; German Stocks, best imported, 2s. per 100; Petunias, Double, 4s. per dozen; Margold, best named French, 2s. 6d. per doz.; and other cheap Annual Flowering Plants; Primulas of best sorts, including Williams' Red, White, and Meteor, and Carter's superior strain, nice plants, 2s. to 3s. per dozen; Cyclamen hederifolium, 2s. per dozen; Chrysanthemum, fine selection of all the best show varieties, 4s. to 6s. fine healthy plants; Pycnanthemum, 4s. to 6s. per doz. Cash to accompany all orders.—THOS. HOPE, Blackburn Road Nursery, Ashley Bridge and Market, Bolton.

Verbenas—60,000 Now Ready for Sale.

SIDE can now supply really good strong spring-struck plants of Purple, White, and Pink VERBENAS at 6s. per 100. Good exhibition varieties, 8s. per 100. Packages free for cash with order. Also strong healthy Cuttings in great quantities for post.—S. BIDE, Alma Nursery, Farham, Surrey.

THE VERY CHOICEST STRAINS.—PRIMULA, CALCEOLARIA, CINERARIA, BIGNONIA, CYCLAMEN, and AURICULA, in packets, 1s. to 5s. each, post-free. Extremely showy Coloured COWSLIP, SEED, 1s. per packet, post-free. The best Evergreen LAWN MIXTURE (5oz. now), 12s. 6d. per cwt., carriage paid. SEEDS and PLANTS of every description, of best qualities, at the most moderate rates. Priced CATALOGUES post-free. JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

Verbenas, Pelargoniums.—Special Offer.

WILLIAM BADMAN offers the below-named Plants, of which he has a large healthy stock.—VERBENAS, Purple, White, Scarlet, Crimson and Rose, only best bedding sorts. Well rooted cuttings, 6s. per 100, 50s. per 1000. Show varieties, 100 to 125 very best, 50s. or 25s. sorts, 10s.

PELARGONIUMS, Vesuvius, 5s. per 100 or 25s. per 1000; Jean Seaman, 10s. to 20s. per 100; Lang and Vireo Marie, best whites, 12s. per 100, or 9s. per 1000; Master Christine, fine pink, and Mrs. W. Paul, 10s. per 100; Mrs. G. Smith, salmon, and Waltham Seedling, crimson, 10s. per 100; White Vesuvius, Dr. Denny, New Life, Bontine, The Shah, and many others, 12s. per 100.

TRICOLOURS, Mrs. Pallack, 18s. per 100; Sophie Dumaresque, Lady Cullum, Sir R. Napier, 20s. per 100.

BRONZE, McMahon and Black Douglas, the best bedders, 18s. per 100, or in 12 choice sorts, 25s. per 100.

SILVER VARIETATED, May Queen (Turner's), Princess Alexandra, France Silverveins, Little Tot, Flower of Spring, all at 12s. per 100.

GOLD-LEAF, Crystal Palace Gem, 10s. per 100; Happy Thought, 12s. per 100.

DOUBLES, Madame Amelia Ballet, finest white, 15s. per 100; Madame Thibaut, market pink, 22s. per 100.

TROPEOLUM Vesuvium and coccinea elegans, good bedders, 12s. per 100.

IRENINE Linden, 6s. per 100.

ACEUTARIA, best dwarf blue, 5s. per 100, 40s. per 1000.

LOBELIA Bluestone (true) and pumila magnifica, the best of all, from cuttings, 6d. per 100, 25s. per 1000.

HELIOTROPE, dark and light, 6s. per 100, 50s. per 1000.

CENTAUREA canadensis compacta, 18s. per 100.

FUCHSIAS, in 25 choicest sorts, rooted cuttings, 6s. per 100, 50s. per 1000.

CHRYSANTHEMUMS, best sorts only, 100 in 25 varieties, 10s.

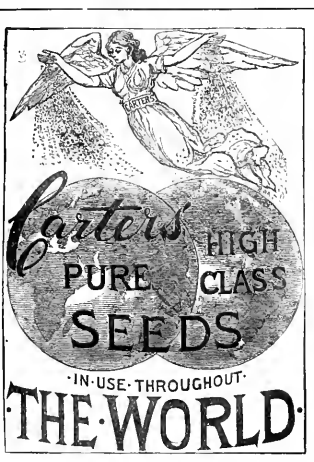
Packing included. Terms cash. Cemetery Nursery, Gravesend.

NEW ROSES of 1882, in pots.—Seller's Selection, 30s. per dozen; Purchaser's, 50s. per dozen. The above comprise all the best English and French raised Hybrid Perpetuals, Perpetual Polyantha, Tea, Hybrid Tea, and Perpetual Moss.

ROSES of 1881, of above-named classes, 18s. to 24s. per dozen, in pots.

CHOICE ROSES.—Tea-scented, Hybrid Tea, Noisette, China, and Bourbon, 18s. to 24s. per dozen, strong plants in pots.

Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.



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Carter's ILLUSTRATED CATALOGUES. Gratis and Post-free. THE QUEEN'S SEEDSMEN, (Seedsmen by Royal Command to H.R.H. THE PRINCE OF WALES) High Holborn, London, W.C.

DANIELS' CHOICE STRAINS OF FLORISTS' FLOWER SEEDS, For Present Sowing, Post-free.

Get in the Rearing of Florists' Flowers from Seed, the first essential point is to secure carefully Hybridized Seed, saved from the finest flowers of the finest kinds, the chances of success in raising some really good varieties come chiefly from a few plants from seed of the choicest quality than from a large quantity raised from seed of an inferior description.

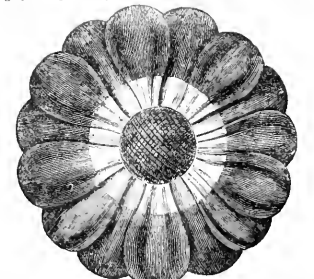


Table listing various flower seeds and prices: AURICULA, DANIEL'S PRIZE ALPINE, CARNATION and PICOTE, CALCEOLARIA, DANIEL'S SUPERB PRIZE, CINEBARIA, DANIEL'S SUPERB PRIZE, GLOXINIA HYBRIDA, PRIMULA, DANIEL'S CHOICE KEEL, PANSY, DANIEL'S SHOW AND FANCY, POLYANTHUS, FINE GOLD-DANIEL'S, PRIMROSE, EARL LOTHIAN, SWEET WILLIAM, DANIEL'S PRIZE, STOCK, GANT DROMPTON, SCARLET, EARL LOTHIAN, DANIEL'S CHOICE MIXED LIGHT-COLOURED VARIETIES, VIOLA, DANIEL'S CHOICE MIXED LIGHT-COLOURED VARIETIES, WALL-FLOWER, DOUBLE GERMAN, VERY FINE, MIXED.

DANIELS BROS., Royal Norfolk Seed Establishment Norwich.

NOTICE. SELLING OFF OF NURSERY STOCK.

EWING & CO., EATON, near NORWICH. Great Reduction in Price for Cash Payments, viz.: 15 per Cent. for Cash before delivery. 20 per Cent. for Cash within One Month of date of invoice. 5 per Cent. for Cash within Three Months of date of invoice. After Three Months no discount can be allowed.

In addition to their immense Outdoor Stock of ROSES; FRUIT TREES, Bushes and Roots; ORNAMENTAL TREES and SHRUBS, they have ready for immediate Sale a very extensive Stock of New and Scarce ROSES in Pots; Tea and Noisette ROSES in Pots; CLEMATISES of best Old and New Varieties, in Pots; Variegated and Choice Green-leaved IVIES, in Pots; AMPELOPSIS VEITCHII, and many other Hardy CLIMBING and CREEPING PLANTS, in Pots, &c.

N.B. Cut Roses, &c., can be supplied at cheap rates, carefully packed for travelling long distances. A slight extra charge must in most cases be made for packing. Where cash in payment, orders are sent with the order, the amount for postage may be forwarded in stamps after despatch of goods.

N.B. Post-office Orders should be made payable to EWING & CO., Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.

Pelargoniums, Dahlias, &c. JAS. HOLDER AND SON have still a few hundred strong PELARGONIUMS to offer, in small 60-pots, 25s. per 100; in 45-pots, strong and bushy, 20s. per 100; DAHLIAS, in about 12 varieties, 25s. per dozen, 25s. per 100; strong hardy stock, in large 60-pots. CALCEOLARIA Golden Gem, in 60-pots, 15s. per 100 strong, from pots, 7s. per 100. GERANIUMS Flower of Spring, in 60-pots, 16s. per 100; from store pots, 10s. per 100. Maiden Seeding, in 60-pots, 16s. per 100; from stores, 12s. per 100. Waltham, from store pots, 10s. per 100. LOBELIAS, Blue, Crystal Palace and Lastrous, in thombs, 18s. per 100; from stores, 15s. per 100. AGERATUMS, Dwarf, in 60-pots, 12s. per 100; from stores, 6s. per 100. All packing free. Cash with order. Crown Nurseries, Reading.

CHEAP BEDDING

and OTHER BEDDING GERANIUMS, from single pots, Scarlets, Pink, &c., 2s. 6d. per dozen, 16s. per 100. HELIOTROPES, MESEMBRYANTHEMUMS, CALCEOLARIA, SALVIA, LANTANA, LOBELIAS, AGERATUMS, TROPÆOLUMS, IRESINES, from single pots, 1s. 6d. and 2s. per dozen, 7s. and 12s. per 100. COLEUS, 12 beautiful distinct sorts, 2s. FUCHSIAS, 12 fine distinct varieties, 2s. to 100 in 100 varieties, 10s. per 100. DAHLIAS, 12 fine named sorts, 2s. 6d.; 100 in 50 or 100 sorts, 25s. preferred, 17s. 6d. PENTSTEMONS, 12 beautiful sorts, 3s. BEGONIAS, of sorts, 12 fine and pretty kinds, 2s. 6d., 3s. 6d. or 5s. CARNATIONS and PICOTEES, 12 distinct sorts, 6s. CALCEOLARIA BEDDING PLANTS, such as Scellums and Saxifrage, Dactylis, Golden Marjoram, Antennaria tomentosa, 1s. per dozen, 5s. per 100. BEDDING FANSEES and VIOLAS, in splendid variety of colours, 1s. 6d. per dozen, 12s. per 100. SHOWING FANSEES, 12 beautiful kinds of either class, 2s. 6d.; 12s. per 100. DOUBLE KATHLEENS, 12 fine sorts, 6s. PONTILLIAS, 12 for 5s. PHLOXES, 12 beautiful varieties, 3s.; 100 in 100 varieties, 25s. PELARGONIUMS, 12 beautiful distinct varieties, 6s., 9s., or 12s. WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Dahlias.

CORK AND SON, Florists, Brunswick Road, Norwich, beg to offer the following, all good grown plants, well established in pots, to the Trade and Public generally.—PELARGIUMS, Show, Fancy, and Pompon. LOBELIAS, Show, Fancy, and Pompon. PELARGONIUMS, Show and French. ZONAL GERANIUMS, superb collection, in 5-inch pots. Sent on receipt of Post-office Order, with plants to compensate for carriage. Prices on application.

PELARGONIUMS

EDWARD PERKINS, MADAME THIBAUT. are two of the most showy and Decorative Pelargoniums ever offered. Strong; flowering plants, 3s. 6d., and 5s. each. Small plants, one of each free by post, 5s. Trade price on application. FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

JULES DE COCK, NURSERYMAN, Ghent.

Belgium, offers to the Trade FANSEES in store pots.—Arecia, 60s. per 100; Coeos Weddelliana, 80s. per 100; Caryota sabolliera, 4s. per 100; Carpaea australis, 10s. per 100, 8s. per 1000; Lactaria borbonica, 6s. per 100, 7s. per 1000; Ficus reclinata, 5s. per 100, 70s. per 1000; Ficus tenuis, 10s. per 100, 80s. per 1000; Psychosma Alexandria, 30s. per 100, 250s. per 1000; Scaevola elegans, 12s. per 100, 100s. per 1000; Sabal blackburniana, 5s. per 100, 60s. per 1000.

CAULIFLOWER, BRUSSELS SPROUT PLANTS.

VEITCH'S AUTUMN GIANT, 3s. 6d. per 1000. BRUSSELS SPROUTS, 3s. per 1000. Packages of 3d. per 100 extra. Order of R. BATH, Crayford; or J. BATH, 34, Wellington Street, Covent Garden, W.C.

LIST of BEDDING PLANTS (free on application), comprising Descriptions and Prices of Established Plants of the most eligible varieties for the Terrace Parterre, the Tropical and Ordinary Flower Garden, the Mixed Border, and for Grouping en masse with Shrubs or on the Lawn. RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

KIMBERLEY can supply the following, in strong healthy plants, of the best named varieties, each with order.— SHOW and PANSY DAHLIAS, 4s. per dozen. SINGLE JALANIAS, 4s. " " SHOW and PANSY FANSIES, 4s. " " DOUBLE PYRETHRUMS, 4s. " " HARDY HERACLIOSUS, 6s. " " Stoke Nursery, Coventry.

The most Beautiful Hardy Climber Known. CLIMBING HONEYSUCKLES, suitable for arches, trelliswork, window boxes, &c., covered with delicately-scented blossoms all summer and scarlet berries in winter; very hardy. See the well rooted plants for this season's flowering, 1s. free. H. JALLAND, Horncastle, Lincolnshire.

SPECIAL OFFER OF ORCHIDS

The following beautiful and rare orchids are offered at low prices, and will be found to be nice-sized, healthy plants; they have not yet been flowered, and probably contain many rare varieties in value quite out of proportion to prices at which they are quoted. They are offered by the importer to make room for fresh importations, cost-tightly arriving.

Table listing various orchid species such as Ardisia alfine, Pheidon 7s. 6d. & 10s. 6d., and others with prices per dozen or per 100.

All orders and letters to be addressed to 10, Cullum Street, London, E.C., and not to Nurseries, Twickenham, Middlesex. P.O.O. payable to W. GORDON, Mark Lane.

PERALANCIUMS, in variety. HYDRANGEAS. RHODANTHE MANGLESII.

HUGH LOW and CO. have to offer the above, in large quantities, in flower and bud, ready for immediate use. Price, per dozen or 100, on application.

CLAPTON NURSERY, LONDON, E.

POLYANTHUSES, PRIMROSES, HEPTATICAS, and AUCULAS.

Apply to MR. COOPER, F.R.H.S., CALCOT GARDENS, NEAR READING, BERKS.

NEW BOMAREA.

Flowers Orange and Yellow, with Red Spots. "BOMAREA FRONDEA"

SHUTTLEWORTH, CARDER & CO.

Have great pleasure in offering the above beautiful new cool conservatory climber for the first time. Good established plants, 21s., 42s., and 63s. each. For description see Gardeners' Chronicle, May 20, 1882, p. 698, by Dr. Masters.

SHUTTLEWORTH, CARDER & CO., 145, PARK ROAD, CLAPHAM, S.W.



This Design was invented by Messrs. SUTTON & SONS, in July, 1881, and is their property.

No similar Design was in existence until long after this date, notwithstanding statements put forth which appear to contradict the fact.

Messrs. Suttons' Customers are hereby cautioned against imitations.

THE QUEEN'S SEEDSMEN, READING.

THE AMERICAN PLANTS at Knap Hill are now in bloom, and may be seen daily, Sundays excepted. The EXHIBITION of RHODODENDRONS and AZALEAS at the Botanical Gardens, Regent's Park, is also now on view daily. Orders of Admission may be obtained from Fellows of the Society, or from the Exhibitor, ANTHONY WATERER, in Kotten Row. The RHODODENDRONS in Kotten Row are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Tuberous Begonias. JOHN LAING AND CO.'S Gold Medal Collection is unrivalled. They have now in cultivation 100,000 Begonias, which will present to the public an unprecedented floral display this summer. Orders now booked for blooming plants middle of June. Prices, 12s. to 60s. per dozen. CATALOGUES on application. Address JOHN LAING AND CO., Forest Hill, S.E.

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HUGH LOW and CO. can offer the above-named lovely species, in good healthy plants, by the dozen or 100. Prices on application.

CLAPTON NURSERY, LONDON, E.



OUR EIGHT HOUSES (100 feet each) of PELARGONIUMS, forming one continuous a feet bank, 1600 feet long, of the richest colour. The whole family is now represented by all the best and most distinct in cultivation—900 varieties—such a sight as probably never before seen. For full particulars see CATALOGUE.

H. CANNELL & SONS,



PRIVATE EXHIBITION OF ORCHIDS.

Mr. WILLIAM BULL'S Exhibition of Odontoglossums and other choice Orchids is now open to Patrons of the Establishment, and to those having received invitations. Several magnificent new kinds are in blossom.

Establishment for New and Rare Plants, 536, KING'S ROAD, CHELSEA, LONDON S.W.

For Present Planting. FREDERICK GEE can supply excellent

Spring-rows Plants in any quantities (grown from his superior stocks), as follows, for cash with orders, viz.:

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W. G. CALDWELL and SONS have the following selected SPECIMEN PLANTS to offer, many of which are well known at Liverpool, Manchester, and other large Shows, having taken many First Prizes. All are in excellent condition, and fit for competition this season.— ERICA CAVENDISHII, 5 feet by 5 feet through, splendid specimen, well set with bloom. ERICA TRILOR SPECIOSA, 4 feet by 4 feet through, well set with bloom; many other varieties of ERICAS in all sizes. ALLAMANDIAS, APHELEXIS, BOUGAINVILLEAS, CLEODENDRONS, CUCUS, CROTONS, CYCAS, GLEICHENIAS, LATANIAS, RONDELETIAS, SEAFORTHIAS, STEPHANOLIS, SWAINSONIAS, VINCAS, &c. Prices, names, and sizes on application. The Nurseries, Knaustford.

AERIDES falcatum var. Leoniei.

WM. MAULE and SONS, having flowered this beautiful new variety of AERIDES, which they received two years ago from Burmah, beg to call the attention of Orchid growers to its great novelty, and distinction from all others in the same family. The stock is limited. A photograph and all particulars will be furnished on receipt of address. The Nurseries, Bristol.

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THE NEW GARDEN HOSE, made upon the principle of the fire hose used by Captain Shaw, C.B., Chief Officer of the Metropolitan Fire Brigade. It is much cheaper and far more durable than white rubber, or fabric hose. Private customer, supplied at trade prices. Sample free. MERRYWEATHER AND SONS, 63, Long Acre, London, W.C. Works: Greenwich.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.

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Hardy Rhododendrons and Azaleas. ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds. Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.

AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.

Knap Hill Nursery, Woking, Surrey.

A GOOD and CHEAP LINE.—We have still on hand a few good Mrs. Pollock and Silver Tricolor GERANIUMS at 1/6 per 100, from single pots; Scarlet and Trerhain Rose, 7/6 per 100; Bijou Variegated, at 9/6 per 100. CALCEOLARIAS, Golden Gem, 7/6 per 100, 6/6 per 100. Good Exhibition FUCHSIAS, 6/6 per 100. All are good, stuff, well hardened plants, and package free. Cash with all orders.

T. FLETCHER and SON, Florists, &c., Chesterford.

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Table listing various bedding plants with prices in shillings and pence. Includes Alternanthera, Antennaria, Iresine, Coleus, Eucophyton, Lobelia, Mentha, Nemesian, Pyrethrum, Sedum, and Veronica.

LIST of Carpet and General Bedding Plants gratis. W. MILES, West Brighton Nurseries, Hove, Sussex.

Ferns a Speciality. EXOTIC AND BRITISH FERNS, IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes. Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application. W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.



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KING'S ACRE, near Hereford.—May, 1882.

GRASS SEEDS FOR LAWNS,

Of the finest close-growing Evergreen kinds, &c. per lb. Special preparations for all purposes, soils, and situations. Advice gratis.

Unsolicited Testimonials:— "Knowing how difficult it is to obtain pure stocks of grass seeds, even when grown in a secondary consideration, I write to say the supply I obtained from you for our new terrace lawns has given the greatest satisfaction. "Please send me three bushels of the very best Lawn Grass Seeds, suitable for an exceedingly hot upland soil. The seed I have had of you has been the only kind which has been able to resist the influence of the sun and drought upon my thin, gravelly soil."

FARM SEEDS Of all kinds, which have given unqualified satisfaction. See Illustrated and Descriptive LIST, free on application.

UNSURPASSED FLOWER and VEGETABLE SEEDS. LIST Free by Post.

RICHARD SMITH & CO., SEED MERCHANTS and NURSERYMEN, WORCESTER. (ESTABLISHED 1804)

TWO SPECIALITIES WORTHY OF EXTRA NOTICE.

The best Zonal Pelargonium in Cultivation for Summer Bedding is undoubtedly MILES' WEST BRIGHTON GEM. After five years' trial it still holds the first position as the most floriferous, compact, and effective variety yet introduced. Awarded Three First-class Certificates. Price, in 6-sized pots, 6/6 per dozen, 12/6 per dozen, 15/6 per dozen, 18/6 per dozen. Special quotations for large quantities.

MIGNONETTE. No variety ever introduced has been found to equal MILES' NEW HYBRID SPIRAL. Its beautiful, robust, compact and floriferous habit is the admiration of all who see it. It is far more fragrant than any other variety. Price of seed (in single packets, 6/6 per dozen, 12/6 per dozen, 15/6 per dozen, 18/6 per dozen. Liberal Discount to the Trade.

W. MILES, WEST BRIGHTON NURSERIES, HOVE, SUSSEX.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants. Tens of Thousands of Plants to select from.

MR. WILLIAM BULL Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL Recommends those desirous of having their Honours gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants. Establishment for New and Rare Plants, 536, KING'S ROAD CHELSEA, LONDON, S.W.

ARECA LUTESCENS.

To hand consignment of Seed, in unusually fine condition, from Madagascar. This variety is far freer growing, and of finer colour than the Brazilian variety. Price on application.

SANDER & CO., ST. ALBANS.



B. S. WILLIAMS

Has much pleasure in announcing that he has determined to make a grand show of his flowering ORCHIDS, during the next two months, at home. The Exhibition will include, in addition to the usual stock of young Flowering Plants, all the grand specimens that he has been in the habit of including in his Collections, which have obtained the leading prizes for many years both at home and abroad.

Patrons of Horticulture are especially invited to inspect this Exhibition.

The Exhibition will contain large and small specimens of ODONTOGLOSSUMS, CATTLEYAS, LELIAS, ONCIDIUMS, CYPRIPEDIUMS, MASDEVALLIAS, VANDAS, AERIDES, SACCOLABIUMS, and other rare and showy ORCHIDS.

AN EARLY INSPECTION IS RESPECTFULLY INVITED. NO CARDS TO VIEW REQUIRED.

A hearty welcome will be given to all who honour us with a visit.

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Carriage Route from the West End is through Albany Street, Regent's Park, Park Street, Camden Town, Kentish Town, and Junction Road.

The North Metropolitan Tramway Cars, in addition to the Street Tramways Company's Cars, arrive at and start from the Nurseries, for the City and West End, every few minutes. The Great Northern Main Line trains all stop at Holloway Station, which is within fifteen minutes' walk of the Nurseries. The Midland and Great Eastern Main Line trains all stop at Kentish Town Station, which is within ten minutes' walk of the Nurseries. The Midland, in connection with the Metropolitan Railway, runs frequent Trams during the day from all parts of London to Upper Holloway Station, which is within three minutes' walk of the Nurseries.

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New Catalogue of Seeds and Plants FOR 1882.

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THE OLDFIELD NURSERIES,
ALTRINCHAM,

Invite an inspection of their stock, or a perusal and comparison of their CATALOGUES by all requiring Seeds or Plants. *The most comprehensive Catalogue of low-priced plants published.* All classes of goods required for In or Out-door Gardening. All the following are Package Free for cash with order:—

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WM. CLIBRAN AND SON'S ZONAL GERANIUMS, see Catalogue. Double and Single, Ivy-leaf, Scented, Bicolor or Tricolor Varieties, for Beds or Pots, Winter or Summer Blooming, 12 varieties 4s., 25 do. 7s. 6d., 50 do. 12s., 100 do. 20s. Cuttings half price.

WM. CLIBRAN AND SON'S DAHLIAS, see Catalogue. Our selection, 12 varieties 3s., 25 do. 5s. 6d., 50 do. 10s. 6d., 100 do. 21s., 100 in 50 varieties 16s. Cuttings half price.

SINGLE DAHLIAS—See Catalogue for list of sorts and price.

WM. CLIBRAN AND SON'S Cheap BEDDING PLANTS, from stores for potting—Ageratum and Lobelia in variety, 10 each, or dozen, 6d.; per 100, 4s.

CALCEOLARIAS—Golden Gem and Aureo-floribunda, per doz., 1s.; per 100, 5s.; per 1000, 40s.; Prince of Orange, per 100, 5s.

FRESINES, of sorts—Meembryanthemum variegatum, per dozen, 1s. 6d.; per 100, 10s. For other Bedding Plants, in great variety, see Catalogue. Cuttings half price.

WM. CLIBRAN AND SON'S ARBUTHANS, COLEUS, Evergreen BEGONIAS, NIMULUS, SALVIA, LANTANA, TROPÆOLUMS, 12 varieties of any of these (our selection) 3s., 6 each of the seven, 4s. plants, for 9s.; Heliotrope, 12 varieties, 1s. 6d. Cuttings half price.

WM. CLIBRAN AND SON'S Cheap STOVE and GREENHOUSE PLANTS, either Stove or Greenhouse, or both as desired, our selection, all fine varieties, 12 for 6s., 25 for 12s., 50 for 22s. 6d., 100 for 42s.

ORNAMENTAL FOLIAGE BEGONIAS, 6 varieties 3s., 12 do. 6s.

WM. CLIBRAN AND SON'S CYCLAMEN and Spotted CALCEOLARIA, the finest of strains. Cyclamen, fine young 25s., 5s. 6d., 3s. 6d. per dozen. Spotted Calceolaria, 2s. 6d., 4s., 6s. per dozen.

WM. CLIBRAN AND SON'S STOVE, GREENHOUSE and HARDY FERNS, any or all classes as desired, 12 varieties, 6s.; 25 do., 12s. 6d.; 50 plants, in 20 sorts, 21s.

WM. CLIBRAN AND SON'S HERACIOUS PLANTS. The finest and most showy kinds, true to name, 12 varieties, 3s. or 5s.; 25 do. 5s. 6d., or 9s. 6d.; 50 do. 10s. 6d. or 15s.; 100 do. 20s. or 35s.; 100 plants, in 50 varieties, 16s. or 30s.

WM. CLIBRAN AND SON'S FLOREST FLOWERS, see Catalogue. For Exhibition or Garden Decoration, all to name, our selection—Carnations and Picotees, 12 plants 6s., 12 pair 9s. 6d.; Pyrethrum—Carnations and Picotees, 3s. per dozen, 12 of each for 22s. 6d.; Ficus-tinctoria, 5s. per dozen; Pansies, Show or Fancy, Phloxes, Finks, Sweet Violets, 3s. per dozen; 12 of each, 6s. plants, 13s.

WM. CLIBRAN AND SON'S Cheap HARDY BORDER FLOWERS, strong plants for immediate effect. Polyanthus, Single Primroses, Sweet William, Wallflowers, Canterbury Bells, Forget-me-Nots, Silent compacta, Arabis, Aubretia, Dactylis, Cerastium, Sedum, any of these, 12 per dozen, 4s. per 100; smaller plants, 5d. per dozen, 3s. per 100.

WM. CLIBRAN AND SON'S VIOLAS and BEDDING PANSIES. Many thousands of plants from the open ground, fine sorts, 10 name, 12 varieties, 2s. 6d.; 25 do. 5s. or 6s.; 100 plants, Blue, Yellow, White, or Purple, or Mixed, as desired, 10s. Dauses, Red or Pink, 1s. per dozen, 4s. per 100; Auricular Seedlings, 1s. 6d. per dozen, 10s. per 100; Gladiolus Breitenheymensis, 1s. per dozen, 7s. per 100; Liliums, 12 distinct kinds, for garden, 6s.

HARDY CLIMBERS in pots, in great variety, 12 distinct varieties 9s.

STRAWBERRY PLANTS, from ground, our selection, 2s. 6d. per 100, 50s. in 1 to 10 sorts as required, 11s.; strong plants from 2½-in. pots 10s. per 100, from 5-in. pots 21s. per 100.

For full particulars of all the above and Seeds, see Catalogues.

WM. CLIBRAN & SON,
THE OLDFIELD NURSERIES,
ALTRINCHAM,
8 miles from Manchester. Over 50 trains daily.
Inspection invited.

WANTED, LARGE HEALTHY PALMS,

Well Furnished and Clean, consisting of

SEAFORTHIAS, ARECA LUTESCENS, KENTIAS, RAPHIS,
or any tolerably erect-growing and not too tender sorts; also

ASPIDISTRA LURIDA and PANDANUS VEITCHII, for Stock,

IN EXCHANGE for OTHER PLANTS or CASH.

W. HOWARD, Southgate, N.

NEW ROSES FOR 1882.

WM. PAUL & SON,

(Successors to the late A. PAUL & SON, Established 1806.)

PAUL'S NURSERIES, WALTHAM CROSS,

Beg to announce that they are now sending out strong plants of the following

NEW ROSES:—

DUKE OF ALBANY, H.P. (Wm. Paul & Son).

This fine variety produces large and full flowers of magnificent petal, vivid crimson in colour when first opening, but changing darker as they expand, and developing a beautiful shading of velvety-black. It has been figured in the *Floral Magazine* for November, 1881. Price 10s. 6d. each.

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This interesting novelty has been recently introduced from Afghanistan, by Dr. Aitchison, and is figured and described in Nos. 117-119 (vol. xix.) of the *Journal of the Linnean Society*. The flowers are bright yellow, single, and exceedingly numerous, being borne on short lateral shoots all along the branches. 10s. 6d. each.

THE NEW FRENCH ROSES FOR 1882, including HELEN PAUL (probably the best light Hybrid Perpetual) and ULRICH BRUNNER FILS (Certificated by the Royal Horticultural Society). 3s. each; 30s. per dozen.

P.S.—In reply to numerous enquiries Wm. P. & S. beg to state that their new variety "QUEEN OF QUEENS" (Certificated by the Royal Botanic Society) will **NOT** be sold this spring.

ROSES in Pots, for Spring and Summer Planting.—A very fine stock or all the leading varieties, 12s. to 18s. per dozen; and the same of extra size, 21s. to 30s. per dozen.

CLIMBING ROSES in Pots—The best kinds both for Outside and Conservatory Planting, at the same prices as the preceding.

ROSES in Pots, for Pot Culture.—All the most suitable varieties, 12s. to 18s. per dozen; extra strong established plants, 21s. per dozen and upwards.

Priced Descriptive CATALOGUES, post-free, on application.

Wm. Paul & Son, Waltham Cross.

NEW DOUBLE CINERARIAS.

R. H. VERTEGANS

Is now Booking Orders (delivery in the autumn) for his unrivalled Collection of 12 superb and distinct varieties: the set of 12 for 30s.; Single Plant, 3s. 6d. Descriptive LIST on application. Seed (saved from the above) 3s. 6d. and 5s. per packet. If sown now, will flower in December.

LAPAGERIA ALBA.

This splendid Cool Greenhouse Climber—pure wax-like Flowers, and a profuse bloomer—Plants well-established in pots, from 10s. 6d. to 63s. each.

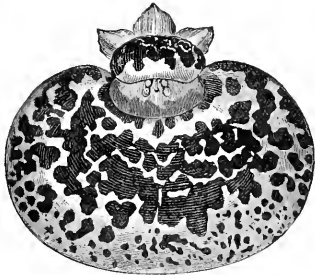
Price per Dozen to the Trade on application.

CHAD VALLEY NURSERIES, EDGBASTON,
BIRMINGHAM.

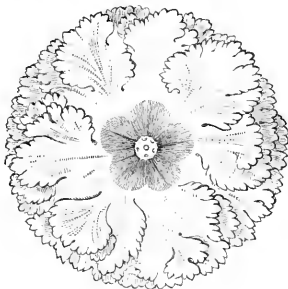
WILLIAMS'
NEW and CHOICE
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THE FINEST IN CULTIVATION.

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Williams' Auricula, Show, from Stage Flowers	.. 1 6
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Williams' Cineraria, extra choice strain	.. 1s. 6d. and	2 6
Williams' Cyclamen persicum giganteum, 2s. 6d. and	3 6
Williams' Gloxinia, finest mixed	1 6
Williams' Mimulus, finest mixed	1 6
Williams' Fansy, finest Show varieties	2 6
Williams' Pelargonium, finest kinds in great variety	1 0
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Williams' Polyanthus, Prize Strain	1 0



Williams' Primula sinensis fimbriata alba magnifica 2s. 6d. and	3 6
Williams' Primula sinensis fimbriata Chiswick Red 2s. 6d. and	3 6
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Williams' Primula sinensis fimbriata Meteor 2s. 6d. and	3 6
Williams' Primula sinensis fimbriata rubro-violacea 2s. 6d. and	3 6
Williams' Primula sinensis fimbriata (Queen of the Whites) 2s. 6d. and	3 6
Williams' Primula sinensis fimbriata rubra magnifica (King of Primulas) 2s. 6d. and	3 6
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choicest kinds in great variety.

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Post-free, on application.

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UPPER HOLLOWAY, LONDON, N.

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AWARDED TO

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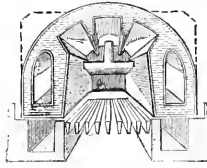
THIS WEEK, AT THE

ROYAL HORTICULTURAL SOCIETY'S
GREAT IMPLEMENT SHOW,
SOUTH KENSINGTON,

Which continues open for another Month.

**HIGHEST AWARD
For BEN'S BOILER,**

Which also obtained the Medal last year.



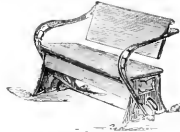
**THE ONLY AWARD
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Patent Lead Bars requiring no Putty; also Glazing with under Putty and none outside.

BRONZE MEDAL

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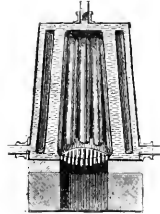


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THE

Gardeners' Chronicle.

SATURDAY, MAY 27, 1882.

MICKLEHAM.

ALL who know even so little of Surrey as the route by railway from Red Hill to Guildford must have admired the picturesque escarpment of the North Downs on the one hand, and on the other the hills of the Lower Greensand, whose upheaval Sir Charles Lyell admirably described. The country is always pretty and varied, often watered with streams and streamlets rising in Leith Hill or other heights, and it abounds in native timber; but it must not be supposed that the scenery of Surrey is the work of unaided Nature, who cares not for scenery while man delights in it. In Mickleham, which Sylvia Evelyn visited and helped by his advice to adorn, and which is almost within sight of his own Beech woods, one may well remember that arboriculture is an art which "mends Nature."

A landscape without trees, and trees well placed, too, is poor as a rule. Nature unclothed, one might say, is naught; and, moreover, she cannot usually be trusted in the work of self-adornment. She formed the Surrey hills, but what would they be if the hand of taste had left them, as she often did, unplanted? What would Mickleham Downs be without its Junipers and Firs? And, as Nature is a poor planter—remiss, indifferent and slow, often neglecting altogether what is needful to be done, or leaving in her woods a wreck of timber, cumbering the ground when replanting would be the proper course to pursue—it is fortunate for any district when the hand and eye of taste are both upon the spot, with a deep purse to assist.

These general remarks are particularly applicable to Mickleham, because that very pleasant spot of earth, chalk for the most part, with a river and a railway running through it, less than an hour from London, and only one station short of the brisk and pretty town of Dorking, attracts wealthy families within its limits, and offers an example of commendable adornment of the artificial kind.

From the knolls and high places in Norbury Park might have been seen, a hundred years ago, a pleasant landscape, which is now, however, more varied and far more charming, and which gains fresh beauty as the work of ornamental planting proceeds. From such a height I counted among many good houses several newly built and planted, and each of them had added a new charm to the landscape. These eight or nine places, all in sight from the same knoll, may be mentioned. They are Givon's Grove, the residence of Mr. Russell Sturgis, an old place and large; Charley Court, Mr. Dickson's, a new place, large, on the side of the chalk hill opposite—not a place for the rapid growth of trees, one would think, but Mr. Dickson has the art of making them grow, by the use of gold-water, or gold-dust it may be, but at any rate he has clothed the bare hill, sheltered his site, and effected a very great improvement. Birch Copse, Mr. Præd's beautiful place, about eighteen years built, adjoins the last, a little nearer Mickleham Downs, which Nature left bare, and which appears from this outlook to be now sufficiently planted.

Birch Cope must needs be pretty, but it does not appear to be a Nature-planted spot, and even if the dense mass of Yews on the slope and ridge behind the house were sown by Nature, she certainly did not plant the shrubbery, nor the timber generally. Mickleham Hall, occupied by Mr. Clarke, is an old place in the valley near one of the "Swallows" where the waters of

"The sullen Mole that ramoth underneath"

are engulfed in dry weather. It boasts some specimen trees, and it cheers the valley in appearance, especially from Norbury Park, Mr. Grissell's seat—and there are few spots where Nature has effected more, and yet where tasteful planting has added more than in the park owned by Mr. Grissell. Juniper Hill, Mrs. Lampton's, and Pinehurst, Mr. H. Grissell's, are both high up under the back of Mickleham Downs, and they are both profusely planted, and owe half their beauty to the artifice of the planter. Juniper Hill stands between these two, and Mr. Richardson is, no doubt, proud of his celebrated Cedars of Lebanon, as well as his historic residence.

From this high part of Norbury Park in the same art-improved parishes of Mickleham and Leatherhead—for our examples occupy ground in each—one can see Denbies on that hill above Dorking which I remember smooth and round as the back of a Chinese pig, and which Mr. Cabott has wrapped in choice raiment, varied and beautiful. I thought this spring, when I saw the hill once more with its leafage newly fluttering. If Nature can hardly obtain the credit of having planted Box Hill with the shrub that gave it a name, if the Box be not indigenous, as some writers say, at any rate this outlook in Mickleham shows how much of the beauty of a Surrey landscape is the work of man and not of Nature. Who planted these distant Chestnuts in Detchworth Park, the largest in the county, and 25 feet in girth, measured fair?—and the Lime avenue, a thousand yards long, with double rows of trees of 120 feet high?—and the great Horse Chestnut, and the Catalpa near the Castle? Then there is the late Sir Benjamin Brodie's favourite, Brockham Warren, now his son's, high on the hill, and sheltered by plantations. Nature would have left it to be blown into the Mole. Palatial Deepdene, too, full in view from Mickleham's high places—for at Brockham we had turned the corner round by Box Hill—lends us further evidence of man's skill in its exquisite shrubberies, planted chiefly with trees and shrubs, which, however familiar they may be, were denied to this country by niggard Nature, just as she denied Australia all the fruits which flourish there now.

Foxbury, Mr. Bickett's charming place, stands high up just outside Mr. Grissell's park, and owes much of the beauty of its landscape and all the shelter of its shrubbery to the same artificial methods which I have endeavoured to extol, to the honour of all who practise or encourage tasteful planting and judicious thinning. *H. E.*

New Garden Plants.

CATTLEYA LABIATA BELLA, *nov. var.*

I HAVE received two glorious flowers of this superb novelty from Mr. B. S. Williams, who informs me that they came from Mr. G. Hardy, Timpeterley, Manchester.

Though it is usually quite intolerable to have to speak about Cattleya flowers without the least knowledge of their origin, their habit of growth, their con-lancy, &c., yet I could not in this case help being exceedingly delighted, as I had the impression I had never seen such a thing before, and this was also the impression of Mr. B. S. Williams.

I was much pleased with the pale whitish mauve-lilac of the petals and the much finer mauve-lilac of the whole fore part of the lip, this being covered with a very distinct and darker mauve-lilac, separated by narrow white nerves. The upper part of the lip is covered with ochre or yellow blotches. The flower

is grand, and very wavy as it appears. The sepals are of the finest, clearest white. I distinctly state that Mr. B. S. Williams calls the colour "lilac" simply, while I say "mauve-lilac." I regard lilac as a little ambiguous, as it may lead people to think at once of the flowers of *Syringa vulgaris*, which are so very different as to colour.

Even in the case of a variety of Cattleya labiata being as distinct as this, it is exceedingly disagreeable to have to write on such poor materials as two flowers. Cattleys must be determined from the examination of all the specimens introduced, judged from the totality, and I have pointed out this in the (unpublished) remarks on Cattleya labiata Percivaliana. I made a guess, and to control it I consulted Mr. B. S. Williams. I got the answer: "Growth like Cattleya Mendelii." Well, I had thought of the very same thing. Mr. Hardy, indeed, had obtained it as Cattleya Keineckiana. This being a fine Mossia, the name was given by mistake. It rather appears that Sir William Hooker's very good representation, *Bot. Mag.* 1669, is altogether forgotten. Ah, I remember well the enthusiasm this representation excited at Dresden. Sir William had stated it to be the most magnificent of all orchideous plants, and was regarded by us as one of the luckiest botanists of the world for having seen this wonder. *Tempto a mutantur!* *H. G. Rehb. f.*

ODONTOGLOSSUM SCHREDERIANUM, *nov. hybr.*

An unusually nice novelty has just appeared in the garden of Baron von Schroeder, The Dell, Windsor. When fully grown, and bearing a panicle of thirty flowers, it will have a bewitching effect.

The general shape of the flower is that of *Odontoglossum tripudians*. The sepals and petals are oblong acute, wavy, white, with mauve-purple blotches. The lip is pandurate, the upper part broader and larger, the fore part narrower, much smaller, obovate, with an apiculus in front. A strong, much developed callus in front of the column on the disc of the upper part shows on each side such a plate of radiating spines as in both *Odontoglossum tripudians* and *Pescatorei*, in which two serrate plates stand upright. The lip is white, with two mauve-purple blotches in the fore part of the disc, and the calli are yellow with some red spots. The lip is adnate to the base of the column, which is white, yellowish below the stigma, and with entire toothletted white wings. A few mauve-purple spots are scattered over it.

What is it? Nothing like it has appeared before in Europe. The columnar wings and the nature of callus forbid to think it a white-mauve *Odontoglossum tripudians*. It may be a cross between this and *Odontoglossum Pescatorei*—perhaps *O. Veitchianum*.

It may bear the name of its lucky possessor, who is one of the most energetic and zealous Orchidists of the time. *H. G. Rehb. f.*

PHALENOPSIS DELICATA, *nov. hybr.*

This is an elegant plant, that has cost me much toil. Judging from a drawing made at its resting place at Upper Clapton, it seems to have roots and leaves like those of *Phalénopsis amabilis*, hence it is not *P. Veitchiana*, but comes near *intermedia*, Lindl., if not itself. Its chief distinction must be based on the lip's top, having neither good *amabilis* tentils (as are to be seen in Dr. Lindley's type, even now carefully kept like an old emulazony at the Royal Exotic Nursery of Messrs. Veitch), nor forcipate teeth, as in *P. intermedia* Portei and its glorious subvariety (boasting the richest colours ever seen in any *Phalénopsis* of this tribe) *biyuerciana*. The convex blade has nothing but a very few exceedingly small straight teeth. The peduncle appears to be fine brown. At the very base it is light green, with numerous brown spots, which alone strike the eye at a distance, and at the top on the zig-zag part of the inflorescence it is deep brown, with a few small light green dots. The flower exceeds in size more than twice that of *P. equestris* (rosea). The sepals and petals, of *amabilis* shape, are white, with some amethyst at the base of the petals. The side lacinie of the lip have a few brown spots at the base, and lilac stripes and tint on the middle and border. Middle lacinia ochre-coloured at the upper part of the base, lilac on the anterior part. Callus ochre-coloured, with a few brown spots. Nail with some brown spots, and a broken amethyst line over it. Back of column light amethyst.

It comes very near *Phalénopsis equestris* (rosea), and may have inverted parentage of *P. intermedia*.

Among my sketches of the first-named plant is one of a flower kindly sent by my excellent correspondent, Mr. T. Barber, in May 1881, which has nearly the same colours, but brighter.

Were it not for the white sepals and petals of distinct shape, for the top of lip, for the shape of the leaves, like those of *amabilis*, it might be asked whether this is not a giant *equestris* (rosea), which, however, it decidedly is not.

The plant is an introduction of Mr. S. Low, and would appear to be very vigorous from having four leaves at once. *H. G. Rehb. f.*

CYRTOPERA PLANTAGINEA, Lindl.

It is very gratifying that this old plant, published as *Limodorum plantagineum* by the venerable Aubert du Petit-Thouars, as early as 1822, and named by Dr. Lindley *Cyrtopera plantaginea*, in January, 1833, and nearly unrepresented in our herbaria, has finally flowered in Europe, I believe for the first time; but not in England, or in Belgium, but in the land of the Czechs, in Bohemia, in the garden of Baron Hrubý, under the care of M. Shopetz. It comes from Madagascar, where it was gathered by M. Leon Humbolt, and introduced to us by Mr. F. Sander. It has leaves nearly as in a *Calanthe*, and a long raceme of numerous flowers of moderate length, with long bracts. The sepals are light green. The petals are shorter, broader, white with a green border. The side lobes of the lip are dark bluish-green (as in *Kivulatia*, *Oscillatoria*, and such *Alga*), with brownish streaks over the nerves. Middle lacinia and disc white. Anterior numerous crests and calli bordered with fine mauve, the white back of the spur has also some mauve turning more to purple. Column lightest yellowish-green, with numerous longitudinal lines of small brownish spots. Crest of anther darkest purple. Pollinaria dimorphic: I found one just like that one represented by Dr. Lindley in his herbarium. The glandule is oberscent-shaped with short stalks. All the other pollinaria observed are crescent-shaped, with long finally bristle-like stalks as in *Scuticaria Steelii*, Lindl. *H. G. Rehb. f.*

RHODODENDRONS AT SINGLETON.

THE accompanying woodcut (fig. 108) is a faithful reproduction of a photograph taken of a Rhododendron at Singleton, near Swansea, and will be interesting, not only on account of the intrinsic merits of the plant, but because also, alas! it was so seriously broken in the great gale of last October as to necessitate its removal; we may, however, solace ourselves with the reflection that though the largest it was by no means the only example of this fine variety grown in Mrs. Vivian's gardens.

I believe that it originally came many years ago as a small seedling plant from Van Houtte, under the name of *campanulatum* hybridum, with some others of the same strain, which were called *campanulatum mobile*, *campanulatum robustum*, &c., but whatever may have been its parentage it was at the time of its destruction a handsomely furnished tree 20 feet or upwards in height, and its floriferousness may be well judged from the representation.

Speaking of this plant a year or two ago I heard Mr. Harris, who is in charge of the gardens at Singleton, say that he had known 200 trusses cut from of this one tree for the decoration of the neighbouring church at Sketty on Easter Sunday without their being missed—a statement then received as an exaggeration, but I, knowing Mr. Harris' accuracy and that I might depend on what he said, asked him at Easter, 1881, to count with me the trusses of bloom then on the plant: we found upwards of 1100, and then there were nearly 1200, but it was a difficult matter to reckon exactly.

But it is not for its size and floriferousness alone that it is so well worthy of notice. In judging the respective merits of the hardy hybrid Rhododendrons we are attracted by certain qualities of colour, shape, texture, habit, and size, which in our critical eyes give one variety pre-eminence over another; and bearing in mind Mr. Glenn's floricultural standard of what a Rhododendron should be—"that the individual flowers should be round, slightly cupped, large, well-spotted, smooth-edged, and thick; colour dense, and truss a bold round-sided cone; footstalks thick and elastic," and proceeding to compare the subject under notice with this description, or with the many other fine hardy hybrids which grow in luxurious profusion in this paradise for Rhododendrons—we may safely pronounce it to be one of the finest in cultivation. For each truss is large, conical, and handsomely set up;

each pip is large and full, of good shape and texture, and the colour is a good bright white, darkly and effectively spotted with rich purple. I fear that its early flowering habit would condemn it in the eyes of some of our fanciers, for modern Rhododendron growers aim at obtaining their blooms in May and June when comparatively safe from the bane of spring frosts, and they can describe their

NOTES FROM HECKFIELD.

Nor the least amongst the pleasures incidental to a spring look over the pleasure-grounds here, is that of noting the almost entire absence of injury to trees or shrubs consequent upon the recent hurricane. The grounds chiefly look north, and on the western and southern sides they are well sheltered by lofty trees and

and between the far-off trees—not so long since as green as painter could desire, but now truly a field of cloth of gold, so gloriously enriched is it with the brilliant Buttercups. Over this vista of golden sheen the cattle are ranging, whilst in the foreground the placid water glistening in the setting sunlight gives an air of freshness, yet of repose, that no words can pourtray.

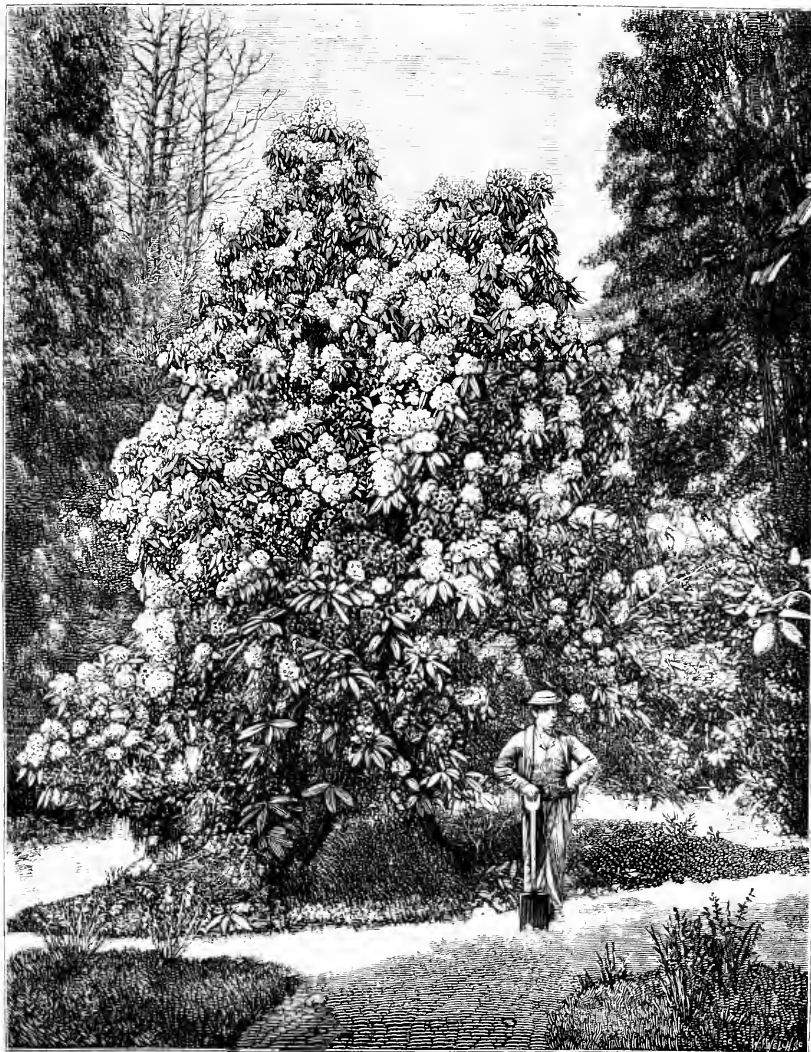


FIG. 108.—RHODODENDRON CAMPANULATUM HYBRIDUM AT SINGLETON.

plants as hardy, and obtain a grand display of all their glories blooming simultaneously. But as this hybrid blooms at Easter, the end of March and beginning of April, it has a point of merit in my eyes as being one of those varieties which help materially, and which are so welcome, in prolonging the blooming season of the queen of our flowering shrubs by anticipating the main body and affording a foretaste of the glories to come later on in the season. *John T. D. Lewelyn.*

woods. Whilst in the ducal park of Strathfieldsaye, close by, the slaughter was heavy, at Heckfield the damage was *nil*. The encroachments of the gardener's art upon the wild woodlands still continue, and on the northern boundary of the vast lawn, a clean shaven expanse of some 20 acres, there have been fresh improvements made—fences set back, noble trees thrown open, new foot-paths formed, and new vistas of beauty created. Nothing more beautiful just now can be produced by art than is seen in the glade

Around us the noble Pines perfume the air, the Araucas and Rhododendrons, gorgeously arrayed in yellow, scarlet, and crimson, give abundant life and beauty to the heavy greens, so abundant in Nature, and yet so refreshing.

On the charming terrace the bedding which is, as all know, the most perfect of its kind when complete, is in rapid progress; and when finished and perfected it will be a thing of beauty, though its joy will only last the season. Within the walled gardens the fruit;

treers seem full of promise, Pears especially so. The vegetable crops are all that can be desired; and abundant cleanness and order of the most exact kind everywhere reigns, as indeed it should in all good gardens. If any one is pained at Heckfield, it will not be with its disorder—it will be rather with its excessive neatness.

VINES.—All readers of the *Gardeners' Chronicle* have in the past learnt of the house of Lady Downe's Vines here, in which the Vines being carried right over a span-roof had the points laid in the border on the opposite side, the Vines making here new roots and thus in a certain sense standing on their heads. The necessity of that renewal which all vineries must undergo somehow, has induced Mr. Wildsmith to cut away and root just one-half of the original Vines but leaving all that portion of the plants that were on the opposite side of the span, thus whilst practically planting half the house yet only destroying one quarter of the Vine area. The result has been that the halves of a dozen Vines now subsisting entirely through their head roots are doing just as well as they did before, and there is every prospect that they will produce an excellent crop. This instance is one perhaps of more interest to the plant physiologist than to the Vine grower, who does not often find himself able to follow this curious example. But in this house as well as in another where borders some 4 feet deep of fresh cut turves were made with the addition of the customary supply of manure, Mr. Wildsmith found such a generous warmth was promoted that he placed eyes into pieces of turf and secured them in the border—just where, were they plants, these would have been planted. The result has been a great success, the growth being vigorous and rapid beyond all anticipation. It is thus evident that fresh-cut turves contain when so employed considerable heating power, that has in this case been fully utilised. In the fruiting-houses Black Hamburgs just colouring are a grand first crop, and Muscat of Alexandria follows—these have finely set. Alwicks Seedling sets here most freely: whether it specially likes the soil or the culture certainly it is as free as any Grape can be. Some good bunches of Lady Downe's four months cut yet hang in the Grape-room, and thus the late Grape meets the early one in long and unbroken succession.

STRAWBERRIES.—It is a decidedly remarkable fact that, whilst in scores of gardens, where the growers are first-rate men, the Vicomtesse Hericart de Thury always fails in pots, at Heckfield it is always so very fine; in fact, it is a grand cropper both inside and out. Except on the score of soil, it seems difficult to understand this variation. The Vicomtesse and President are the only kinds grown, and, oddly enough, none others seem to do half so well. Pot Strawberries are indeed a fine crop; the plants are robust, full of strong leafage, and show as plainly as can be shown how closely robust growth and good crops are allied. It is the rule at Heckfield to set apart a plot of plants solely to furnish runners for potting, and these plants are invariably layers of the previous summer. From this plot all bloom is persistently gathered, so that runners shall be induced to form early. Still farther, as there is no exhaustion of the plants through fruiting, the runners come more abundantly, and when laid in the pots there is no danger to them such as follows when incautious gatherers have to get amongst them. "Early runners, and strong ones," is an excellent motto in obtaining pot-plants, and its value is most forcibly shown when the fruiting time comes. Mr. Wildsmith still adheres stoutly to the buffalo-horn manure, a very small portion of which is mixed with the potting soil. That it is full of nutriment for the roots there can be no doubt, and as the plants have to remain so long in the pots, its slowness of decomposition becomes most serviceable. Added to this stimulant, bi-weekly waterings of cow-manure water are given to the plants during the blooming and early fruiting season. The best proof of the benefits resulting from treatment of this kind is found in the splendid crops that follow.

CHLONOSTOMA HISPIDUM makes a charming plant for cool greenhouse decoration. It grows freely and requires no special effort for its successful cultivation. It forms a dense compact bush some 6 inches high, clothed with innumerable starlike whitish blossoms flushed with lavender. Good examples of this pretty plant are now in flower at Kew.

RABY CASTLE, DURHAM.

(Continued from p. 630.)

In a sheltered spot near these houses were beds of tuberous-rooted Begonias, very well managed, the growth stout and close, with plenty of flowers on them. At a short distance westward from this is the conservatory, a good substantial house in which the plants look at home, and seem to say they are satisfied—so different to the many structures one meets with that are put up for little beyond the appearance of the building, regardless of the unfortunate occupants that in them struggle out a lingering existence. A stage runs along the front over the pipes, which answers for low growing plants; the remainder occupy the body of the house, standing on the floor. An unusually fine lot of Oranges and Citrons stand in a row near the back path, with beautiful bushy pyramidal heads; they are from 10 to 12 feet high. With these are Tree Ferns, Palms, Camellias, Azaleas, Fuchsias, and general decorative flowering plants, as their season for blooming comes round are brought in. Fine-leaved subjects of smaller growth are freely used for mixing with the flowering things. There is a very good selection of climbers, which thrive well without doing serious harm to the other occupants, from the sufficiency of light which the house affords. Of these there are trained on the roof Clematis indivisa, Tacsonia insignis, T. Van Volxemi, Tecoma jasminoides, Bignonia species, Fuchsias, Plumbago capensis, Mandevilla suaveolens, which flowers profusely right up to the winter, and Bougainvillea glabra: all these were in excellent condition, although several times during the last severe winter the heat was down to little above freezing. On the eastern end of the house is the finest example of *Datura suaveolens* I have ever met with; it is planted at and covers the end completely, flowering three times a year. When I saw it there were hundreds of its great, sweet-scented, trumpet-shaped blooms open, literally lying in wreaths of an armful together, as much as nine or ten flowers hanging to many of the strongest shoots. This plant can never be seen in such condition unless planted out with plenty of room for its roots, and equally enough head space and light. The house is roomy, 85 feet by 24. Further westward there is a lean-to range, the first of which, 60 feet in length, is filled with Plums and Peaches; the former in front trained on a trellis sufficiently away from the glass to allow the standard Peaches on the back wall to get light; the Plums are Green Gage, Golden Drop, Jefferson, and Victoria, which, with the Peaches, are in good condition. Next is the early Peach-house, 45 feet long; here again the front treers occupy a trellis kept down low enough to let those on the back wall have sufficient light and sun to thrive well. These also are in excellent condition, full of young wood of the right sort; the crop was cleared, but the leaves were yet fresh and free from insects. Amongst other varieties in this house is Dr. Hoag Peach, which Mr. Westcott likes much for its ability to bear packing and carriage well, which is no slight consideration where fruit to supply a large family for a considerable part of the year has to be sent long distances. We now come to a vinery 60 feet long, the earliest house of permanent Vines forced, the first to come in being grown in pots, and which are ripe before the last of the previous year's fruit are over. This house has been planted ten years in an inside border, with plenty of room outside as well. The sorts are Black Hamburg, Muscat of Alexandria, Muscat Hamburg, Madresfield Court, Foster's Seedling, Mrs. Pince, and Golden Queen; when I saw them, the latter end of July, such portion of the crop that still remained was of very good quality. This house, as well as that in which the pot Vines are forced, is started the third week in November; no fermenting material is used on the border, and for the first time last winter the few inches of leaves put on in the autumn to keep out frost, but no more, had no further covering but the snow, of which, as most people are aware, there was no stint in this part of the country. Mr. Westcott showed me the shutters he used to cover his Vine borders with; they were piled up in the soil yard, and enough to load a railway waggon, so sound and in good condition that they are to be converted to another purpose. For the future nothing is to be put on the roots beyond what is useful to keep them from being frozen. To the north of this walled garden there is a block of houses and pits, the first of which is used for bringing on

plants for the conservatory; it was filled with such stock as tuberous Begonias and Fuchsias; on the roof, which they cover, are two of the finest examples of *Lapageria*, red and white, I have seen; they are planted out, and have attained unusual strength and size; they were just beginning to open their flowers, and will keep on giving a supply all through the summer and autumn. Where choice flowers that will last well when cut are wanted, there are few things that can equal these *Lapagerias* when they have got to a size that permits of their producing bloom in quantity. The adjoining house contains a mixed collection of stove plants and Orchids. Here in flower was *Peristeria elata*, unusually strong, bearing several spikes 7 feet high, the strongest of which had on it thirty-eight flowers; two very large examples of *Calanthe masuca* were also in bloom, a condition they are usually, more or less, nearly always in when strong, as they are here; these, and the *Peristeria*, are grown in loam. *Calanthe Veitchii* is well done, and present in quantity, both in pots and baskets. Amongst others in thriving condition were *Anguloa Clowesi*, *Cattleya Warneri*, C. Dowiana, C. Skinneri, C. Warscewiczii, C. Triane, C. Mendelii, C. Mossie, *Cyrtopidium Dominianum* × C. caudatum, *Phalænopsis grandiflora*, P. Schilleriana; *Scaccolabium guttatum*, S. Blumei majus, S. ampullaceum; *Acridis crispum*; *Lælia anceps*, L. anceps alba; *Vanda suavis*, V. tricolor, and *Dendrobium densiflorum*. A large plant of *Monstera deliciosa* was both in bloom and bearing fruit. The adjoining house is occupied by a miscellaneous collection of stove plants, which include a number of fine specimens of such things as *Crotons*, *Dipladenias*, *Anthuriums*, *Ixoras*, *Nepenthes*, with many others, and also a quantity of Orchids that occupy the front stage. One of the two next houses, which, like those already named in this range, are lean-to's, is now filled with a general assortment of winter flowering plants, including the best of such as are annually grown for the purpose. This brings us to the succession Pine-house, containing a quantity of stout young Pines. The kinds grown are *Charlotte Rothschild*, *Queen*, *Smooth* and *Frickly Cayenne*. Then follow two houses for fruiting Pines, in the first of which there was a lot of vigorous plants fruiting in various stages; some of the *Charlotte Rothschilds* would run up to 7 lb. each. Pot Vines are forced here stood on the back wall of the Pine-pit and trained over the back path, the construction of the house being such as to allow of their having plenty of room and light. After these are cleared out, young ones for fruiting the ensuing year that have been started elsewhere are brought in and stay until they are fully ripened up.

In the adjoining house many of the plants were in bloom—strong, stout-leaved examples, calculated to carry big fruit. This is the second lot, not long in here, following those that had been in for the London season, during which fruit and flowers are sent weekly. Here also the pot Vines for next year were stood, as in the preceding house, strong and well done; they are let to carry four or five bunches each, which they are calculated to finish well. Then at a short distance there is another succession Pine-pit, containing a beautiful lot of short-leaved plants. Whether or not this splendid fruit is getting less fashionable than it used to be, and its cultivation reduced or given up in many places, there is no sign of its being discarded at Raby; and, although the fruit of foreign growth are large and handsome to look upon, still those who want perfect Pines to eat will have yet to fall back on home-grown Queens or Black Jamaicas. There are numbers of pits for the propagation and growth of the many thousands of plants that have to be annually raised for various purposes—for French Beans, Cucumbers, Melons, and Strawberries, which latter fruit Mr. Westcott makes a speciality of, following the method of layering the runners in the pots they are to fruit in, not severing them from the old plants until the growing season is quite over.

Standing in an enclosed fruit garden at a short distance are four other vineries, about which there has probably been more said and written than of any others in existence—I allude to the houses which were built expressly with borders wherein to plant the Vines, made of materials such as it was expected would have given unusual results, but which so signally failed as to explode the mistaken idea held by some that because the Vine is a hungry plant it would feed upon and digest any sort of garbage. With this view the soil of which the border was made was mixed with large quantities of animal matter in a crude undecom-

posed state; no half measures were taken, and no expense spared in either the construction of the houses or the preparation of the border; but nevertheless the failure was complete, and after much time had been wasted the border and the vines also were cleared out and a fresh lot planted in more healthy material. The result of which has been the splendid Grapes that Mr. Westcott has for many years now grown in these houses: they are, as I have already said, four in number, each being 40 feet by 17; the borders as remade were all outside the houses, having a deep sunk path all along the front. This Mr. Westcott has filled up with suitable materials, of which the roots have readily taken possession, and the border is now to be increased so as to occupy the full inside space available. Entering at the west end, the first house is principally filled with Black Hamburgs, with a single Vine each of Gros Colmar, Mrs. Pince, Madresfield Court, and Golden Champion; these were carrying a beautiful crop, just beginning to colour. The next is mainly occupied by Lady Downe's and Muscat Hamburg, both of which were bearing an unusually fine crop; the latter variety is set by hand. We now come to a house chiefly of Muscates, with Royal Vineyard, Mrs. Pince, Gros Guillaume, and Golden Champion, represented by a single Vine each. Here also there is an excellent crop coming on. The last of the range contains Lady Downe's, Muscat Hamburg, and one or two Madresfield Court, and, like the preceding, it has a full even crop of handsome bunches, with every appearance of their finishing well.

The garden fronting this range contains a beautiful lot of Apples planted on each side of the walks round, and dividing the quarters; they consist of large bush and small standard shaped trees; when Mr. Westcott took them in hand they were too vigorous to bear, they were freely root-pruned, and their roots are now shortened a little every third year. The kinds which succeed best here are Blenheim Orange, Cockpit, Lord Suffield, Early Harvest, Dumelow's Seedling, and Mank's Codlin—these were bearing fair crops. Returning to the principal walled garden, the decorative portion of which has been already described, there are great numbers of Pears, Apples, and Plums, in good bearing condition kept within suitable limits as to size for a garden in which vegetables have to be grown; they occupy the sides of the walks in the usual way, and are also in rows across the quarters, and considering the season were bearing very well; Ribston Pippin in particular, on trellis, being full of fruit. On the walls there are good crops of Apricots, Pears, and Cherries; Plums thin; Morello Cherries there are by the bush. A long wall is covered with Raby Castle Red Currant, which gives a supply up to Christmas. The gardens inside the walls occupy about 10 acres. In common with other things here vegetable growing on an extensive scale is well done. The whole affords an example of a well-managed, old-fashioned garden, where nothing is attempted that would be incongruous with a fine old historic place such as Raby. T. E.

FLOWERS IN SEASON.

STREPTOCARPUS PAUCIFLORUS.—For greenhouse decoration this species is quite as effective in its way and quite as desirable as the well-known and much commoner blue-flowered *S. Xenii*. It is true the flowers are not so large, but they are freely produced and are very charming in colour—pure white, with a streak of deep purple on each of the three lower divisions, and a central blotch of primrose running into the throat. The foliage and habit resemble those of *S. floribunda*. Now flowering in No. 8 house at Kew.

ERITRICHUM NANUM.—Messrs. Backhouse of York were the first to successfully introduce and cultivate this lovely alpine gem. It is a diminutive member of the Boraginæ family, forming cushions of small hairy leaves thickly studded with flowers whose colour and effect are graphically described in the *Botanical Magazine* as follows:—"In intensity of colour, the blue of *Eritrichum nanum* is equalled only by that of the alpine *Gentians*, whilst it is of a much more azure hue than any of these, approaching most nearly to the deepest blue of the sky, at a point of the heavens opposite the sun's position, as seen on a cloudless day from the elevation the plant itself inhabits." It is a native of the whole range of the

Alps, and grows in stony places, always fed by snow rills, at from 6000—12,000 feet above sea-level. To one of the Kew plants the above description perfectly applies, whilst another (grown, however, more in shade and under somewhat different conditions) has flowers double the ordinary size, and several shades less deep in colour. A constant supply of moisture, thorough drainage, and a cool airy position seem indispensable to the well-being of this charming little plant.

DISCARIA LONGISPIINA.—This shrub is a native of Monte Video, and when grown under favourable conditions, such as those under which it thrives so well at Kew—the dwarf outside wall of one of the plant-houses—it certainly does not merit the remark in the *Treasury of Botany* that all the known species of *Discaria* "are spiny under-shrubs of no beauty." This is "spiny enough, but it produces leaves freely, as well as a profusion of white Lily-of-the-Valley-like flowers. Under less favourable circumstances it flowers sparingly, and leaves are scarcely developed, the green spiny branches, as in many of its relations, performing the functions and taking the place of the true leaves.

ARNEBIA GRIFFITHI.—At Kew a nice plant of this handsome *Boragaceæ* is now in flower. It is a form with shorter stamens than usual; in this plant the "five fingers of the prophet" (the dark blotches of the bright golden-yellow corolla) disappear rapidly. In some examples these only disappear ultimately, whilst in others, so we are informed by Dr. Aitchison, who has often collected the species in Afghanistan, they are quite permanent. A. Griffithi was first discovered by Griffiths at Cabul; it has narrower leaves, deeper yellow flowers, a differently shaped calyx and a longer corolla than A. echinoides.

RHODOENDRON VEITCHIANUM.—A fine plant of this very handsome *Moulmein* species, growing in a pot in one of the plant-houses at Bearwood, Wokingham, is highly spoken of by Mr. Tegg as invaluable for cutting from. The flowers are large, pure white, stained with yellow at the base, and finely crisped in the margins; and the trusses of bloom are found of great service for table decorations. As new forms of the *Rhododendron* are frequently introduced, it is well that older introductions of undoubted merit should not be wholly thrust aside in the attention paid to novelty.

ESCALONIA MACRANTHA.—That this charming and useful shrub is not planted extensively enough few people of experience will doubt. It has the merit of being all but entirely hardy out-of-doors anywhere in England, and given a favourable situation and a good climate to grow in there is no purpose which it will not answer by the exercise of a little skill in training. To begin with, its leaves are of such a deep dark green and of such substance that as a wall creeper the plant has an attractive luxuriance about it different from the majority of most plants used for the same purpose, and of course its beauty is further enhanced when in flower. As a rule, it is far too formally trained, the main shoots only should be fastened to the wall, and if there is a plant of *Clematis montana grandiflora* trained above it, so that the long shoots of the latter, covered with its beautiful white flowers, hang over the Escallonia, the effect is lovely. But the plant may be grown in any form; it makes a fine hedge, and as a "single bush specimen" it is not easily surpassed now that it is in full flower, and the gloss of its healthy leaves is conspicuous beyond everything else around it, not even excepting the beautiful *Weigelia rosea*, the flowers of which are more striking at a distance, but the leaves will not bear comparison with those of the Escallonia. As a cut flower, too, its red tube-shaped flowers are both useful and effective, requiring no further addition than a few of its own leaves to set it off to the best advantage.

GLOXINIA THE CZAR.—This very distinct variety with crimson flowers, now in bloom in Messrs. Veitch's collection at Chelsea, is quite distinct in colour, but more so in the form of the flowers. They are very large, of a purplish-crimson colour shading to purple at the edge. The segments of the petals are slightly fringed at the edges. When a flower of this kind is obtained distinct in colour and in form, and at the same time attractive in appearance, it ought to be used as a pollen-parent to cross other varieties. We require distinctness in form as well as in colour, and new breaks of this kind, even if they do not diverge far from the ordinary type, ought to be carefully watched, and seedlings should be obtained from them in various ways.

GLOXINIAS.

At the present time a very long span-roofed house in Messrs. Veitch's nursery at Chelsea is filled with a collection of the best-named varieties of the *Gloxinia*. It comprises all the varieties introduced during the last few years, and some very fine ones not yet sent out; most of them—indeed, nearly all—are young plants, propagated in the usual way from leaves of the previous season. The plants are placed very near the glass, and are shaded from bright sunshine. This matter of shading is of more importance than some gardeners are inclined to admit. Nearly every plant in existence should have as much light as it is possible to give it, when grown under glass; and the object of shading is to prevent their being injured by the sun, therefore permanent shading, either by painting the glass or nailing canvas on the roof, is to be avoided for *Gloxinias*, as having a tendency to produce long-stemmed, flabby leaves, and long-stemmed flowers, scarcely strong enough to support them in an upright position. This is one of the very best flowers for those who have small houses and limited space, and the effect of an arrangement of the very best varieties amongst the smaller growing Ferns, such as the *Adiantums*, is charming in the extreme.

They are as easily grown, too, as the zonal *Pelargonium*, and are scarcely more subject to insect pests than that easily grown plant. The best compost for them is good fibrous loam and fibrous peat, the loam rather predominating; add to this rotten cow-manure about a fourth part, some broken charcoal, and sharp silver-sand. To obtain a succession of bloom the first tubers ought to be potted about the beginning of January—the last of them in April. As soon as the plants appear above the ground they require liberal supplies of water, plenty of air without being exposed to draughts, and a temperature early in the year of 55° at night, rising 10° higher later in the season. I never syringe them, for even if the water is as pure as it is possible to have it it injures the foliage, and takes the fresh green appearance from it. A rather moist atmosphere is quite necessary to their making good growth, and producing perfectly developed blooms. The varieties that bear the flowers in an erect position are esteemed the most, although there are a few very beautiful varieties with drooping flowers. After carefully looking over the large collection I noted the undermentioned varieties as being the best of them:—

Coronet has very large well-formed flowers, very thickly spotted with purple on a white ground.

Christopher Columbus.—The flowers are large with a very wide throat, spotted freely with reddish-purple.

Bayard.—Very distinct flowers, $\frac{3}{4}$ inches across, each lobe of the petals has a horse-shoe marking on it of a purple colour, the flowers spotted light purple.

Mrs. Peplow has reddish-purple spotting in the throat; lobes of the petals spotted with bright red.

Lady Merritt.—A very distinct and good variety; the margin of the flowers white; the interior spotted red. The above are all of the spotted section.

Roxlane.—Amongst red, crimson, and scarlet forms *Roxlane* holds a high place; it is red with a white margin.

Radiance.—A large splendid crimson-scarlet variety; the best of this colour.

Lady Musgrave has flowers with a deep plush of lake in the throat; lobes of the petals crimson.

Sans Galois.—Throat lake with scarlet lobes, a very fine flowering variety.

Lord Derby.—Amongst the purple and maroon-purple colours this holds a high position. The throat is white; the lobes of the flower rich plum-purple, shading to purple.

James Barber has drooping flowers of a rich maroon-purple.

No Plus Ultra.—Very deep rich purple, shading to a pale purple at the margin; flowers quite $\frac{1}{2}$ inches across.

Lady Brook, purple throat, margin of the flowers white.

Purity is the best of the pure white varieties, the flowers are very large.

The above are the cream of the collection, but *Coupe d'Hébé*, scarlet, with white margin, and *Duchess of Connaught*, drooping flowers, bright scarlet, clear white margin, ought not to be admitted. They are now at their best, and the above with the unnamed seedlings are well worth a visit at the present time. It ought to be known, too, that seedling *Gloxinias* are very easily raised, and flower the same season that the seeds are sown. J. D.

Florists' Flowers.

PERPETUAL FLOWERING CARNATIONS AT MR. HOWARD'S, SOUTHGATE.—Varieties of Carnation with a natural habit of continuing to produce flowering shoots have long been grown by those who esteem flowers possessing the most agreeable perfume, combined with a handsome appearance. Yet their cultivation amongst those who have the charge of private gardens has until recently been confined to few individuals as compared with the many who grow other plants that possess much fewer properties to recommend them. Why it would not be easy to say, for they are not difficult to manage when once their requirements are understood, and fair attention is given them. They are essentially a gardener's flower where a continuous supply all the year round is wanted. In these days of button-hole flowers for both sexes there is one property they possess over almost all others, which is the length of time they will wear without falling to pieces or showing the effects of the knocking about inseparable from being worn in this way, their tough texture and ability to withstand the effects of crushing enabling them to bear usage that will destroy nineteen-twentieths of the flowers that admit of being used in button-holes. The tall spindly stems, with here and there a spare shoot, of which examples of the old varieties were usually composed, was not inappropriately expressed by the name, Tree Carnation, which they bore. But these attenuated forms were as different from the stout, compact habit, vigorous constitution, and profuse disposition to flower, possessed by the modern race of these plants as they well could be. Many years ago, when the growers of perpetual flowering Carnations were much fewer than they now are, Mr. Howard was amongst those who were most successful; now, when cultivating them for sale, his stock may be reckoned by tens of thousands in pots, and planted out in beds in the houses; one house, 16 feet by 32 feet, is wholly filled with them turned out in prepared soil. Amongst these, besides the pick of the older established kinds of home and also of Continental origin, there are a number that he has obtained direct from the most noted of the foreign growers, which, for their general properties, especially in the important matter of a dwarf, vigorous habit, that enables them to produce a greater quantity of flowers, are far in advance of the better-known sorts. Mr. Howard has himself gone largely into the raising of perpetual-flowering Carnations from seed in thousands of his own raising; there are several that make growth as strong and dwarf as the old crimson Clove combined with the requisite properties of form, colour, and a free blooming disposition, which collectively are indispensable to any variety that can be looked upon as an improvement on existing kinds. Not the least remarkable thing in Mr. Howard's seedlings is their extreme hardness; the past winter, although unusually mild, has been enough, coupled with the stagnation in vegetable life that always takes place in winter, to destroy almost everything in the shape of flowers formed in the autumn. Not so these Carnations; quantities of them out-of-doors, and transplanted right in the middle of winter, have been opening their autumn-formed buds from the middle of April all through the present month. As a matter of course, the flowers were small, but the fact of their living and opening at all in the open air is an evidence of their hardy nature.

HERBACEOUS CALCEOLARIAS AT ISLEWORTH.—It is always a pleasure to inspect Mr. James' superb collection of herbaceous Calceolarias from year to year, not only because the plants are always well grown, but because regular annual visits enable us the more thoroughly to test the diverse changes in hues and markings that now and then crop up. It is so very encouraging in relation to these beautiful spring decorative flowers to find them sturdy, robust, full of clean luxuriant leafage, and of erect compact habit, such as renders the support of stakes needless. The trusses are large and massive; in some cases the blooms are so big as to measure over 2 inches across, and yet of good form, for it must be admitted that size and form are now not always allied in the Calceolaria. In colours and

variety of markings there is abundance, self especially being prominent. The palest is a soft white, not pure but very nearly so, and, not of least importance, of stout habit; buff and rosy-white, both exceedingly striking; sulphur-yellows in shades down to orange—this latter a superb flower; buff, chocolate-buff, &c. Then all these hues forming grounds more or less heavily speckled and spotted with chestnut, red, maroon, and crimson, some of the finely-speckled forms being singularly novel and beautiful. A very rich marbled flower has a pale rose ground heavily marked with crimson-maroon. The dark selfs are very striking—one, a rich orange-crimson, glows in the setting sun like fire. Maroons, crimsons, reddish-cerise, and other colours make up the collection. Allied to the size of the flowers and their varied markings quality is kept well in view, and in this respect the flowers show a marked advance. Some plants, the earliest of the one sowing of last July, are 18 inches through, and fine specimens. These are in 24-sized pots. The soil is composed of good, sweet, turf loam in the greater portion, and the rest of well-rotted manure from an old Mushroom bed. The only other stimulant is occasional waterings of animal liquid manure as the plants develop bloom-heads.



The Rosery.

ROSE FORCING AT THE ASCOT NURSERY.—In these times, when nothing less than Roses all the year round will suffice with those who require the best flowers, it may easily be supposed that their cultivation under glass is one of the leading features at Messrs. Standish's. The planted-out system of treatment is here in full swing, carried out somewhat differently than in most places. In each of the long, 20 feet wide span-roofed houses, where they are thus grown, there is a broad centre pit running the whole length, formed in the usual way with brick walls, and filled with soil; in this the Roses are planted on each side, just within the pit walls; the two rows of plants are trained with their heads to meet each other, forming an arch over the pit about three feet under the glass; in this way, as will be easily seen, the greatest amount of leaf surface is equally exposed to the light—the strong growths that are annually produced from the base of the plants when thus bent push out quantities of stout flowering shoots all up their length. The casual observer might not see that much was effected by this form of training, but where the plants are turned out in the soil, and gain, as they do, plenty of strength, yearly renewal with vigorous shoots which the arching over of the heads causes to spring up from the bottom, that in their turn when bent down push up flowering wood from the eyes all their length, produces the maximum quantity of flowers, individually larger in size than to be had where the plants are allowed to stand in their natural erect position. The principle and its results are similar to that under outdoor culture, where the shoots are annually pegged down. The main points in Rose cultivation under glass here are unstinted supply of water to the roots, with rich feeding, and a small admission of air until the flowering season is over, and the little air which is given is admitted at the ridge of the house. Those, in private gardens, who may have to make a beginning at Rose forcing, will do well to note this total exclusion of side air practised by the most successful growers for sale, who well know the certain attacks of mildew which immediately follow its admission. When the season's flowering is over about the end of June, the side lights are removed altogether and a considerable part of the glass from the roof as well, with still an abundance of water. Nothing could be more satisfactory than the condition of these Ascot Roses, with the uniform vigour of the plants and the unusual quantities of full-sized flowers which they produce. Not the least desirable feature in this arch method of training the tops is that it encourages the annual production of big shoots from the bottom of the plants, which permits of all the weaker and superabundant wood being yearly cut away. The propagation and cultivation of pot Roses is carried out here on an extensive scale, especially the best Tea varieties and others suitable for forcing.

FRUIT NOTES.

THE ALEXANDER PEACH.—We are indebted to the kindness of Mr. Rivers for the opportunity of illustrating the Alexander Peach (fig. 109), which seems to be destined to become a very popular sort. Mr. Rivers states that he received it from America some years ago, and experience proves it to be, perhaps, the earliest variety in cultivation. In a cold orchard-house it ripens a week earlier than Early Beatrice, and is double the size of that variety.

A NEW BLACK GRAPE.—Mr. Tegg has this season fruited at Bearwood what he and other competent authorities believe is likely to prove a valuable acquisition to our early Black Grapes. A graft of it was brought from America and worked on to a cut-back cane of Black Hamburgh. It has fruited this season; the bunch partakes somewhat of the character of the Black Hamburgh, the berry is of similar shape, and coloured black with a dense, blue-black bloom, and the flavour is peculiar, partaking somewhat of the flavour of the Melon and Strawberry in combination. At present the branch, which is quite a young one, carries but two bunches; but it is Mr. Tegg's intention to have it more numerously represented next season. He has great hopes of his *triticis*, and hopes to submit it to the Fruit Committee of the Royal Horticultural Society next year.

MELON LOCKINGE CONQUEROR.—This is a new scarlet-fleshed variety, raised by Mr. Joshua Atkins, The Gardens, Lockinge Park, Wantage, and exhibited at the meeting of the Reading Horticultural Society on the 18th inst. It was raised from Hero of Lockinge, white-fleshed, crossed with Hero of Bath, scarlet-fleshed. It is a large-sized, roundish, handsomely shaped fruit, beautifully netted, scarlet-fleshed, and exquisitely flavoured. It promises to be a valuable addition to the scarlet-fleshed class.

FORESTRY.

(Continued from p. 538.)

THINNING.—The subject of thinning, as introduced in the last article, is in the writer's estimation of such immense importance as to justify some further remarks. The Scotch Fir (*Pinus sylvestris*), whether regarded from its importance as a tree, a crop, commercial or industrial product, demands special consideration in regard to thinning. It is generally admitted to be the most extensively planted tree in Great Britain (certainly in Scotland), and is justly esteemed both on account of its commercial and industrial value, and its adaptability to a greater variety of soils, and situations (especially that of the poorer description) than any other forest tree, and from these and corresponding circumstances has arisen the saying, almost amounting to a proverb, "Thriving like a Scotch Fir."

Although this is substantially true, it is not absolutely correct, for there are soils here and there to be found, though comparatively rare, capricious enough to refuse even to grow the proverbially hardy tree. It is, however, on account of the richness and not the poorness of the soil that the tree refuses to grow in it.

Thinning is the lever power in the hands of the forester, of immense importance, power, and command, by which a crop of Scotch Pine may be made profitable or unprofitable, good or bad, according as that power is wielded.

It is still far from being universally known, that although gravely, sandy, and dry soils generally are the best, and most adapted to its growth, yet upon such soils where the best crop should be grown, the very opposite results are brought about through injudicious and inopportune thinning. The writer could point to hundreds, if not thousands of acres of Scots Fir plantations in Scotland where the market value no less than other work has been diminished by from one-third to one-half, and in some cases considerably more, on account of thinning being done at the wrong period of growth. The terms injudicious, improper, inopportune, and such-like, though familiar to the ear, yet convey no distinct idea, nor point out what should, or what should not be done by way of thinning, and therefore it is all the more necessary to make the subject clear, and explicit as far as can be done.

One principal reason why thinning is rendered

such an immense power for good or evil is in consequence of the change of temperature it produces upon the soil. When trees are planted in their young or seedling state, they, like most other things when young, readily adapt themselves to circumstances, such as soil and situation, to which they have been transplanted, and by progressive but imperceptible degrees they grow up, expand, and gradually shade and completely cover the ground till not a ray of the sun directly reaches it. The branches and foliage of a plantation constitute a sort of canopy whereby the surface of the ground is completely shaded from the rays of the sun, and consequently never even during the hottest weather does the ground become heated. That is to say, the ground in a plantation is less heated in hot sunny weather in

little effect upon an extensive country, but when hundreds of square miles are covered from the face of day so that neither light nor heat reaches the soil for ages in succession the results cannot but be immensely great, extending far beyond what even the imagination can conceive of. It is from this cause that springs, streams, and rivers that have flowed uninterruptedly for generations through the shady forests of foreign lands are all on a sudden dried up when the trees are removed, and the inhabitants forced to change their abodes for want of water even to drink.

On the Marquis of Lothian's estate in Roxburghshire an extensive Scots Pine plantation was formed, and as it grew up and shaded the ground a damp part in the plantation gradually became a spring of considerable strength, so much so that a gamekeeper's

thinning) effects the most hurtful must necessarily be the consequence. When a single tree is cut down, the roots of all the other trees around it do to a certainty suffer.

If the trees, when thinned, are young, vigorous, and full of sap, they in a comparatively short time recover their wonted luxuriance and vigour of growth, but if considerably advanced in age the recovery is much more protracted or a fatal result ensues.

An example of the injurious effects of thinning a Scots Fir plantation came under the writer's observation in Morayshire a few years ago. The plantation was between thirty and forty years old, and the soil a dry gravelly one, with a herbage covering of heather. At about twelve years old it had received what appears to have been a fair thinning, rather under

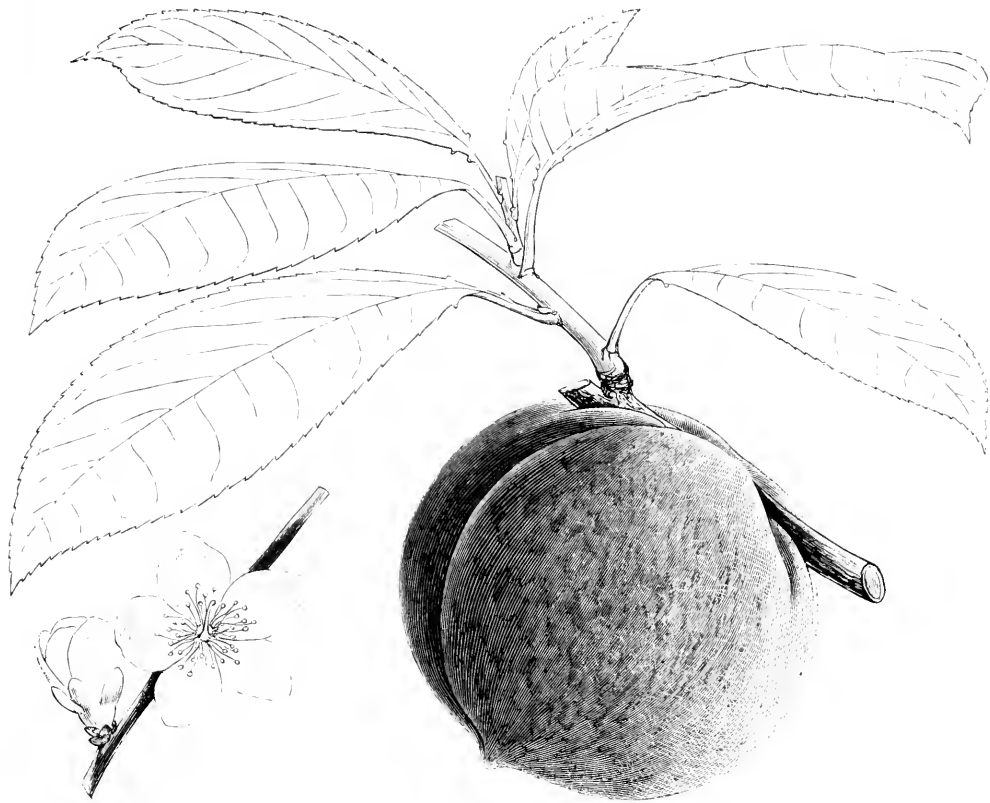


FIG. 109.—THE ALEXANDER PEACH. (SEE P. 704.)

summer than it is, where there are no trees, and in winter it is warmer in the plantation than outside of it. Every person knows that it is cooler and more enjoyable to sit under the shade of a tree, on a hot summer day, than under the direct rays of the sun, and the footsore and weary traveller can cheerfully testify to the relief he experiences and the joy afforded him by the shade of a spreading tree across his path. If any one wishes to experience the great difference between the temperature of the soil on a hot summer day under the shade of a tree, and that beyond it he has only to walk leisurely along and, with his eyes closed, though walking in thick-soled boots, he will at once feel and determine the limits of the shady part. This being clearly revealed, the whole subject is made known and the cause fully explained.

The shading of the rays of the sun from a few acres or even miles of ground may produce comparatively

house was built near by for the sake of the water. By-and-by thinning was done, and afterwards cutting the wood for estate purposes, till the fine old plantation was nearly all cut, during which time the spring was as gradually falling off as during the plantation's growth it was increasing and gathering strength and volume. On the same estate, and distant from the above some 3 miles, was another well, which also increased in strength as the plantation thickened around it, and again decreased as it was thinned and cut down. It is generally, though not universally known, that the roots of trees spread underneath the ground much in the same way as the branches do above it, and it requires no stretch of imagination to conceive how the roots thus formed and developed in the cool shade have thus acquired such a constitution and habit that if changed or altered in any important way (as is done in the act of

than over-done, and probably no other thinning had been done till shortly before the time I saw it. The appearance it presented at the time was that of a very sickly slow-growing plantation; the foliage was short, clustered, and of a pale light colour. The forester in charge became alarmed at the appearance of the trees, thinking they were all about to die, and was not a little cheered when assured that it was the effects of recent thinning, and that if he allowed it to remain undisturbed for a few years it would again recover. The injuries inflicted were through the roots becoming dried up, by reason of the heating of the ground. What I recommended was, in the first place, to cease grazing in the plantation, so as to allow as much herbage to grow up as possible, and also to allow the branches to remain upon the ground, for the purpose of retaining moisture and producing even a little shade. Plantations of this sickly mishinned descrip-

tion are unfortunately too common, and may be met with almost any day, and it is therefore strongly recommended that those whose interest is at stake in such matters should make it known to others as far as they can. *C. J. Michie, Cullen House, Cullen.*

(To be continued.)

Notices of Books.

A Manual of Indian Timbers; an Account of the Structure, Growth, Distribution, and Qualities of Indian Woods. Prepared by J. S. Gamble, M.A., F.L.S., Officiating Conservator of Forests, Bengal. Calcutta: 1881.

In the last Great Exhibition held in Paris in 1878 a very extensive and complete collection of Indian woods was shown, which at the close of the Exhibition was presented by the Indian Forest Department to the Forest School at Nancy; a duplicate set, however, was about the same time presented to the Museum at Kew, where, together with specimens previously contained in the collection, the series of Indian woods is probably unique—specimens of the most valuable or of widely distributed species being shown from the extreme ranges of growth, and it is remarkable to notice that while in some species the woods are very similar from different altitudes or positions, in others they are wonderfully distinct. As an illustration of the work undertaken by the forest officers in preparing these specimens of wood it may be stated that "the number of specimens named, numbered, and described" amounted to 2536, belonging to 606 species and 432 genera.

In Mr. Gamble's very lengthy introduction he says—"In order to explain more definitely the sources from which the original Paris Exhibition woods were obtained the following extract from Dr. Brandis' introduction to the catalogue of specimens of forest produce sent to that exhibition will be worth quoting." From this it seems that the orders for the preparation of the collection were received in August, 1877, "and as it was necessary to despatch it early in February, 1878, so as to be in time for the exhibition barely six months were available to bring together specimens from all parts of India, and to prepare and name them." This work of supervising the preparation of the specimens was undertaken by Dr. Brandis, and Mr. J. S. Gamble. A workshop was forthwith established in Simla, and a large number of pieces were collected from the hills in the vicinity of that place; the work was afterwards transferred to Calcutta.

The arrangement of the *Manual* is somewhat after the plan of Brandis' *Forest Flora*, but in place of the botanical description of the plant, as given by Brandis, a minute description of the wood is here recorded. Opening the book haphazard, we alight, for instance, at *Æsculus* in the order Sapindaceæ. First, we are told that the genus contains two Indian species, and thus the European Horse Chestnut is *Æ. hippocastanum*; then follows a kind of generic description of the wood, which tells of its colour, density, character of rings, pores, and medullary rays. Then under *Æ. indica*, *Colebr.*, we find references to Hook, *Fl. Ind.* and Brandis; then the English, *Trans-Indus*, Kashmir and Hindustani names; and following this we read "a large deciduous tree, bark grey, with long horizontal cracks, exfoliating in long flakes, wood white, with a pinkish tinge, soft, close-grained. Annual rings marked by a line, and sometimes by fewer pores in the autumn wood. Pores very small, medullary rays very fine, very numerous."

The distribution of the species is stated as North-west Himalaya, between 4000 and 10,000 feet, from the Indus to Nepal. The weight per cubic foot is next stated, and the various uses to which the wood is put, as well as other uses enumerated, for which the tree is valued. The numbers by which the specimens in the collections can be identified, and the place of collection completes the information given with each species.

The extracts here given are fair samples of what the book is composed of. In some large genera, however, as in the case of the Maples, a comparison of the species is made by the leaves, prefaced by a note that "the species may thus be distinguished by characters taken almost exclusively from the leaves." The arrangement of the natural orders is on the plan of the *General Plantarum*—so far indeed as that work had proceeded at the time the *Manual* was written.

This book, we have no doubt, will be very valuable

to young foresters on account of the careful description of the woods of the several species; we cannot but think, however, that some of these are unnecessarily lengthened, and consequently are calculated to increase the difficulties of many students. The work carried out by Mr. Gamble and those associated with him has no doubt been a task of some difficulty; but when so much time and attention had been bestowed upon a volume, it seems strange that the *addenda* and *corrigenda* should extend to thirty pages.

The books are furnished with a set of good indices—always points of very great importance in books of reference. Thus we have first an index to European names; secondly, of vernacular names; thirdly, to numbers of wood specimens; and finally, a good one to scientific names.

Orchid Notes and Cleanings.

CYPRIPEDIUM MASTERSIANUM, in flower at the present time in Messrs. Veitch's nursery, is a very distinct species. The flowers are of a very stout substance; the dorsal sepal greenish, with creamy margin, the lateral sepals of a cinnamon tint, with a brownish lip.

PHALANOPSIS SUMATRANA, of which there are several forms in flower in the same house, is a very distinct and remarkable species, with cream or pale yellow sepals and petals, spotted and marked with cinnamon. The lip is very pretty, owing to its slightly hairy violet-purple crest.

MESSRS. VEITCH'S ORCHIDS.—In the Cattleya-house there are some very fine forms of *Cattleya Warneri* in flower, and a really splendid form of *C. Mossie*. The original Syon House form of *C. Mossie*, from the late Mr. Sigismund Kucker's collection, is also in flower. The flowers are of a uniform pinky-white, and a remarkable characteristic of it is the want of any lip, its place being supplied with a large white petal. It always flowers in that way at Chelsea. In the cool Orchid-houses in this nursery are some very fine forms of *Odontoglossum Prescottii*. The finest varieties of this are not surpassed by *O. crispum* when at its best. The importation in which the finely spotted variety *Veitchii* was found has produced many fine varieties. *Masdevallia ignea* is also remarkably fine as a species, and the varieties of it are very numerous, some of them being very bright, others pale, and of a decided yellowish tinge. The best forms of *M. Harryana* are not equalled by any other species yet discovered, it is so free in growth and in flower. *J. D.*

BLUE-BOTTLE FLIES AND ORCHID FLOWERS.—Having noticed the spurs of the *Angraecum falcatum* eaten off, and also the bloom occasionally, I by chance found out the reason. When in our East Indian diet last Friday evening I saw a common blue-bottle fly on the spur. I watched him narrowly, and saw the whole operation—eating the tissue away, and extracting the honey. This may prove useful to growers who have lost their blooms, for doubtless the flies are the enemies in summer to the small blooms when we debit the beetles, &c., with the damage. These flies, when seen, should be killed in the houses, if possible, by honey-traps, &c. *D. B. Crawshaw, Sevenoaks.*

DENDROBIUM PULCHELLUM.—In the Orchid collection at Kew this pretty *Dendrobie* is now flowering freely. It is a charming little plant with short leafy slender pseudobulbs and delicately coloured flowers, the sepals and petals being a deep blush, and the beautifully fringed, shell-shaped lip deep orange-yellow, margined with blush. After the growth is made, and the flower-buds formed in this species, water must be withheld or the flowers are not developed.

FENNEL BY THE WAYSIDE.—This useful herb, which is by no means plentiful in many cultivated gardens, is found abundantly by the wayside in Devonshire, where it luxuriates without molestation by the sides of the commonest thoroughfares. Between Stavros and the village of Powderham it is growing in clumps and masses not more than a quarter of a mile from the railway station of the former place, which is frequented by large numbers of people every day in the year. That so useful a herb should be found plentiful in a place so public seems—to say the least of it—strange. The inference is, that the inhabitants of the neighbourhood do not use much molasses in the season; or, if they do, they are not as fond of the sauce as people living in a cooler atmosphere. Tansy is also to be found growing upon the cliffs near Dawlish.

The Kitchen Garden.

ALTHOUGH the temperatures which have been registered on several mornings were alarmingly near the freezing point, a circumstance which caused gardeners considerable anxiety at night as to the safety of their Potatoes, French Beans, and Runners, no injury has, as yet, been experienced in the direction apprehended. If Winter Greens are not already pulled up, the soil shaken off their roots and removed to the refuse heap, no time should now be lost in doing so, and in getting the ground manured and dug, so as to be in readiness for other crops, such, for instance, as Peas (of which a good sowing of the *Victoria Marrow* and British Queen type should be made forthwith), Broad Beans, Spinach, &c.

TRANSPLANTING ROOTS.—Advantage should be taken of showery weather to proceed with the thinning and transplanting of Onions, Beetroot, and Parsley—an operation that should always, when an opportunity is given for its being done, be carried out during showery weather, because then the young plants not only draw and transplant better and with more expedition, but are obviously less subject to check than if performed when the ground and atmosphere are dry, indeed such work should not under such a condition be proceeded with. The *modus operandi* adopted by ourselves, and perhaps by many others, in the thinning and transplanting of the above roots is a simple one; but nevertheless it is a mode of procedure that is not so well known, and consequently not so frequently practised as the advantages under certain conditions to be derived by its adoption entitles it to be, and is as follows:—

ONIONS.—AS soon as the young plants are large enough to handle, and the nature of the weather permits of its being done, they are thinned to 3 or 4 inches apart in the row, and the blanks, if any, are filled up as the thinning is proceeded with, taking care in planting that the holes are made deep enough, that the fibrous roots may not get bent in the transplanting process, and that the bulbs are not buried deeper in the soil than they had been before. I am aware that most growers allow a greater space between the individual Onions than we do, with the obvious intention of obtaining larger bulbs; however, for all ordinary purposes, 3 or 4 inches between each bulb in the row will be amply sufficient, and it is perfectly astonishing the size to which Onions, pushing each other out of the way as they grow into the 12-inch space between the rows, will attain. Moreover, I find that medium-sized Onions keep better, and are more economical than larger ones. In thinning the crop we leave half-a-dozen of the outside rows to be thinned as required for immediate use.

BEETROOT.—Half our crop is some seasons obtained from transplanted plants, which in every particular are as good and as well grown as those not so treated. The one essential point, assuming that the ground is of the right description and has been properly prepared for the young roots, as in the case of seed, is to make the holes deep enough for the young roots to be transplanted in their entirety, and about the same depth in the soil as they were before, without being curved in the process of transplanting, as in that case deformity of root will be the result. The advantage above referred to consists in this—that the treatment of the roots is accommodated to existing circumstances, which will admit, say, of ten rows being sown at the proper time; the whole space which it was intended to crop with Beet being then, and for a month or six weeks afterwards, occupied with other crops. Thus subsequently, when the ground is ready, and from the same sowing, we transplant fifty rows without in any way detracting from the value of the crop. The same course, if rendered necessary through the force of circumstances, might also be applied with equal advantage to Onions, always providing that the transplanting process is carried out with care and at the proper time, when the bulbs and roots are quite young and the ground moist, and that the plants are subsequently attended to with water at the roots until they have well taken hold of the soil. Parsley, too, through some cause or other, is not so generally transplanted as it deserves to be; not but it will, like the Onions

and Beet, do equally well if the necessary number of rows is sown at one time, but as a matter of economy—a fact not to be lost sight of in horticultural pursuits—a small patch of seed could be sown about the first week in March, and two months later the requisite number of rows transplanted therefrom, which plants will grow freely, and exhibit as little tendency to run to seed as those sown and afterwards thinned out to the proper distance in the rows—6 or 7 inches from plant to plant.

LEEKS.—This in some places is an important crop, and in many gardens it might be rendered so by giving it more attention, and consequently better cultivation than it generally receives, and which its merits as a culinary root unquestionably entitle it to. There are various modes of transplanting the Leek: the following is the one practised by ourselves, and which we have found answer very well indeed, viz.: in an open-well manured, and deeply-dug piece of ground, drills are drawn similar to those made, for Peas, about 16 or 18 inches apart, and in these, holes of 2 or 3 inches in diameter are made, 9 or 10 inches asunder in the rows; in these the plants are placed upright, and at the time of planting sufficient earth is allowed to fall into the holes to cover the roots, and subsequently the soil is gradually washed into the holes by the rain and by frequently Dutch hoeing between the rows, care being taken not to bury the hearts of the plants in doing so until the holes are filled. When the Leeks are planted water should be given them, and occasionally afterwards until the plants have taken hold of the soil, after which they might, with considerable advantage to the plants, have an occasional application of liquid-manure at the roots. Thus grown, large and well blanched stems are obtained. We have also grown the Leek satisfactorily in trenches prepared similarly to Celery trenches, and the soil drawn to the plants as they increase in growth and until the trenches are made level with the rest of the ground.

Make a sowing of Rosette Colewort for winter use, and as soon as Celery plants from the second sowing become fit for planting out let them be transferred to the trenches prepared as recommended in a former Calendar, and planted in the way there described. *H. W. Ward, Longford Castle Gardens, Wilts.*

NOTES ON VEGETABLES.

KIDNEY BEANS.—Of these there are a great number of varieties, but among them all there are none equal to the Scarlet Runner, and the best form of these is Carter's Champion, which has broad long pods that are very tender, and of a delicious flavour when cooked. London market gardeners and others grow Scarlet Runners in rows about a yard apart, without sticks; but, really as they bear when so treated, they afford the best results when allowed to climb in their own natural way up stakes, which should not be less than 6 feet high; and if the bines are stopped once they branch out and produce a great number of blossoms. To get these to set freely it is necessary that the ground be prepared before sowing by being trenched or dug very deep, so that the roots may be enabled to get well down; and if the rows are then mulched by laying a good dressing of half-rotten manure along their sides, the plants will bear prodigious crops. To enable them to swell their pods without check or suffering they should be heavily watered at least once a week during hot dry weather, and if they can have a soaking of sewage occasionally all the better, as that will be a great help by the stimulating effect it will have. The most economical way of growing Scarlet Runners, so far as land is concerned, is to have the rows wide apart, and plant Celery between, by doing which both are benefited, as the Beans are fully exposed to light and air, and under such influence they are very fruitful, and bear from base to summit. Thick sowing should be avoided, as the plants only choke each other, and there is nothing gained by having them nearer than 6 inches, which is quite near enough, and in rich ground they may with advantage be planted even farther apart than that. A sowing made any time from now up to the middle of June will come on and continue in good bearing till destroyed by the frost. Although the dwarf French Beans are not so tender and delicious as the Scarlet Runner, they are preferred by some; and if any are grown choice should be made of the Canadian Wonder, which bears pods from 6 to 9 inches long, and is a very free and con-

tinuous cropper. As this sort is a strong-habited kind it is necessary to have the rows a yard apart, and to plant the Beans 6 inches asunder; and when they are up it is quite worth while to give them a few brushy sticks for support; as, being tall, and having a good deal of leaf, they are apt to get blown down by the wind. The Long-podded Negro is also a good Bean, and so is Carter's Long Sword; but for quality neither are equal to the Canadian, which is the finest among the French sorts. Like the Scarlet Runners, these all require deep rich soil and a warm sunny position, and unless so favoured they seldom do well. *J. S.*

SUTTON'S LATE QUEEN BROCCOLI.—Since the beginning of April until now we have been cutting beautiful heads of this fine Broccoli. The seed is generally sown about this time, and it never fails to flower at the proper time. In this respect, and also in retaining its original type of character, it differs from most other kinds; of almost all Broccoli we have had several "strains," but this has always been good and true. Probably this may be accounted for by Messrs. Sutton always keeping the true stock in their own hands; and it is well worth taking care of in this way, as it has no equal among late spring Broccoli. The plants grow very compactly, and may be planted 18 inches apart each way. We have never seen one of them killed by a severe winter, or fail to head through any cause. It should be largely and universally grown. We would as soon think of being without Peas and Potatoes in our garden as this Broccoli. *J. Muir.*



Plants and their Culture.

NEW PLANTS AND NOVELTIES.—At this season of the year many of these (especially among stove and greenhouse plants) are distributed by the trade growers. These being purchased at an enhanced price to that charged for older kinds, it is incumbent on those who have charge of the same afterwards to pay every attention to the well-being of these subjects. They should have the best position that can be given them, but care should be taken not to over-protect, especially at the outset. Many a fine new plant falls into bad repute early in its career through not receiving the attention it deserves. Instances are also often seen where under good cultivation many new and choice plants have greatly improved in character. It should also be borne in mind by the purchaser that new plants are (or ought to be) shown in their best possible condition by those who hold the stock of any given kind. The finer the novelty the more severe will the stock have been propagated; those, therefore, who buy the same must in many cases exercise great patience before these young plants will equal either in the quality, foliage, or flower, that of the parent stock as seen when first exhibited before the public.

STOVE PLANTS.—These, where growing under conditions congenial to their healthy development, will soon be getting somewhat crowded. Some of the hardiest can now be safely removed to a cooler house with a night temperature 7° or 8° less than that accorded to the general stock. Of these, several of the *Falsus* will be found to do equally as well (not, however, *Verschaffeltias* or *Phenacophorium*). For want of a better place part of the stock of *Eucharis* may be shifted into the vineries, where those Ferns that love a dry atmosphere may also be grown during the summer, such as *Gymnogrammas* and *Nothochlidenas*. *Anthuriums* likewise that are grown for the beauty of their flowering spathes will last in perfection much longer in a temperate house when these are perfectly developed. The stock of winter flowering plants should now have every attention given them; young stuff already struck should be potted on as they require it, performing this operation before the same have become starved in cutting pots. More cuttings should also be inserted, especially of such as *Euphorbia jacquiniflora*, *Centropogon Lucayanus*, *Hegonia insignis*, *Eranthemum*, *Plumbago rosea*, and *Scutellarias*, also *Thyrsacanthus rutlandii*. The general stock of *Poinsettias* should also be started soon and a few

cuttings struck at intervals between this and August next. Seedling stuff of *Aphelandras* of the dwarf section should also receive attention, these will make better plants than cuttings. *Gesnerias* may be potted singly or three in a pot as soon as they are in fair growth.

FERNS.—Plants of *Adiantum cuneatum* that are well clothed in foliage should have abundance of water; occasional doses of weak guano-water will be found beneficial. Large specimens of Tree Ferns that are carrying large heads of fronds should have liberal supplies, in fact they may be watered *ad libitum*. Nothing is more grievous than to see their fine fronds disfigured through drought. Thrips will also attack some kinds if the syringe is not kept at work. We make it a practice to keep *Gleichenia flabellata* syringed also, belonging as this does to the *Mertensia* group, which require more moisture overhead than is accorded to the true *Gleichenias*. *G. dichotoma* will also thrive amazingly in a damp atmosphere that would be prejudicial to such as *G. Mendelii* and those nearly related to it. See also that *Pteris scaberula*, *Hypolepis distans*, and the *Cheilanthes* have free supplies of water; all these beautiful Ferns will be disfigured for the season if allowed to suffer even for a short time. Any stock of seedling Ferns in small pots should have a shift into a size larger unless they are intended for special purposes in the smaller size.

GREENHOUSE.—The latest *Spiraea* (*Hoteia japonica*) will open their flowers of a purer white if they are now brought under cover. The Paris *Daisies* (*Chrysanthemum frutescens* and the variety *Etiole d'Or*, and others) make most useful decorative plants, and will be found valuable, if worked as a succession for the conservatory to follow *Pelargoniums* and *Fuchsias*. It would be advisable to give the benefit of a shift to any that are become pot-bound, and feed those liberally that are not potted. The winter stock of *Chrysanthemums* should receive their final shift as soon as possible; if allowed to become starved they would soon lose their bottom leaves, which ought to be kept in perfect health as long as can be. When potted, stand them in a nice open position, and far enough apart for abundance of air to circulate amongst them; also see that the sticks are in advance of the growth of all grown on single stems. *Salvias* also that are grown for autumn and winter display must receive attention; do not let them become drawn, an occasional pinching will prevent this in a measure. Later on they may be turned out of pots, if it is necessary to economise labour, otherwise it is hardly advisable. Keep watch also on the stock of *Bourvardias*, *Tree Carnations*, &c., for next winter's bloom; should any aphid attack them, check the same at once. Pay close attention to the watering of all Cape and New Holland plants now in flower and advancing towards that stage; do not allow any to suffer for want of water, or the flowering period will be shortened or crippled, and weakly flowers will be the result. *James Hutton, Gunnersbury House, W., May 25.*

Peaches and Nectarines.

EARLY HOUSES, if treated according to the directions given, will now be opening their fruit, and should still have a very free circulation of air. With the splendid sunny weather we have had of late, fire-heat in the daytime may be dispensed with, only using a little at night, and on dull, cold days, to allow for a nice circulation of air. Look the fruit over on alternate days, and gather most carefully all that are ripe enough, never letting them get dead ripe on the trees; by so doing, many fruit are often spoiled by falling off. When gathered, I always place them in a cool fruit-room on two or three layers of cotton wadding covered with paper. If very carefully handled they will keep in good condition a week or ten days; I have kept them a fortnight. The fruit in the second house will now require exposing to all the sun and light possible by means already given for early house. Give copious waterings of tepid manure-water as the trees require it. Thud and succession-houses will now be stoning, and the principal work in them and late houses for the present will be thinning fruit, tying in young shoots, stopping any strong gross ones that are taking the lead. Syringe the trees very freely twice daily, and keep the roots well supplied with water—tepid for succession-houses, and cold for late ones. *J. Walls, Kew Gardens.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, May 29 { Great Show at Manchester continued (see 6945).
WEDNESDAY, May 31 — Flower Show at Kingston-on-Thames.
THURSDAY, June 1 — London Society meets at 5 P. M.

SUCH rapid progress has been made with the new ROCKWORK AT KEW that it is already partly planted. We have previously alluded to its general character and disposition. The lofty banks and mounds which encompass it are now planted with low masses of *Rhododendron ponticum*, with *Box*, or with, here and there, groups of effective plants like *Lawson's Cypress*. We are glad to see that the common mistake of planting shrubs that either are or soon will be too large for their position has been avoided, and that the dwarfing of the rockery so produced will be avoided. So steadily has this been kept in view that there are spots where even taller shrubs of more pyramidal habit might with advantage be employed—as, for instance, on one mound, where, from a certain position, the towering shaft of a Lombardy Poplar rises to so great a height directly over the rockery (although in truth at some distance from it), as to need the intervention of a shrub of similar habit and smaller height to prevent the abrupt appearance consequent upon the eye passing directly from the rockery to the Poplar.

The rockery itself is partly composed of stones suitably arranged with less ugly formality than is sometimes seen, and, if we may be pardoned the hibernicism, of roots and old tree stumps. As things are at present we pass from rocks to roots, and then again to rocks. It would, we think, have been a preferable arrangement to have had all the roots on the eastern side, all the rocks on the western side of the ravine, and thus have produced two well contrasted effects: the intermixture is not satisfactory to the eye. As far as mere picturesqueness goes, the roots have greatly the advantage, but they harbour woodlice and slugs, and are not so well adapted for the growth of dwarf alpine plants as the pockets between the masses of stone. Nevertheless, the roots are admirable for allowing the growth of trailing plants, such as the *Ivies*, the more interesting and ornamental of which might be introduced with great advantage; the trailing *Roses*, the *Vines*, the *Clematis*, the *Brambles*, the *Smilax*, and the very numerous trailing plants never seen to advantage when tied to a stake. In suitable places *Yuccas*, the species of *Cytisus*, the *Cistuses*, the more remarkable of the dwarf *Conifers*, and other effective plants might be employed, always taking care to select such shrubs as will not by their rapid, vigorous growth run away with the rockery, so to speak.

We presume the planting at present is to a large extent merely provisional and temporary—done to secure immediate effect. As the works proceed time will be afforded for the consideration and selection of the most appropriate plants and their disposition in the most suitable places. A grand opportunity is afforded for combining such pictorial dispositions as shall please the eye and satisfy the tax-payer, and, at the same time, fulfil the educational and instructional requirements for which mainly Kew exists. For instance, without any detriment to pictorial effect, it would be possible to have a bay or a mound, or both, devoted to the illustration of the flora of Japan, as represented by such plants as are suitable for cultivation in the rock garden. In another place the North American flora might be represented, elsewhere that of Chili or New Zealand, and so forth.

At present but little attempt is made at the botanical grouping of the plants, and this indeed is difficult to carry out strictly either in conformity with the requirements of the plants themselves, or with their pictorial effect. Nevertheless, wherever it can be done, it would be most

advantageous to do so. To get together in this way the *Primulas*, the *Androsaces*, the *Saxifrages*, the *Heaths*, the hardy terrestrial *Orchids*, the *Gentians*, the *Sedums*, the *Sempervivums*, the *Dianthus*, would not only be feasible, but most valuable for purposes of comparison; while, with a little management, these arrangements for the convenience of students might be so contrived as not to interfere with the general effect of the whole. A little bit of old wall, from whose crannies a few *Pinks* are just struggling, is, though small and only just completed, a most promising bit of garden effect; and even in its present inchoate state is so pleasing, that we only regret there is not more of it. Its lines of dip suggest the possibility of a geological section with its varied strata, its "faults," its conformable and unconformable beds, and so on. It may not perhaps be wise or appropriate to attempt so much, but it would be quite appropriate to have a group here of sand-loving plants, there of limestone plants, and so on. Bog plants, we presume, from the indications already visible, will be provided for, at least on a restricted scale.

Horticulturists and botanists interested in this matter may well congratulate themselves on the great effect produced with so small a grant, and on the rapid progress that has been made. From this point of view the acquisition of the late Mr. JOAD'S collection is most fortunate. The contrast between the formal oblong flat beds of the herbaceous ground is already delightful, and for our own parts we believe that the rock garden can be made quite subservient to the interests of science as well as allow of the cultivation of many plants that cannot be grown on the flat. Suitable niches can be found on the rockery for many plants that perish on the flat from want of shelter or other cause. The contrast with the ordinary herbaceous border, too, with its flat surface and long lines of perennials, tall at the back and dwarf in front, is most pleasing, although, of course, we cannot dispense entirely either with the borders or the beds.

A rock garden of this magnitude entails its own peculiar difficulties. It needs to be overlooked and placed under the charge of a man who is not only a gardener in the technical sense, but a botanist in his knowledge and love of plants. A keen eye to appreciate the requirements of different plants, great patience in trying experiments, unwearied diligence in seeing that the appropriate cultural requirements of different plants are intelligently provided for, and ceaseless anxiety as to correct nomenclature—these are among the essential qualifications for whomsoever has the charge of this department; and in proportion as they are possessed will be the utility of this the newest addition to the ever increasing resources of our great national establishment. A good catalogue, with synonyms and indications of the native country of the plants, should also be prepared later on.

— MR. THOMAS MOORE. — The presentation of a substantial pecuniary gift and a piece of plate to this gentleman took place at a dinner at the Cannon Street Hotel on Tuesday last. The proceedings were of a very satisfactory character, as it was universally felt that Mr. MOORE'S long and disinterested services to horticulture, and his unwearied diligence in promoting the welfare of his brethren, and of horticultural affairs generally, entitled him to the gratitude of the profession. Upon his services to botanical and horticultural literature, his unrivalled knowledge of plants, his impartial judgments as a censor, his special acquirements as an historian of Ferns, it is unnecessary for us to dilate; while it would, under the circumstances, be out of place for us in these columns, wherein for so many years he acted as a loyal colleague and a trusted friend, to do more than mention the many personal qualities, which, moreover, were universally recognised on the occasion in question.

— THE QUEEN IN THE HIGHLANDS. — The room in which HER MAJESTY breakfasted at Perth last week was beautifully decorated with flowers, which included some handsome *Orchids* from Dr. PATERSON, Bridge of Allan, and Mr. JAMES ANDERSON, Meadowbank; *Roses* and *Lilies* of the Valley from Scone Palace, and cut *Roses* from Messrs. JAMES COCKER & SON, Aberdeen. On resuming the journey HER MAJESTY took away with her a basket of *Orchid* blooms sent by Dr. PATERSON.

— CLERODENDRON FALLAX IN SMALL POTS. — There are few plants cultivated in the plant-stove deserving of more attention for ordinary purposes of furnishing, or that impart a brighter tone to an arrangement, even if it is for no higher purpose than the embellishment of the structure named, than the plant above mentioned. Both it and its congener, *C. fragrans*, are very successfully grown by Mr. POPE, gardener at Holmewood, Tunbridge Wells, who grows them from cuttings every spring for autumn decoration. With a little nursing, showy little plants are grown in a few months which will hold their own in point of effect with anything else in cultivation.

— DARWIN MEMORIAL. — Though the works of CHARLES DARWIN are his best and most enduring memorial, it is felt by his many friends and admirers that these should not be the only one. They are desirous of handing down to posterity the likeness of a man who has done so much for the advancement of natural knowledge. They wish also to establish a fund associated with his name, the proceeds of which will be devoted to the furtherance of biological science. A committee has accordingly been formed with a view of raising funds for the above purposes. The hon. secretaries are T. G. BONNEY and P. EDWARD DOVE, Royal Society, Burlington House.

— SINGLE DAHLIAS AMONG RHODODENDRONS. — If people only made the best use of one half of the plants at their disposal much more enjoyment would be derived from gardens of all sizes. Dahlias are planted in single file in narrow borders or wide ones—it matters not which—like as many volunteers at drill, and after the first hurricane that blows in the autumn the disabled plants look in a sorry plight for the rest of the season. Not so, however, if they are planted among *Rhododendrons*, which afford them the necessary protection and shelter. We plant where things ought not to be planted, and we do not plant where things ought to be planted. The effect, too, is something to look at. *Rhododendrons* out of flower are somewhat formal subjects, but with single scarlet, crimson, yellow, and white Dahlias peeping up above them one never tires of looking at them from a distance.

— BEDDING OUT. — An arrangement noticed in Hyde Park last autumn, when the great masses of bedding plants looked practically over for the season, was composed of *Gazania splendens* and *Iresine brilliantissima*, edged with *Alternanthera amœna* and *latifolia* and *Echeveria secunda glauca*. The *Gazania* and *Iresine* have a peculiar shade in the sunlight, and altogether their appearance in an exposed situation would indicate that they are good rough-weather plants for the neighbourhood of the metropolis or elsewhere. Another very good example of muddy fledge bed was composed of *Abutilon Thomsoni*, mixed with green-leaved *Cannas* and *Abutilon* *Boule de Neige*, *Fuchsias*, *Ficus elastica*, and finished off with *Draœenas*, *Centaureas*, *Alternanthera major*, and *Mesembryanthemum cordifolium variegatum*. These are plants which most people possess, and as they are free growers, showy, and last well, the hint may be useful at the present season.

— SCHOOL OF FOMOLOGY AND HORTICULTURE IN FLORENCE. — A school for the instruction of pupils in the theory and practice of all matters relating to the cultivation of fruits and plants in general is about to be established at Florence. Appropriate lecture-rooms and experimental gardens will be provided by the municipality of Florence, and the funds will be provided by that body, the Provincial Council, and the Ministry of Agriculture.

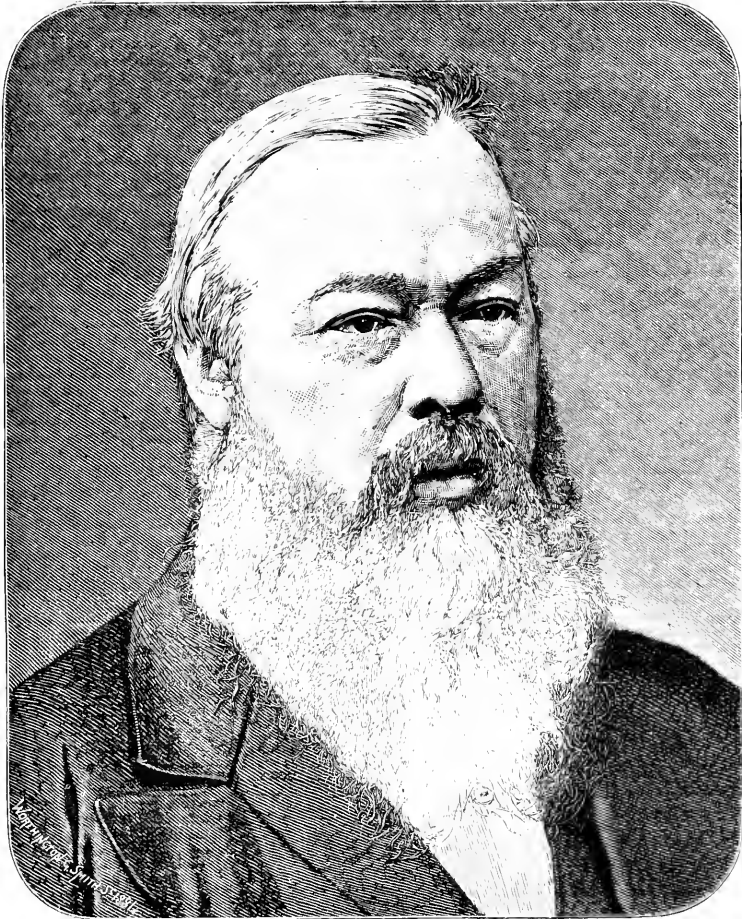
— RELATED DEVELOPMENT IN INSECTS. — Mr. C. V. KILBEY publishes, in the *Proceedings of the*

American Association for the Advancement of Science, a record of several cases of retarded development in insects, arising from a dormant condition during summer of a given brood of caterpillars, the protracted duration of the pupa stage, or the deferred hatching of eggs. Of the latter Mr. RILEY mentions that some eggs of the Rocky Mountains locust (*Caloptenus spretus*), which in the year 1876 were accidentally buried some 10 inches below the surface, hatched in the spring of 1881, when the mould and *debris* by which they had been covered was removed.

snakes; and that no known poison but the Yew produces the "lazar-like" ulcerations on the body upon which SHAKSPEARE lays such stress. Mr. ELLACOMBE, in his *Plant Lore of Shakspeare*, inclines to the view that "Hebenon" is a general term for any strong poison, and we do not suppose the poet troubled himself much about toxicological or botanic detail.

— ISORALEA PINNATA.—Considerable numbers of this old but seldom seen evergreen shrub are grown at

mental tree than the common white Thorn at this season of the year. It would perhaps be difficult to name a spot where the single white form of *Cratægus oxyantha* can be seen to greater advantage just now than in the fine park at Ashton Court, near Bristol. Here there are many fine specimens: some are supposed to be two hundred years of age; they have grown into fine trees, and are literally sheeted with blossoms, consequently they are conspicuous objects at a great distance. What a delicious perfume is exhaled by the scented blossoms. If any one passes



THOMAS MOORE.

— THE HEBENON.—From the *Athenæum* we take the following note of a communication to the Shakspeare Society by Mr. HARRISON, relating to the plant that produces the "juice of cursed Hebenon." Premising that the poison intended must be the same as MARLOWE'S "juice of Hebon," he pointed out that the Yew tree is called Hebon by SPENCER and other writers of SHAKSPEARE'S age; that in its various forms of ebon, eiben, tilben, &c., this tree is so named in no less than five different European languages. He showed by citations from medical authorities that the juice of the Yew is a rapidly fatal poison, that the symptoms in Yew poisoning correspond in a very remarkable manner with those which follow the bites of poisonous

the Ascot Nursery. Its foliage somewhat resembles that of the pinnate-leaved *Boronia*, *B. pinnata*, but the plant attains a much greater size and strength in the thickness of its branches. The flowers are pea-shaped and produced in tufts of from two to half a dozen, on short stalks from the axils of the leaves. The colour is a pale soft blue or lilac, a colour, by-the-way, anything but plentiful amongst greenhouse plants. It usually blooms in the spring, from March to May. It comes from the Cape, consequently requires ordinary greenhouse treatment, and blooms freely in a very small state.

— THORNS IN THE LANDSCAPE.—It would be difficult to name a more charming or highly orna-

to leeward of a tree the rich scent of the Hawthorn is felt to be powerfully present in the atmosphere. GILPIN, who looked upon Nature merely with the eye of a painter, declares the Hawthorn to be anything but a picturesque tree, but his opinion will not be generally shared. It is generally found in parks as isolated specimens, though sometimes in harmonious groups, and in contrast with surrounding trees it appears to possess a marked individuality of its own. At Mr. JOHN WALTER'S splendid seat at Bearwood the common Thorns are now objects of great beauty, and the single crimson Thorn is conspicuously attractive. How finely it is flowering this season at Bearwood, and generally elsewhere. To our mind the double varieties are decidedly in-

ferior to it as decorative trees, and were the single crimson variety introduced now for the first time it would create quite a *furore* in the horticultural world. In the foreground gardens of many of the large villa residences on Clifton Downs the double pink Thorn is flowering grandly, and the position suits it well; but it is an accommodating plant, and if in agreeable soil does well, and invariably blooms freely. PAUL's double crimson Thorn makes a superb tree as a standard, and in point of colour is an exact reproduction of the single pink in a double form. On the terrace garden at Ashton Court Mr. AUSTEN has planted some bush trees of the double crimson Thorn, which are kept pruned back a little to maintain the shape, but the trees flower freely, and are charming objects just now.

— LABURNUMS AND HAWTHORNS PLANTED ALTERNATELY.—There are no flowering trees of a graceful and ornamental character that have a finer effect during the present month than the subjects above-named, both of which are common enough, though hardly as plentiful or as well disposed as could be desired. In the pink and white Hawthorns we have gems of the first water, but unfortunately they are either planted in thick clumps or half-obscured by a big Elm, or something else, not half so pretty as themselves. How many ornamental gardens are there that are enclosed by broad bands of common Laurels which are mere weeds for a conspicuous situation in a good climate, where a background of these lovely trees would be a vast improvement. So many makeshifts have been made in times past which by courtesy used to be or are called ornaments, that there is still abundant scope left for planting flowering and ornamental trees and shrubs, if these flimsy, so-called ornaments were but removed and planted in the woods for cover, where they would be in their proper place. Picture a broad border of Laurels cut or trimmed over every spring, and fancy the same border planted with Laburnums, Hawthorns, Lilacs, Weigelas, Philadelphas, Berberis, Cytisus, Laurustinus, Deutzias, and Rhododendrons, and intermixed with coniferous plants and variegated shrubs, Tree Pæonies, &c.—what a change for the better would be the result. Fancy a band of green Laurels planted for ornament where there is nothing but green to be seen for miles around, while there is such a wealth and variety of flowering trees and shrubs attainable in every town and village in the country.

— FUNGI IN MUD WALLS.—A number of mud-wall houses having been lately pulled down, the walls were broken up and spread over the ground, and with them numerous fragments of wood were buried. Some of them gave fine specimens of *Perisporium vulgare*; but many of the large pieces when broken across showed an intricate mass of perforations, the work of some insect, filled with their dung in the shape of minute pellets of a beautiful magenta-pink tint. As this tint occurs in dead herbaceous stems infested with *Spheria rubella*, and in a more decided shape in the curious *Spheria rhodobapha*, but as the rest of the wood was not at all tinted, the colour seemed unaccountable. A larger piece of wood, however, was dug up at a later date, on which the surface was partly covered by a *Corticium* in an imperfect state, which could not be distinguished from *Corticium anthracinum*; it seemed that the wood was probably impregnated with the mycelium of that fungus, after the fashion of the green wood which is so well known and utilised at Tunbridge, in which the excrements of beetles are of a bright green. As we have not met with this condition of wood before, it seems worthy of being recorded. *M. J. B.*

— TUBEROSES.—To those who do a large business in cut flowers of the best kinds the value of Tuberoses is well known. Colour, perfume, and enduring properties alike make them so desirable that their presence in a first-class bouquet is always an improvement, and so accommodating are the plants, that when due regard is given to the time of potting and starting the bulbs into growth, their season of flowering can be prolonged so as to give a succession over a considerable portion of the year. The Ascot Nursery has always, even from the time of the late Mr. STANBISH, been noted for these beautiful flowers; at the present time immense numbers are grown, and to still further prolong their season they can be had in flower, quantities are planted out in the open ground. The dry bulbs are put in about the end of May in the open quarters, here they make vigorous leaf growth.

They are lifted and potted in September, and placed for a short time in cold pits, kept close, and the soil moderately moist; they are then moved into heat, where the bloom-stems develop, and they keep on flowering for several months.

— EXACUM MACRANTHUM is a native of the mountains of Ceylon, where it is found at an elevation of about 6000 feet above sea-level. It is a fine ornamental plant, belonging to an order—*Gentianaceæ*—which furnishes our gardens with by no means a few showy things. It grows about a couple of feet in height, has large, glabrous, glossy leaves, gradually becoming smaller as the terminal corymbs of handsome dark rich purple blossoms are reached; these measure about 2 inches in diameter, the yellow eye and large yellow stamens forming a striking contrast with the purple of the corolla. In flower in No. 8 house at Kew.

— ENGLISH SEEDS AT PORT ELIZABETH.—We are informed that at the recent great agricultural exhibition held at Port Elizabeth, Messrs. SUTTON & SONS were awarded a Silver Medal for their collection of grasses, seeds, models, &c.

— WHERE TO PLANT SUNFLOWERS.—When the gardening public take a fancy to any particular class of plants, they generally exceed the bounds of good taste and judgment in the use of them. No doubt it is pleasant to feel that one is possessed of a good stock of fashionable plants, and as long as there is plenty of room for their disposal the desire is a laudable one. But Sunflowers are very large, and the colour is a very strong one, so strong that instead of producing a good effect, you simply create a glare by a too free use of them. But there is a place for everything, and so there is for Sunflowers. They are best viewed from a distance, say upon a rocky eminence, planted in front of a row of dark green pines, not too thickly, and above all things, irregularly, so that you never see more than three flowers without looking a second time.

— AN AUTUMN FLOWER-BED.—As most people are now maturing their plans for bedding-out, if they are not actively engaged in the work, it may be useful to suggest how a good autumn effect can be produced out of very ordinary material. A good autumn bed is really a scarce commodity in many country gardens, because every one aims at a spring or summer effect and a good many accomplish both, while a great many more are not successful in selecting and arranging their plants to the best advantage. Two plants that make a grand autumn bed are *Chrysanthemum frutescens* and *Iresine Lindenii*. A bed of this kind looks best isolated, and it should have a commanding position, and if possible it should be where it would be seen from the principal windows of the mansion. The deep glaucous hue of *Chrysanthemum frutescens* contrasts well with the dark *Iresine*, and the flowers of the former are in striking contrast with both. A bed composed of these two plants will look bright and cheerful late in the season, when *Pelargoniums* and such-like are faded and past their best. No amount of rain will mar the effect if it is not accompanied by violent winds, from which the *Chrysanthemum* will require some slight protection if it is planted in an exposed situation.

— PROPOSED JAM MANUFACTORY AT MAIDSTONE.—At a meeting of the committee of the Maidstone Farmers' Club and Chamber of Agriculture held recently at Maidstone, the question of forming a jam manufactory in the county of Kent was considered, and the following gentlemen were appointed to take steps to carry out the scheme, namely:—CHARLES CHAMBERS, Esq., Langley Park, Maidstone; FREDERIC PINE, Esq., Westree, Maidstone; RICHARD A. HAMILTON SEYMOUR, Esq., Aylesford, Maidstone; AMBROSE WARDE, Esq., Tutsham Hall, Maidstone; CHARLES WHITEHEAD, Esq., Farming House, Maidstone. It being acknowledged that the present system of selling fruit is most unsatisfactory, and that the grower does not receive a fair value for his produce, especially in plentiful seasons and when the London markets are glutted by reason of the insufficient means of distribution, it seems most desirable that a jam manufactory should be established, in a central position in this county, that would absorb large quantities of fruit. The consumption of jam is largely increasing, and the profits derived from making it are very great, so that besides materially benefiting the fruit growers it is confidently believed

a manufactory of this kind would yield large returns. It is hardly necessary to say that railway charges, commission, and other incidental expenses would be avoided if the growers had the opportunity of sending their fruit direct to a local factory. In order to develop this project it is proposed, we understand, to form a limited liability company, with a nominal capital of £30,000, divided into 1500 shares of the value of £20 each. Of this capital it is proposed to call up £15,000.

— NEW INSECTS INJURIOUS TO AGRICULTURE.—Mr. C. V. RILEY remarks that almost every year the appearance of some insect or insects injurious to agriculture, but previously unknown in an injurious capacity, has to be recorded. These new destructive species may either be (1) recently introduced species from some foreign country; (2) native species hitherto unobserved or unrecorded, and new in the sense of not being described; or (3) native species well known to entomologists, but not previously recorded as injurious. The author argues that in the last two categories, more particularly, we frequently have to deal with newly acquired habits, and in the second category with newly acquired characters that in many cases systematists would consider of specific value. In short, he believes that certain individuals of a species which has hitherto fed in obscurity on some wild plant may take to feeding on a cultivated plant, and with the change of habit undergo in the course of a few years a sufficient change of character to be counted a new species. Increasing and spreading at the rapid rate which the profligacy of most insects permits, the species finally becomes a pest, and necessarily attracts attention. The presumption is that it could not at any previous time have done similar injury without attracting similar attention—in fact, that the habit is newly acquired. The author reasons that just as variation in plant life is often sudden, as in the "sport," and that new characters which may be perpetuated are thus created; so in insects there are comparatively sudden changes which under favouring conditions are perpetuated. In this way characters which most systematists would consider as specific originate within periods that are very brief compared to those which evolutionists believe to be necessary for the differentiation of specific forms among the higher animals.

— MESSRS. HOOPER & CO.'S NURSERY AT TWICKENHAM.—In this small but fully utilised enclosure, one of the most charming things seen during the past spring was a bed of the pretty *Cyclamen repandum*, that flowered with singular freedom. The light, sandy, yet holding Twickenham soil, admirably suits alpines of this class. *Hepaticas* thrive marvellously. *H. angulosa* is as vigorous as weed, forming a perfect mass of foliage. Double *Pyrethrums* do well, many fine kinds being grown, but the starchy single forms are not favoured. No more striking kind is seen than is *Princesse de Metternich*, for not only is it of a dwarf stout habit, but the flowers are large and pure white. Perennials of many kinds are largely grown, and there is a very interesting collection of alpine plants in pots, notably *Saxifragas* and *Semperviviums* in great variety. Very charming indeed is *Eritrichium nanum*, with its lovely *Myosotis*-like blue flowers. *Silene alpestris* is well known, but when in full bloom irresistibly demands notice. *Campanula Isidoreana* is very much like *garganica*, but larger and earlier. One special purpose of the nursery is to grow small plants in endless variety for the Covent Garden establishment, and there nothing that will carry a flower or two, or has pleasing foliage, seems unobtainable. Within the houses Palms and Ferns are grown in immense quantities to satisfy the requirements of this same alborer; so also are *Gloxinias*, *Crotons*, *Dracenas*, *Begonias*, &c. Mr. BROCKHAUS, the manager, has fashioned from roots of *Davallia* wreaths, crosses, and other designs, and even of wrens, to suspend in windows and conservatories, and these, when fully developed, will be novel yet pleasing. A lot of fine pyramidal double *Ivyleaf Pelargoniums* is being trained to make specimens. The nursery, which occupies what was formerly the site of an old walled garden, and is just behind the Twickenham Railway Station, is difficult to find, but when found invariably repays a visit.

— DWARF PHLOXES AT CHISWICK.—These have been flowering in all their simple and captivating beauty, and their useful service is co-equal with their

charming effect. There are P. setacea and its varieties, and P. subulata and its varieties, and though in the eyes of the botanist there are substantial differences between them, to the onlooker they have a near resemblance, and for our purpose may be conveniently put into one group. There is P. subulata, with its dense spreading habit and pale pink flowers with a dark eye. There is also an unnamed variety with blush flowers and a slight dark centre, distinct from the foregoing and very pretty. P. Nelsoni is well known for its pure white flowers; as a rock plant it has few equals. Another variety has vivid pink flowers with a bright carmine centre, but the deepest coloured form is violacea; this is of a rosy-violet hue, the centre quite dark, and it is very showy and effective. What is growing on the rockwork as P. setacea atropurpurea appears to be identical with violacea. It is noticeable that in the case of one or two of the unnamed varieties, which we presume are sent to Mr. BARRON as seedlings, there is a gradual advance in the way of roundness of pip, circular, stout, and with the colours well defined, looking like a miniature Phlox Drummondii. P. verna, with its bright rosy-coloured flowers, is there also; so is P. stolonifera, pale bluish-mauve, dwarf, and very pretty indeed; and P. divaricata, also of the P. verna type; this is larger in the flower than the preceding, and of a pleasing mauve colour.

EVERGREEN SCREEN HEDGES.—The merits of such plants as Holly, Laurel, Privet, and various others generally used for the purpose in question, are sufficiently known. Well adapted as these are, they all require more or less attention to keep them thick and close in the bottom, and to confine them within bounds, and moreover although slightly and trim in outline as a well kept hedge is, there are some positions where the formal appearance would be better absent. At the north side of the grounds at Bedford Hill House there is a long hedge of tree Box, that forms one of the best screens we have ever seen—high, broad, and impervious to the eye as a wall, with an absence of the even clipped look inseparable from a hedge composed of material that has to be annually subjected to clipping; the Box presents just enough irregularity in surface to prevent formality, and does not grow so quickly as to require more than a limited use of the knife to any strong shoots that may take an undue lead. It may be said that the comparatively slow growth of this shrub is against its use for screen hedges, but it can be had three or four feet high comparatively cheap, and if well done, too, it will grow freely, and in some positions, when once established, a hedge composed of it has a better appearance than anything we have yet seen.

THE LINNEAN SOCIETY.—The anniversary meeting of the Society was held on May 24, the President, Sir JOHN LUBBOCK, in the chair. In the course of his address Sir JOHN briefly reviewed the work and progress of the Society during the year, and alluded to the work done and the additions made to the British Museum, Kew, and other national establishments connected with natural history. The secretaries read a brief review of the principal works and memoirs on zoology and botany published during the year, together with obituary notices of deceased Fellows. The financial condition of the Society is satisfactory, and the increase in the number of Fellows and in those attending the meetings a matter for congratulation. In the evening a dinner was held. The following papers will be read at the meeting to be held on June 1st:—"Results of the Investigations on the Ceylon Coffee-leaf Disease;" by MARSHALL WARD. 2. "Cutaneous Nerve Terminations in Mammals;" by Dr. G. HOGGAN. 3. "Himalayan Ferns;" by H. C. LEVINGE. 4. "Some British Ascidians;" by H. C. SORBY and Professor HERDMAN. 5. "Recent Additions to New Zealand Flora;" by T. KIRK. 6. "Animalcule Allied to Pleuronema;" by F. W. PHILLIPS. 7. "New Comatule;" by P. H. CARTPENTER.

COCHINEAL CULTIVATION IN TENERIFFE.—In consequence of the extended use of aniline dyes, the cultivation of Cochineal in Teneriffe has received a severe check, so much so that a great many growers are reported to be utterly ruined. The result of this, we read in a recent report, has been that considerable attention has been directed to the cultivation of Tobacco. At first this new production gave promise of

a favourable result, there being a fair quantity collected, and the quality approaching to that of the Cuban Tobacco. In consequence of the Spanish Government not fulfilling their promise to purchase the Tobacco crops for a period of three years, the growers found themselves with their warehouses filled without any prospect of a speedy or remunerative sale. This induced them to abandon Tobacco cultivation, and to return to that of Cochineal; but owing to a great fall in prices—below, indeed that limit at which growers find their crops pay—they have since attempted Sugarcane, the proprietors of the plantations having sent a deputation to the island of Madeira to study the making of sugar, treacle, and rum. Although the majority of the growers think that the new production will give an impetus to agriculture, some of the principal persons in experience and knowledge doubt whether this cultivation will give good results, on account of the high price of land, while labour is dearer than in those countries where this article is usually produced. The cultivation of the Almond is yearly falling off, on account of the indolence of the growers, who do not take the least care of the trees already planted, and never think of planting new ones. Within the last two years the cultivation of the Banana has considerably increased, and may now be considered as an article of export which is gradually increasing.

NEW FLORAL VASE.—Under this designation Mr. S. JOHNSON, The Royal Nurseries, Ascol, exhibited at South Kensington on Tuesday last a new design in ornamental flower-pots. These pots are manufactured in various sizes for taking pots with growing plants of differing dimensions. They are manufactured of ordinary potter's clay, painted white in the inside, and of any colour on the outside, according to the taste of the decorator, and then glazed; the rims are gilded, and the base of the pot, to which a wider base is added, is gilded also; and then, fronds of natural Fern, Selaginella, or Palms, or any suitable plant, which have been prepared for the purpose, are laid on the surface of the side, and securely fixed in position by the use of some adhesive material. If handled with ordinary care, the fronds, &c., will last in proper condition for a long time, and no moisture can pass through the sides of the pots and loosen what is laid on the exterior surface. These pots are intended for sitting-rooms, &c., and they can be manufactured at a cost which will admit of their being sold at comparatively moderate prices.

THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending May 25, issued by the Meteorological Office, London:—The weather was exceedingly fine and dry during the greater part of the week, but after Sunday the 21st it became cloudy and unsettled. On the 22d thunderstorms were experienced over the inland parts of England and Ireland. The temperature has been above the mean in "Scotland, W." and "Ireland, N.," but a little below it in all other districts. The maxima which slightly exceeded 70° in most places, but reached 76° at Nairn, were registered on the 18th in the northern parts of the country, and on the 21st or 22d in most other districts. The minima occurred during the early part of the period, and on the morning of the 16th or 17th the sheltered thermometer fell below freezing-point at York, Durham, Hillington, Bawtry, Cheadle, Churchstoke, and Blackpool, while the ground frosts were reported from many other places. The rainfall has been less than the mean in all districts. In "Scotland, E." and "England, N.E." there has been none at all. Bright sunshine has been very general, the percentages ranging from 62 in the Midland Counties to 79 in "England, E." At York and Geddston the number of hours exceeded 50 per cent. of the possible duration. Depressions observed:—During the first half of the week an anti-cyclone covered nearly the whole of Britain, and the winds were exceedingly light and variable, except in the extreme south, where they were east. On Friday, the 19th, the anti-cyclone began to move away towards Scandinavia, and decided east or south-east winds spread over the country, but no definite depression made its appearance until Sunday, when disturbances commenced to advance towards our south-west coasts. On Monday the distribution of pressure was becoming somewhat irregular.

GARDENING APPOINTMENTS.—Mr. JAMES MACK has succeeded Mr. O. THOMAS as Gardener to Sir ROBERT PEEL, Bart., at Drayton Manor, Tamworth, Staffordshire. Mr. JAMES FORREST, Foreman, Kelly House, Wenys Bay, has been appointed Gardener to JOHN GRAHAM, Esq., of Skelmorton Castle, Ayrshire.—Mr. JOHN LONDON, late Gardener to J. R. GROVE, Esq., The Cedars, Doe Bank, Sutton Coldfield, and formerly of Clarendon, North Wales, has succeeded Mr. BURCH as Gardener at Wording Hall, Preston, Lancashire.



HOME CORRESPONDENCE.

Perennial Candytufts.—*Iberis superba*, described at p. 592, and that referred to by "A. D." on p. 643, we have no doubt are identical. It was raised in our nurseries and sent out under that name ten or twelve years ago, and being, as you say, "a superior form of sempervivens, with larger and better formed flowers," it has with us entirely taken the place of sempervivens. To succeed *I. superba* we find none equal to *I. corifolia*, which flowers about three weeks later. *I. Garreixiana* grows freely but produces very few flowers. On one patch 2½ feet square there are only twenty small heads of flowers, being a marked contrast to the others, which are full of flower. *I. glaberrima* is not hardy. *I. Tenoreana* is very pretty and dwarf, but with us it is only a biennial, and is reproduced from self-sown seed. The perennial Candytufts are so useful in spring that we have been trying for many years by hybridising and selecting to produce improved forms, and although we have certainly obtained several superior to *superba*, still the improvements were not to our mind sufficient to warrant us naming them. The accompanying flowers are from a seedling we consider such a decided advance that it deserves to be propagated. (Cutting.) It is perfectly hardy; indeed they are all growing in the same rockery in our Filzig Nurseries. *Dickson & Co.*

Lewisia rediviva.—This remarkable plant opened its two first flowers on my rockery on May 16. I have four specimens, two of which were planted in the autumn of 1880, and two in the autumn of 1881. They were obtained from North America. The plant consists of a small tuft of leaves, resembling those of a *Mesembryanthemum* or a magnified *Sedum rupestre*. These are quite hidden by the large flowers, fully 4 inches across, resembling the buds of a *Cactaceæ* of a pale rose colour. Of my older specimens the one now in flower, which flowered last year, has eight visible buds on one head; the other has made four heads, each with three or four buds. The two which were planted last autumn are less forward, but intend to flower. All are planted on an upper ledge of a limestone rockery, with an exposed south-eastern aspect, in rich, open soil, with pebbles the size of Peas covering the surface. They all seem quite healthy and happy. I may add that I water them daily in such weather as this. *C. Wollsy Dot, Edge Hall, Malpas, May 19.*

Maregraavia dubia.—This plant, grown in the Edinburgh garden, is well worth a place on a somewhat damp stone wall, from its curious habit of growth. The bracts of the flowers form pitchers, but the plant in this garden has not yet blossomed. The leaves differ entirely when grown against a wall from those which are not so grown. In the latter case they are broadly lance-shaped, about 1 inch wide by 2½ inches long. In the former they are cordate, oval, about ½ inch wide by 1 inch long, lying flat against the wall, so close that at first sight the plant seems to adhere to it by its leaves. This, however, is not the case, as beneath each leaf is a group of adventitious roots adhering tightly to the wall, and though generally hidden by the leaf in some cases they grow several inches long, and remain attached to the wall after the leaves have died. They evidently act as true roots, as some of the long narrow branches become entirely detached from the root of the plant, and grow healthily on the wall. Even on the hottest day the wall beneath each leaf is quite wet, and owing to the moisture quantities of the *Algae Nostoc* and *Pleurococcus* are to be found under the leaves of this specimen. (This is probably a *Boothia*, not *Maregraavia*.) Another specimen—*M. patrica* (of which a small plant is grown at Messrs. Ireland & Thompson's nursery near Edinburgh, as is also a plant of *M. dubia*)—has Begonia-like leaves, much larger than those of *M. dubia*, and adhering closely to their support in the same way. *M. umbellata*, also from Tropical America, is in cultivation, but it is not grown in these Botanic Gardens. *C. M. O.*

New Kinds of Potatoes.—I have read the correspondence on this subject between "A. D." and Mr. Kerr, and in order to convince the former of his error I can state that Adirondack and Queen of the Valley were sent out in 1881 by Messrs. Kerr & Fotheringham, of Dumfries, as I had a supply from them myself that season. If I mistake not they were recommended by a well known Potato grower as varieties suitable for exhibition. This recommendation was surely purely gratuitous, as it appeared in the columns of the *Gardener's Magazine* early in 1881. Acting on the hint I wrote to Messrs. Kerr & Fotheringham to see if they could supply me with them, and had them sent on forth-

with. Both varieties were exhibited by more than two exhibitors at the Crystal Palace, clearly showing that they were in commerce. How has this question arisen at all? Simply because "A.D." was shown in error. Let me add that new Potatoes, or new varieties of anything else, can be offered as well in any part of the kingdom as in London. *An Abyssinian Governor*.

Rhododendrons.—In your issue of the 13th inst. I find mention made of cut blooms of Rhododendron Fortunei exhibited at the Royal Horticultural Society. I may interest you to hear that a large plant of this species, which has stood for many years in my grounds, and which has frequently flowered, is now in splendid bloom, many hundred fine frusses diffusing to a considerable distance a delicious perfume. Rhododendrons barbatum and Thomsoni also flowered beautifully in the open air this spring, and a plant 9 or 10 feet high of Rhododendron Koylei is just about to expand its charming Fuchsia-like flowers. Rhododendron Falconeri forms a small tree, with superb foliage, but has not flowered with me. Plants of Rhododendron Edgworthii and Dalhousiana bloomed well in the open ground for many years, but eventually perished. Chamcerops Fortunei is now finely in bloom. *W. Farrant, Ballmar, Isle of Man.*

Mackaya bella.—There seems to be various opinions about this plant. Referring to pp. 566 and 602, pray what gave rise to the idea that it does not flower here every season? Is it because I have been misunderstood in saying that this season it has not flowered so freely on account of the plant not being now so healthy, and not now having sufficient room, and requires a new situation? I let to say that Mackaya bella has flowered here every season since I took it in flower to South Kensington in 1879 (see vol. xi., p. 629, fig.) I do not consider that root-restriction has anything to do with its free-flowering, or that it should be robbed of its foliage, when I see it flower so freely, planted in a good border in a somewhat warm house, with Cupania, Lagerstromia, and similar plants, which prove more satisfactory in the way than when grown in pots. Many Acanthids of this section are being propagated every two or three years to insure good plants. *Charles Green, Pendell Court.*

Aspidistra lurida variegata.—This is deserving of a much more extended cultivation, as it is one of the most useful plants in existence, growing and flourishing as it does where few others would live, for it may often be seen in the most perfect health in halls and rooms where gas is burned, and where natural light is not often plentiful. I know of one myself that has been in a house for years, compared to the size of a small pot—a 7-inch one—and is the most perfect little specimen I ever met with, as it has thirty-eight beautifully variegated leaves without spot or blemish in any of them. In the Westminster Aquarium, too, it is, or was, holding out bravely, and is about the only thing there in the plant way that does not look wretched. As its powers of endurance are so great, and it is so well adapted for window culture, it is a pity it is not taken in hand by the growers for market, as people residing in towns would then have a plant they could keep, for with anything like fair treatment there is no fear of killing or losing it, as it is so hardy as to be unaffected by frost, and if left so as to become a little pot-bound it will take any quantity of water without suffering harm. The only important part about its management when confined to rooms is the keeping of the leaves clean, which, as they are so large, broad, and leathery, may easily be done by drawing a wet sponge up them occasionally, and if this is attended to they always present a bright polished look, and remain perfectly healthy. Besides being so well adapted for windows or rooms, the Aspidistra lurida variegata is very suitable for greenhouses, or to associate with Ferns, with which its fine foliage contrasts in a pleasing and striking manner, as its Palm-like and bold. Not only will the Aspidistra stand any cold house, but it is hardy enough to bear the winter out, if the crowns are slightly protected. To afford the plants a fair chance, they should be potted early, but they may get well hold of the ground and become established before hard frosts set in. A shady position and light rich soil suits them best, and leaf-mould or cocoa-nut fibre answers well for protection. If an increase of plants be desired, it may be effected readily by division, the best time for doing which is in spring, before they start to grow, as then the injured parts soon heal, and hosts of young roots issue forth. *J. S.*

Mulching for Strawberries.—As a substitute for any of the materials recommended for the above-named purpose on p. 684 of your current issue by your correspondent, "D. C. P.," I would suggest the use of spent Hops from a brewery, which I consider far preferable to any of them, and quite the best top-dressing for the Strawberry at this time of year, as they are much cleaner than stable-litter, any little smell belonging to them soon disappearing after

being exposed for a day or two to the action of the sun and air; slugs also do not like them, and find them difficult to travel over, which is a great additional advantage. The only drawback to their general use is that they are now more difficult to obtain than formerly, as the brewers have discovered that they can be used to supplement coal in their boiler furnaces when thoroughly dried. *W. E. G.*

—The remarks of your correspondent, "D. C. P.," in your last issue (see p. 681), are both reasonable and instructive, but they do not quite include everything that may be done for the preservation and protection of fine fruits. Mulching between the rows of Strawberry plants in winter is familiar practice with a great many, and is quite as beneficial to the plants as your correspondent asserts that it is, but no mulching or surface-dressing that I have ever tried has proved thoroughly successful in preserving the fruits from the ravages of slugs. There is, of course, a great difference in seasons, whether they are wet or dry, as regards the numbers of slugs that attack the Strawberry beds, but at best they are bad enough, and they seem to have a particular relish for the largest fruits. This is both disappointing and annoying, as every one knows. The best and simplest remedy that I have tried as a preservative is to tilt up the plants with forked sticks out of the reach of slugs, or put three or four sticks round a stool and run a piece of rough matting round them for the fruits to hang over. The forked sticks are, however, preferred, and are most expeditious to work with, and this once done the slugs are put to defiance. It is important that the plants be not pressed too close together to prevent the air from passing through them, in which case the fruits would rot in close moist weather. *H. L. C.*

A Garden Trowel.—The illustration (fig. 111) shows, on a reduced scale, a form of trowel exhibited

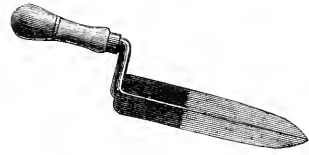


FIG. 111.—A GARDEN TROWEL.

by Mr. G. F. Wilson before the Scientific Committee. The blade is stout and three-sided, so that it readily penetrates the soil, and serves to divide perennials with facility and with the least possible injury to the plant. For ourselves we should prefer the shank to be slightly curved, not bent at right angles, as shown.

North Borders for Vegetables.—That north borders are quite as useful in the production of crisp sweet vegetables in summer, as south borders are earlier in the season, is a fact which I think is not generally admitted. Somehow or other, north borders are despised. People feel they are chill, cold, and damp, and sometimes even worse things are said of them. But I have gathered juicy sweet Turnips, palatable Cabbages, and fine crisp Radishes, from north borders in the hot dry months of July and August, when similar produce was hardly worth eating from other situations that are looked upon as being more favourable to the development of vegetable crops. No one can foretell whether the coming summer is to be dry or wet, but at least we can use such means as we possess to avoid failure. If the summer turns out a wet one, there will be plenty of vegetables everywhere, but if it should be the reverse, then the produce of the north borders will probably be the best in the garden. *W. Z.*

New Melons.—The correspondence going on between Messrs. Dickson, Brown & Tait and Mr. Carmichael respecting the merits of Best of All Melon is not likely to end satisfactorily to either party unless the line of argument is either modified or changed. Both parties may be right, as no doubt both are sincere; but, as long as "cultivation" is ignored, it is not likely that the disputants can or will agree. Now, it is quite possible—I do not say it is the case—but even so good and experienced a cultivator as Mr. Carmichael (his friends included) may have failed to grow Best of All Melon to perfection, while it is equally possible that Messrs. Dickson, Brown & Tait are relying upon substantial grounds for their statement in respect to quality. Let me give an instance which I think bears upon the case. At the great show held by the Royal Horticultural Society at Preston three or four years ago I exhibited

a fruit of Conqueror of Europe Melon in a very big class, consisting of—as well as I can remember—something over a score of fruits. Mr. Jamieson, gardener to the Earl of Crawford and Dalcarres, of Hlaigh Hall, Wigan, also exhibited a fruit of the same variety, which obtained a 1st or 2d prize, while I did not even get a place. I had my seeds direct from Mr. Jamieson, so there can be no doubt as regards variety; but, strangely enough, Mr. Jamieson's Melon did not bear the outward characteristics of the variety, which I believe he himself raised. It was neither netted, nor anything approaching the size or colour. I have seen Mr. Jamieson exhibit the same variety often enough previously; still, it obtained a prize, while my fruit, which was well coloured and beautifully netted, got nothing, as I believe it deserved nothing. We (Mr. Jamieson and myself) talked the matter over afterwards, and he expressed his surprise at the result, judging of course from outward appearance. But judgment was pronounced by stern competent judges who awarded the prize to "flavour," and here the question points to cultivation, or what is more probable, that the fruits that obtained the prizes were "grown to time" and "up in flavour." I do not attach the importance that many people do to "mere variety." The best kind in cultivation will produce a worthless fruit if badly grown, and now what about the composition of soils and their influence in producing flavour? I have no object in making these remarks, except that I think we might widen the sphere of discussion, and so gain important information. There is no doubt Hero of Lockinge is a splendid Melon, but unless it is grown side by side with Best of All in the same compost and under the same cultural treatment it appears to me that a fair comparison cannot be made. At all events, to praise or condemn upon the evidence before us would be to pronounce judgment upon insufficient facts. *W. Hind.*

White Arums.—In a general way these are kept in pots during the summer, but being plants that require plenty of manure and unlimited quantities of water, they do far best planted out, and when so grown are not half the trouble to look after and make much finer crowns. The best plan in managing them is to prepare a shallow trench after the manner of those for Celery, excepting that it should not be so deep or contain so much manure, which ought to be well decomposed and thoroughly mixed in by digging, when all will be ready for planting. In preparing the plants it is necessary to shake them out of the old soil that they may be divided, which can easily be done by pulling them apart, when the strongest portions should be selected and planted in the trench at about 18 inches apart. A good soaking of water will then be required to settle the earth about them, and to encourage them to start quickly they should be shaded by having a few Laurel or other evergreen branches stuck in along the sides of the row. As soon as the plants get fair hold of the soil the branches may be removed, and it will be a great help to the Arums after that time, which will be slightly mulching of short littery manure, which will shade and keep them cool at the roots, and prevent washing when giving the heavy waterings requisite to maintain them in health. The time for lifting and potting is the end of September or early in October, when they will have made fine growth with short sturdy leaf-stalks and strong crowns: that are sure to send up a number of blooms. The taking up should be done carefully, so as not to injure the roots any more than can be avoided, but as they will have large balls of earth, some of it may be worked out to reduce them sufficiently to go into any sized pots that may be chosen. Light rich soils answers best for the potting, and this should be washed in by heavy watering, when the plants will require the shelter of a deep pit or frame, where they can be kept a little close and shaded for a week or so, to enable them to stand without flagging. Great sprinkling or watering overhead will in a measure prevent this, and will assist the plants materially in forming fresh roots. If any are wanted early in flower, they may be forwarded by subjecting them to gentle heat; but they must be so placed that they can have plenty of air to keep them from drawing, which spoils them for use in a greenhouse. *J. S.*

K. EMPFERIA GILBERTII.

MR. WM. BULL, to whom are due our thanks for the use of the accompanying illustration (fig. 112), describes *Kempferia Gilbertii* as a fleshy-rooted stove perennial, with attractively variegated foliage, introduced from the East Indies. From the succulent roots are annually produced a tuft of oblong-lanceolate deep green leaves, which are slightly undulated at the margin, and bordered by a broad and very conspicuous band of white. The purple and white flowers are peculiar in form, as is the rule in the Zingiberaceae order.

Reports of Societies.

Royal Horticultural: Great Summer Show, May 23, 24, 25.—We regret, in the interests of the Society in particular and of horticulture in general, that we are unable to report this show as a success. As an exhibition of horticultural produce, the display left much to be desired—the show was thin, and somewhat lacking in variety, and several of the leading trade exhibitors were conspicuous by their absence, which we hope must not be taken as an indication of a lack of interest on their part in a Society which they have heretofore so well supported. If under canvas things were not up to the standard of former summer shows, outside, in the garden structure and implement department, the reverse was decidedly the case, the display being both more extensive and of wider general interest than usual.

only two competitors—the old rivals, Messrs. Tudgey and Rann; and the last-named secured the verdict with a grand lot made up of tall specimens of *Areca sapida* and *Pritchardia pacifica*, a magnificent *Cycas revoluta*, very large examples of *Croton interruptus*, *C. Hendersoni*, and *Pandanus Veitchii*. Mr. Tudgey again put up his large *Latania barbonica*, a very fine *Geonoma gracilis*, *Croton Andreanus*, *Cycas circinalis*, and *Cordyline indivisa*. The Fern classes were poorly contested, and brought out but a few of the large and handsome specimens that should have been seen. Mr. Child had the best amateur's six, including an exceedingly fine *Davallia Mooreana*, between 8 and 9 feet over, and a very good *Microlepis hirta cristata*, &c. Mr. Rann was a good 2d, with his large *Gleichenias*, &c.; and Mr. Douglas 3d. The nurserymen's class was a very poor one, the only striking plant being one of *Elechnum brasiliense*, in Mr. H. James' 1st prize lot.

ORCHIDS.—The competing collections of these were, as was the case last year, staged in the long tent leading to the large marquee, and, as on that occasion, gave rise to much heart-burning over some "bedding out" that had only too palpably been indulged in. The best class

has long linear rigid leaves marked with a bronzy central stripe. *Wallochia nana* is a dwarf Palm of striking appearance, with bold pinnate leaves, the segments broad, wedge-shaped; the stalks are covered with reddish fluffy down. *Laurus camphora variegata* is a shrub with widely spreading branches, bearing the foliage in tufts near the extremities. The leaves are oblong-ovate, with a green disc and a deep white margin, which contrasts with the reddish leafstalks. *Sarracenia erythropus* is one of the flava section, with long narrowed trumpet-shaped pitchers, with a large rounded lip supported on a long broad stalk, velvety-red on the inner surface. In popular parlance we heard this striking plant described as a "funny Orchid." *Spiraea aruncus* var. *astilboides* is a very attractive shrubby species, of medium height, with deep green pinnately-divided leaves, and large terminal, many-branched feathery panicles, the spreading branches of which are densely covered with small white flowers. This was the most attractive plant of the group. *Selaginella involvens* var. is a dwarf cup-like species, with black-green foliage tipped with white. *Anthurium digitatum* is a species with long cylindrical petioles, bearing deep green, shining, palmately-lobed



FIG. 112.—*KEMPFERIA GILBERTII*, HORT. BULL. (SEE P. 712.)

STOVE AND GREENHOUSE PLANTS.—The flowering division was well represented by the competing collections in the three leading classes. In the open competition for twelve, Mr. Tudgey, gr. to J. F. G. Williams, Esq., Henwick Grange, Worcester, was well to the front with his large specimens of *Erica Cavendishiana*, *Stephanotis floribunda*, *Fimelea decussata*, *Azalea magnifica*, *Aphelexis macrantha*, *Anthurium scherzerianum*, *Erica ventricosa coccinea minor*, and *Fraxinea confertiflora*, &c. Messrs. B. Peed & Son came in 2d, having a very good *Clerodendron Balfooranum*, *Statice profusa*, *Allamanda grandiflora*, *Exora Williamsii*, *Azalea Roi des Belges*, &c. 3d, Messrs. T. Jackson & Son. The last-named firm came in 1st in the trade class for eight plants, having here in good form *Statice profusa*, *Erica ventricosa coccinea minor*, *Draecophyllum gracile*, *Fimelea amabilis*, *Azalea Criterion*, &c. Messrs. Peed & Son came in 2d, and Mr. H. James 3d, the latter having, among others, a very fine piece of the new *Anthurium Andreanum*. The corresponding class for amateurs found Mr. Tudgey again at the head, his best examples in an unevenly sized group being of *Clerodendron Balfooranum*, *Darwinia tulipifera*, and *Erica Cavendishiana*. Mr. J. Child, who was 2d, with a lot of large plants, had a good *Honganiavillea glabra*, and also a nicely flowered *Azalea Model*, &c. Mr. J. Rann, gr., Handcross Park, was a good 3d.

FINE-FOLIAGED PLANTS.—With these there were

was the open one for fifteen, in which Mr. Child, gr. to Mrs. Fox, was placed 1st, with, amongst others, *Aceris Fieldingi*, *Dendrobum Farmert*, *Masdevallia Harryana*, *Oncidium amplatum majus*, *Saccolabium retusum*, *Masdevallia ignea*, &c. Mr. Douglas and Mr. H. James were placed equal 2d, the best examples from the former being of *Dendrobum nobile*, *Cypripedium villosum*, *Dendrobum Wardianum*, *Calanthe veratrifolia*, and *Odontoglossum citrosimum*; while most conspicuous in Mr. James' group were *Odontoglossum citrosimum*, *O. crispum*, *Cattleya Mendeli*, *Cypripedium niveum*, *Cattleya Mossiae*, and *Oncidium concolor*. For ten, open to amateurs only, Mr. C. G. Salter, gr. to G. Southgate, Esq., Streatham, took the highest award, having good representatives of *Oncidium crispum grandiflorum*, *O. vexillarium*, *Cattleya Mossiae*, *Masdevallia Lindeni* and *M. ignea*, and *Oncidium concolor*. For six, open to nurserymen, Mr. James was 1st, and Messrs. Jackson & Son, Kingston, 2d.

NEW PLANTS.—In the class for New Plants, Mr. Pull was the only exhibitor. His plants consisted of the following—*Drydenbachia regina*, a form with oblong leaves some 8–10 inches long by 4–5 inches in breadth, with a pale yellow disc sprinkled with green blotches, and with a narrow green margin. *D. Rex* has bolder foliage than the foregoing, the leaves being oblong acuminate, 14–16 inches long by 6 inches in breadth, with a green disc marked with white. *Draecna australis variegata*

leaves, cordate at the base, the basal lobes rounded. *Anthurium nitroense* has four-sided leafstalks, bearing large, cordate, oblong, ovate acute leaves, with few and distant nerves. *Illicium religiosum variegatum* is a shrub with oblong ovate, shortly-stalked leaves, with a green disc and a white margin. *Draecna aureolis* is a form with broadly linear leaves, striped longitudinally with green and yellow.

FLORISTS' FLOWERS.—Roses in pots were a conspicuous feature in the large tent, and here Messrs. Paul & Son and Turner fought their prolonged battle over again, and the hat of the judges went to Cheshunt, and yet, all things considered, there was little to choose between the two groups, as Mr. Turner's nine plants were superbly finished and remarkably fresh and even in size. But proportion told in the struggle, and the honours of the day were with Cheshunt. The leading plants in Messrs. Paul & Son's group were a monster *Celine Forester*, fully 7 feet through and 6 feet in height, and laden with fine blossoms; *Centifolia rosea*, very fine; *Charles Lawson*, of enormous size; *La France*, carrying magnificent flowers; *Beauty of Waltham*, *Madame Lacharme*, *Madame Victor Verdier*, *Victor Verdier*, and last, but not least, *Madame Margottin*, a fine Teascented variety that makes a rare pot plant. Mr. C. Turner was 2d with *Edouard Morren*, *John Stuart Hill*, finely coloured; *La France*, *Theresa Lovet*, *Camille Bernardin*, *Sir Garnet Woseley*, a good pot Rose; *Madame*

tion might, perhaps, be taken to the exceedingly large panes of glass employed—those in the house exhibited being some six inches by 20 inches—as dangerous in a wind storm. Their system of fixing the glass by means of zinc caps and clips is apparently most simple, and doubtless effective. Some excellent plant protectors are shown.

Messrs. Johnson Bros. & Co., of Waterloo Place, S.W., exhibit a small curved span section of Peach-house, glazed without putty; also examples of tree-guards, wire and other fencing, of various kinds, all eminently serviceable. The Messrs. E. & E. Hooley, Tooting, Surrey, Beds, have two small span greenhouses, named respectively the Premier and Paragon, of strong build, and well finished; also a good Cucumber box. Messrs. Ward & Deard, of Harlow, Essex, make a show with a carefully constructed boiler for various uses, and it is known as the "Champion," and appears to possess great heating power. They also show their patent upright centrifugal boiler, which needs no setting, garden-seats, &c.

Those eminent greenhouse builders, Messrs. Boulton & Paul, of Norwich, make a fine show with their noble span-roofed greenhouse, 50 by 20 feet, in two compartments, certainly the finest house in the gardens. This plant-house, light, elegant, roomy, well ventilated and admirably fitted, would make a complete separate building for a first-class Botanic Medal in the plant-house class. A second Bronze Medal was also awarded to their admirable span plant frames, all of great strength, and in several cases were fitted with corner iron stands to keep them from the soil. The whole collection is well marked by strength and utility.

Mr. James Matthews, of the Royal Potteries, Weston-super-Mare, comes in next with a truly fine show of his garden art pottery, all fashioned in red terra-cotta ware. There are vases, pedestals, baskets, and things too numerous to particularise, all intended for general use and decoration. Mr. Matthews' fine show deserves him the Silver Medal for garden pottery. Messrs. Dean & Co., of King William Street, London Bridge, took a Silver Medal for their admirable hand-lawn-mowers, and a similar award to Messrs. F. G. Collins & Co., Old Swan Wharf, London Bridge, for their famous "Archedeian" lawn mowers. This firm are also large exhibitors of garden chairs, pumps, engines, and of tools in great variety. The Messrs. Nettelford, of 54, High Holborn, show a remarkably interesting collection of machines, tools, cutlery, and various useful implements. This firm received the award of a Silver Medal in the class for garden tools, and a Bronze Medal for cutlery. The grand stand of ornamental wirework, garden seats, engines, tents, pen supports, flower-stands, and many other most varied and interesting kind, shown by Messrs. J. J. Thomas & Co., of the Edgware Road and Queen Victoria Street, has already been alluded to. It merits all possible praise. In addition to the Gold Medal, the firm also take Silver Medals for wirework, garden seats, and flower-stands; and a special certificate for their large three-side wire plant-stand for bay window or conservatory.

The Coalbrookdale Company shows iron garden-seats and vases in variety, all massive, but painted stone colour, and therefore unattractive. Mr. Henning, 12, Railway Approach, Kenilworth, shows an improved garden netting, and next him come Messrs. Appleby & Co., of Renshaw Works, Chesterfield, who have a large assortment of boilers, valves, garden rollers, and other interesting exhibits, not least amongst which is their useful chain pump for lifting sewage. Their garden hand-pumps are strong and most enduring. The firm get Bronze Medals for hot-water piping, and for garden engines and pumps. Mr. A. E. Wyn, Bishopgate Street, exhibits a miscellaneous assortment of garden seats, and Mr. G. Welsley, Dover Street, Titchfield, have an admirable collection of garden vases and other boilers, and receive a Bronze Medal in the boiler class. Messrs. J. W. Keith & Co. take the Bronze Medal in the class for heating conservatories with their admirable portable hot-water apparatus. The firm also exhibit a large assortment of boilers. Messrs. R. Jenkins & Co., Kotherham, also take a Bronze Medal for large garden rollers. In the class for horse-lawn-mowers, the Messrs. Crowley & Co., Sheffield, receive the Silver Medal, the only award, for their "Invincible," a fine machine—and a similar honour is paid to their hand-machines of the same make. Messrs. Heslop & Son, Southwark Street, S.W., also show a very handsome ornamental fountain in the lobby, get a Bronze Medal for conservatory decorations. Messrs. J. Warner & Sons, of Jewin Crescent, E.C., take the Silver Medal for garden engines, sprayers, &c., and a Bronze Medal is also awarded to Messrs. Arnold & Sons, Weymouth, in the same class. The show of tents made by Mr. B. Edgington, Duke Street, S.E., is a most attractive one, being specially fitted for rough wear, whilst others are almost luxuriously fitted. This exhibitor well merits the Silver Medal awarded. Mr. J. Unite, of Edgware Road, also makes a

big show with this class of garden requisites, and secures worthily the Bronze Medal. The Silver Medal for meteorological instruments—fitly goes to Mr. Joseph Davis, Kennington Park Road, for his fine and varied collection, and in the miscellaneous class Mr. Lipscombe, 44, Queen Victoria Street, gets the Silver Medal for his magnificent collection of the first-class Mall-Leam Edger Company taking the Bronze Medal, and special Certificates are awarded for Wells' spray distributor, and Bertram's chemical fire engines. Similar honours in other classes are given to Mr. Nettelford for a syringe, and Messrs. Edgington for waterproof canvas roofing. The only other award is that of a Bronze Medal made to Mr. R. Holliday, Beaufort Street, Chelsea, for his admirable wirework. Mr. J. Cabot Fox had on the ground his admirable assortment of rustic summer-houses. Mr. J. G. Humphreys, Albert Gate, had an iron shooting-cage, labourers' cottage, tool-house, &c., all of pleasing appearance; Mr. Deveril, of Slough, his useful patent irrigator; and, not least, from Messrs. T. Green & Co., Blackfriars Road—but not in any competition—was a large assortment of fine cement-firm's boilers, lawn-mowers, rollers, garden seats, and other useful requisites.

SCIENTIFIC COMMITTEE.—Sir J. I. Hooker in the chair. *Acacia reticulata* (?)—Dr. Masters showed an acacia which fell on a spot of a Maple received from Mr. Van Volxem under the above name. The plant, however, scarcely corresponds with Boissier's species of this name. The tree is of slender habit, somewhat tender, with spreading branches and palmate leaves, nearly glabrous, three-lobed. The long scarlet bud-scales enveloping the base of the corymbose inflorescence are very attractive at this season. The inner surface of the bud-scales is somewhat velvety, and the rudimentary ovary densely pubescent. The further history of the plant has to be unravelled.

Salt on the Foliole of Trees.—Professor Church, in allusion to the effects of the recent gale, some of the disastrous results of which have been attributed to a deposit of salt on the leaves, recalled his observations made at Cirencester some years since after an autumnal gale, when he had determined the presence, during the crossing of a south-westerly gale, of salt in the rain which fell on the foliage of trees to the extent of 7 grains per gallon, the ordinary amount being only 0.5 grains. The trees in Oakley Park were covered on one occasion with a crystalline deposit on the windward side. In the conversation which ensued several instances of a similar character, and of the deposit of salt on windows at a distance of many miles from the sea, were alluded to. The comparative exemption in some places of Beech trees from the effects of the late gale was mentioned, but this does not appear to have been understood. Mr. J. H. Blackmore exhibited specimens of different varieties of Pears growing side by side at Teddington under the same conditions, the foliage of some of which was greatly injured by the recent gale while others were unaffected. Those leaves which had long foot-stalks, affording long leverage, were, as a rule, more injured than those in which the leaf-stalk was shorter. Vine and Peach leaves were uninjured, so that in these cases the position of the leaf appears to have scarcely had produced the effect, and the differences and unevenness must rather have been due to constitutional variations.

Rhododendron triflorum.—Mr. Mangles showed flowering sprays from the open air of this pretty Sikkim species. The leaves are small, lanceolate, glaucous, and scaly on the under-surface, the flowers being of medium size, and of a flat bell-shaped form. Mr. Mangles mentioned that he had not been successful in crossing the scaly-leaved species with those destitute of scales.

Plants Exhibited.—Mr. Lynch exhibited from the Cambridge Botanic Garden a fine specimen of *Senecio pentalifolius* var. *maritimus*, a remarkably handsome perennial growing wild in Wales, with hoary lobed leaves and trusses of showy yellow flower-heads. Dr. Lowe exhibited a fine specimen of *Cineraria campetris* grown in his garden from seeds obtained from Cambridge, and another specimen from the neighbourhood of Stonehenge. A violet-flowered *Allium*, A. Ostrowskianum, from Turkestan, was also shown by Mr. Lynch. It is one of the most showy of the genus. *Houstonia serpyllifolia* was also shown by Mr. Lynch. It is a tiny trailing plant, with small leaf and beautiful blue flowers, deeper in colour than those of *H. cœrulea*. From Mr. Smece came flowers of Tulips, with petal-like segments developed on the sepals. One of the flowers—a not unfrequent condition. Rev. G. Hemlock remarked with reference to this point that in some of these cases where the unusually placed segment was partly green, partly petaloid, that the inequality of growth caused the flower-stalk to bend over in the direction of least growth, the petalike portion acting as a curb to the more freely growing green portion. To such an extent was this carried that sometimes the flowers were snapped off, this natural process of decapitation giving rise sometimes to unfounded suspicions of mischievous practices.

FLORAL COMMITTEE.—W. R. Kelock, Esq., in the chair. Among the subjects brought before the Floral Committee were some plants of *Lavatera arborea*, with variegated

leaves. They were shown in pots, and were very striking in appearance. Mr. T. Smith, Gloucester, was exhibitor. Mr. Green, gr. to Sir G. MacLery, brought cut spikes of the beautiful *Canna Indiflora* var. *Ehemanni*, the flowers of which are of a remarkable crimson colour. This is a grand plant for a Water Lily tank, as is also *Hydrangea japonica*. To his richly tinted flowers it remains for a long time in blossom. Mr. Stotes showed some beautiful specimens of *Clematis*. Among them were *Star of Surrey*, with very large violet flowers, the petals prolonged into long tails; *C. Violet Cameron*, a large-flowered form with very broad light petals; *C. Forgeroni*, with lilac flowers of medium size; *C. Pandora* with large violet flowers, with narrow pointed segments. Messrs. Heath & Son, of Cheltenham, showed a fine specimen of *Odontoglossum Wilckeanum*, with large cream coloured segments, heavily blotched with brown; the lip is orange-accuminated, fringed and demarcate at the margin. The same exhibitors showed a plant of *Dendrobium formosum* giganteum. Various hybrid (?) forms of *Mimulus* were shown by Mr. Clapham as varieties of *M. moschatus*, such as var. *ruber*, of dwarf habit and bronzy flowers; var. *nanus*, very dwarf, with yellow flowers. Messrs. Paul & Kim, of Chesham, showed sprays of the Golden Nut, *Corylus avellana* var. *aurea*, the rich tints of which are very effective. Messrs. Veitch showed a plant of *Rhododendron aurantiacum* with petaloid stamens, and *Hydrangea japonica* tinged with lavender, with leaves of a yellowish tinge. Messrs. Laing also showed specimens of the richly tinted *Papaver umbrosum*, introduced by Mr. Thompson, of Ipswich. Mr. Churchfield, gr. to H. Littleton, Esq., showed a fine variety of *Anthurium Schzerianum*, with large spathes. Mr. Douglas showed pots of *Veronica Hulkeana*, a greenhouse species of *Veronica*—the long, slender branches of which are densely clothed with pale lilac flowers. This is a species not so well known as it should be. In bloom in an early spring it is one of the most effective decorative plants in No. 1 class. In the hands of winterers would be hardy out-of-doors. Mr. Robert Warner showed a plant of *Odontoglossum crispum* with a fine raceme of very large pale rose flowers with very few spots. The awards made were:—

First-class Certificates.

- To R. Warner, Esq., for *Odontoglossum crispum* giganteum.
- To Mr. Coningsby, for *Masdevallia Veitchii* grandiflora.
- To Mr. Coningsby, for *Oncidium Intellegitur*.
- To Mr. T. Smith, for *Lavatera arborea* variegata.
- To Messrs. Cannell & Sons, for *Pelargonium* (Icy-leaved) *Euryline*.
- To Mr. R. Dean, for *Spergula pilifera* aurea.
- To Messrs. James Veitch & Sons, for *Selaginella platyphylla*.
- To Mr. B. S. Williams, for *Adiantum dolabriforme*.
- To Mr. R. T. Veitch, for *Rose Reine Marie* Heister.
- To Messrs. John Laing & Co., for *Begonia Ball* of Fire.
- To Mr. James Douglas, for *Veronica Hulkeana*.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. Mr. Ward, gr. to the Earl of Radnor, Longford Castle, showed a dozen very fine fruits of *Citrus medica*, which weighed in the aggregate 14½ lb. Mr. Koss, gr. to C. Eyre, Esq., of Wedford Park, Newbury, showed admirably kept specimens of *Cornus Alatica*, *Strawberry*, *Almon*, *Almon*, *White Nonpareil*, *Lord Burghead*, *Baldwin*, and *Stamford Pippin* Apples. Melons were shown by Mr. J. Atkins, Lockinge; Mr. Taylor, gr. to J. McIntosh, Esq., Duncewan, Weybridge; and Mr. C. Howe, Beckenham Park, Newbury; the last named exhibitor showing his seedling scarlet-leaved variety, *Williamstown*, which proved a really good and well-flavoured novelty. Mr. O. Goldsmith, Polesden Lacey, showed two well coloured bunches of the Royal Asot Grape, and a sample of an American variety of Strawberry named Silver Goldsmith. Fruits of the white Becton Pine Strawberry came from Mr. Effic, gr. to W. W. F. Dick, Esq., Thames Ditton. From Messrs. Danics Brothers, Norwich, came a large sample of their *Dufance* Cucumber, a white-spined variety; and of the *Queen of the Pyramids*, a well-cured variety. The awards made were:—

First-class Certificate.

- To Mr. C. Howe, for *Melon William I.*
- Cultural Commendations.
- To Mr. Ward, for *Citrus medica*.
 - To Mr. W. Elphinstone, for *Straw Turkey* Figs.

Crystal Palace : May 29.—The "Grand Flower Show" held on Saturday last, was no more like the really great flower shows that have been held here than chess is like chess. The first extension of the show will require but short notice from us, such exhibitions being all but valueless as aids to horticultural progress. Stove and greenhouse plants were best shown by amateurs—the successful exhibitors being Mr. B. Peed, Mr. W. Gunman, and Mr. C. Mann; while in the trade Mr. Messrs. Peed & Son, and Mr. H. J. James were the only exhibitors who got awards. Messrs. Peed & Son and Mr. B. Peed secured the leading prizes for Heaths, most of the others being witheld; and the trade class for *Andreas* was so poor that only the 3d prize was given. The amateurs class was better, Mr. Child being 1st, and Mr. Katty 2d, the 3d being witheld. Mr. Katty was 1st for six, and Mr. Turner 1st for eighteen, the latter being very good. Fine-foliage plants were very good, Mr. Rann being 1st, and Mr. Penfold, Beddington House, 2d. Of Orchids there were only two collections, from

Mr. H. James and Mr. Salter, fr. to J. Southgate, Esq., Mr. Penfold and Mr. James were well to the front with Ferns, and Mr. Bird, jr. to J. A. Causton, Esq., Alven Park, West Dulwich, took the lead with Crotons, with a vigorously grown and well developed lot of plants. For twelve Clematises Messrs. Jackson & Son were 1st, and Messrs. R. Smith & Co., Worcester, 2d, both showing remarkably well. The Roses and Pelargoniums from Mr. Turner were the best in their classes, and Messrs. Laing & Co. took a 1st prize for a group of plants arranged for effect in one of Messrs. Edgington's tents, and which in the evening, when lighted up by gas and Main's standard electric light had a very pleasing effect. The miscellaneous groups included a choice collection of small alpine and other hardy plants from Messrs. James Carter & Co., cut flowers of Pyrethrums from Messrs. Keilway & Son, Langport; and of Pelargoniums, double Fuchsias, &c., from Messrs. Cannell & Sons, Swainby; Pansies, &c., from Mr. Hooper, Bath; and Pansies from Messrs. Hooper & Co., Covent Garden.

Edinburgh Botanical: May 11.—Professor Isaac Balfour, President, in the chair. In the motion of Professor Dickson, seconded by the President, the Society unanimously adopted a recommendation of the Council to re-establish the Society's triennial prize of £10 in connection with the University of Edinburgh, to be awarded for the best original botanical research, competitors to have been previously selected by the award, attended the Botanical class. Emeritus Professor Balfour contributed a "Notice on the Death of Charles Robert Darwin, Honorary Fellow" of the Society.

II. In a communication "On the Germination of Streptocarpus caulescens lately raised by the Edinburgh Botanic Garden from seeds sent home by Mr. Buchanan, Blantyre, Central Africa," Professor Dickson referred to the facts already known regarding the germination of such species as Streptocarpus Rhexi and S. polyanthus, from South Africa, where the two cotyledons are at first very small and of equal size, one of them being stationary in development and finally disappears while the other continues to grow, forming an elongated sessile leaf of considerable size lying flat along the surface of the ground. In these species the enlarged cotyledon persists throughout the life of the plant, and is the only leaf-organ performing proper leaf-functions, the other leaves being developed merely as bracts in connection with the inflorescence. A similar development, it can hardly be doubted, occurs in Acanthocheilus strigosum, described by Sir J. D. Hooker in the Botanical Beecheyana, vol. 1, p. 359, a plant belonging to the same natural order (Gesneriaceæ), and also native of South Africa. It is noteworthy that in yet another South African plant, of very different affinities—the celebrated Welwitschia—we have also an instance of leaves, either the cotyledons, or, as seems probable (certainly from Mr. Power's researches) the two first leaves of the plumbe, becoming much enlarged, persisting throughout the lifetime of the plant, and performing exclusively, in absence of any other foliage-leaves, the ordinary leaf function, just like the enlarged cotyledon of Streptocarpus polyanthus. In the Blantyre Streptocarpus the plant germinates at first with two minute cotyledons of equal size and opposite to each other—i.e., at the same level. A little later, however, one of these is observed to become larger, the other remaining stationary. The larger cotyledon goes on growing, developing a distinct petiole, and ultimately forms a leaf differing in no essential respect from the foliage leaves succeeding it on the stem of this caulescent species. A further peculiarity is that the cotyledons thus unequally developed, though at first opposite each other, become, in time, separated, and separated by an internode, the larger cotyledon being carried up nearly half an inch higher than the smaller one—a very remarkable phenomenon in a dicotyledonous plant. S. caulescens has all the appearance of being an annual, the root being feebly developed. The larger cotyledon, moreover, is evidently of no greater permanence than the foliage leaves which succeed it, and which, as already said, it closely resembles. In the axils of both the cotyledons and of the foliage leaves buds are developed; in the first place a primary axillary bud, and then a little more an accession of lateral buds below the level of the bud, between it and the leaf-base. It might be a question for evolutionists whether to regard the condition of S. caulescens as a step towards the highly differentiated one of S. polyanthus, or as a step towards reversion to a more normal development; a speculation, perhaps, scarcely worth entering upon.

III. The President communicated a "Report on the Vegetation in the Garden of the Royal Botanic Institution, Glasgow, for January, February, March, and April, 1882," by Robert Bullen, Curator. On the 1st of January the thermometer was at the freezing-point on four occasions, and below it only twice—the lowest temperature registered being during the nights of the 8th and 20th, when 3° and 2° below 0° of frost were recorded; the highest temperature at noon on the 6th, with a little sun. The vegetation was usually forward, but of many hardy shrubs, especially of the tall ones of the harder Lonicera having young growth 2 or 3 inches in length. During February the thermometer was below the freezing-point on six occasions, the lowest reading being on the 15th, when 3° of frost were recorded, the highest at 11° on the 27th, and the total of frost for the month being 7°, and one at the freezing-point, but this had no retarding effect on the vegetation, already noticed as being wonderfully forward. Petasites vulgaris was in full bloom the first week in the month; Digitalis purpurea, Sisyryrhium, and Scilla taliea and striata; by the month, the buds of the sanguineum was noticed in bloom on the 26th on the banks of the River Kelvin, Pulmonaria officinalis and Hepatica

triloba were in bloom at the end of the month. The buds on Poplar, as well as on some of the Lonicerae were in full leaf. During the month of March, the thermometer was at or below the freezing-point on four occasions, the lowest reading being during the night of the 27th, falling to 2°; or 4° of frost; cold winds with occasional hailstorms were, however, the cause of low temperature than actual frost—the total of frost for the month being 8°. Vegetation made little progress, and the plants previously noticed as in premature bloom received a check. In April the thermometer was at the freezing point on four occasions, and below only twice, on the 6th and 15th, when 3° and 6° of frost were recorded, the total of frost for the month being 9°. During the earlier part of the month vegetation made little progress, owing to the cold winds which prevailed. The leaves of the more tender herbaceous plants, as also those of several deciduous trees and shrubs, were slightly injured by the frost on the night of the 15th inst. No frost having been experienced since that date, no ill effects are observable. The leafage of most trees is at least three weeks in advance of the last two seasons.

IV. Report on Temperatures and Vegetation at the Royal Botanic Garden, Edinburgh." By Mr. Sadler. During the month of April the thermometer was at or below the freezing point on six occasions, as compared with twenty-one in the same month last year. The lowest temperatures were on the 6th, 10th, 15th, 18th, 20th, 27; 12th, 29; 13th, 31°; 16th, 26°; 27th, 28°. Since May commenced, although the thermometer has not fallen to the freezing point, yet the night temperatures have been very low, as shown by the following readings:—1st, 34°; 2d, 39°; 3d, 33°; 4th, 34°; 5th, 37th, 29°; 6th, 25°; 7th, 29°; 8th, 29°; 9th, 26°. On the 23rd, 25th, and 11th the thermometer registered 43°. These low temperatures, along with the east and north-east winds, retarded vegetation very much, and it is only by the last two genial days that it has made a fresh start. The frosts of April, owing to the advanced condition of vegetation, did much injury to fruit trees, and bushes in flower, as well as to tender shrubs, in many parts of the county.

During the month of April 21 species and varieties of plants came into flower on the rock garden, as compared with fifty-two in April last year. During this season there have already come into flower on the rock garden 346 species and varieties, as compared with 158 at this date last year.

V. Miscellaneous communications.—1. Mr. Isaac Anderson-Henry, of Hay Lodge, Trinity, placed on the table two plants in bloom, which he conceived to be wholly new to this country. The one, an Androsace, had been grown from seeds labelled Olearia ilicifolia, sent by Dr. Carl, of Wellington, New Zealand, as collected on Mount Ruahine Heds, in the Northern Island. The plant on the table was the only seed which came up of the contents of the packet. In New Zealand, Samolus is the only known representative of the Primrose order, yet, if got on these high summits, not at all botanically explored, it may have been mingled with seeds of Olearia. Sir Joseph Hooker maintains that these mountain ranges will yet yield a rich harvest to the explorer. The other plant, an Arnebia, was raised from seeds sent by Mrs. Augustus Johnstone, and picked up in elevated valleys between Murre and Rawul Firdi; they were labelled "Prophet Flower." It may be Dr. Johnson's A. species.

2. The following plants in bloom, from the Royal Botanic Garden, amongst others, were placed on the table, presented by Mr. W. E. Dixon:—Acanthopulchella, Meconopsis simpliciifolia, Anhyllis emacea, Andromeda fastigata, Gentiana verna, Primula sikimensis, P. mollis, P. auriculata, P. capitata, Androsace rotundifolia var. macrocalyx, Penstemon Menziesii, Anemone triphyllum, Saxifraga calyciflora, S. Mac-Nabiana, S. Caryana, Lithospermum oleifolium, Ranunculus parnassifolius, Fuchsia cordata, Aetnaria grandiflora.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 24, 1882.

MONTH AND DAY.	BAROMETER.	TEMPERATURE OF THE AIR.			HYGROMETRIC DEGREES FROM THE POINT OF SATURATION.	WIND.
		Mean.	Lowest.	Warmest.		
May	In.					
18	30.15	64.0	60.0	73.0		N E
19	30.13	64.0	60.0	73.0		N E
20	30.10	64.0	60.0	73.0		N E
21	30.08	64.0	60.0	73.0		N E
22	30.06	64.0	60.0	73.0		N E
23	30.04	64.0	60.0	73.0		N E
24	30.02	64.0	60.0	73.0		N E

- May 18.—A very fine bright day, sunny, brightly blue sky. Fine clear cold night.
- 19.—A very fine bright day, dark clouds passing at times. Very dark sky, appearance of rain at night.
- 20.—A fine bright day, sun shining brightly. Fine clear night.
- 21.—A very fine bright day, sun shining, brightly overcast at times. Thin rain at night.
- 22.—A fine day, but overcast at intervals. Fine night.
- 23.—A fine day, overcast, hail and rain from 2 P.M. to 2.30 P.M. Afterwards fine and bright. Fine fine night.

LONDON: Atmospheric Pressure.—During the week ending May 20 the reading of the barometer at the level of the sea increased from 30.34 inches at the beginning of the week to 30.35 inches by 9 A.M. on the 13th, decreased to 30.29 inches by 3 P.M. on the 14th, increased to 30.33 inches by 9 A.M. on the 15th, decreased to 30.25 inches by 3 P.M. on the same day, increased to 30.49 inches by 9 A.M. on the 17th, and was 29.87 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.25 inches, being the same as last week, and 0.34 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 68°, on the 18th. On the 15th the highest temperature was 56°. The mean of the seven highest temperatures was 63°.7.

The lowest temperature in the shade in the week was 38°, on the 17th; on the 20th the lowest temperature was 46°. The mean of the seven lowest temperatures was 47°.3.

The greatest range of temperature in any day was 28°.5; on the 18th; the smallest was 14°.7, on the 15th. The mean of the seven daily ranges was 22°.

The mean temperatures were, on the 14th, 50°.7; on the 15th, 47°.3; on the 16th, 48°.8; on the 17th, 49°.6; on the 18th, 53°.2; on the 19th, 54°.1; and on the 20th, 54°.6; of these those of the 19th and 20th were above their averages by 0°.4 and 0°.9 respectively; the rest were below their averages by 0°.6, 4°.6, 3°.5, 3°.2, and 1°.2 respectively.

The mean temperature of the air for the week was 51°, being 2°.3 lower than last week, and 1°.7 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the rays of the sun, was 149°.5, on the 19th; the highest, on the 15th, was 125°. The mean of the seven readings was 140°.6.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 34°, on the 16th and 18th. The mean of the seven readings was 36°.4.

Rain.—No rain fell during the week.

ENGLAND: Temperature.—During the week ending May 20 the highest temperatures were 71°.8 at Nottingham, 70°.5 at Leeds, and 58°.7 at Bradford. The highest temperature at Brighton and Hull was 62°, and at Plymouth was 63°.5; the general mean was 67°.

The lowest temperatures in the week were 32° at Cambridge, 33°.5 at Sheffield, and 34° at Wolverhampton and Hull. The lowest temperature at Brighton was 39°.6, at Plymouth 38°.5, and at Blackheath and Liverpool was 38°. The general mean was 35°.6.

The greatest ranges of temperature in the week were 35°.9 at Nottingham, 36° at Cambridge, and 35°.4 at Wolverhampton. The least ranges were 22°.4 at Brighton, 25° at Plymouth, and 28° at Hull. The general mean was 31°.4.

The mean of the seven high day temperatures was highest at Nottingham, 65°.6, at Blackheath 63°.3, and at Sunderland 63°.1; and was lowest at Hull, 56°.6, at Brighton 58°.6, and at Sheffield 59°. The general mean was 61°.4.

The mean of the seven lowest night temperatures was highest at Liverpool, 41°.0, at Truro 41°.9; and at Plymouth 41°.4 and was lowest at Cambridge, 35°.1, at Bristol 37°.3, and at Hull 37°.4. The general mean was 39°.5.

The mean daily range was greatest at Cambridge, 28°.0, at Nottingham 26°.6, and at Wolverhampton 24°.8; and was least at Brighton, 17°.4, at Liverpool 18°.1, and at Plymouth 19°.1. The general mean was 21°.9.

The mean temperature for the week was highest at Blackheath, 61°.0, and at Truro and Nottingham 56°.6; and was lowest at Hull, 45°.3, at Sheffield, 46°.8, and at Bristol 47°.4. The general mean was 48°.8.

Rain.—The falls were 0.05 inch at Truro, 0.04 inch at Brighton, 0.03 inch at Sunderland. No rain fell at Plymouth, Bristol, Blackheath, Leicester, Cambridge, Wolverhampton, Nottingham, Sheffield, Liverpool, Bolton, Hull, Bradford, or Leeds. The general mean fall was 0.01 inch.

SCOTLAND: Temperature.—During the week ending May 20 the highest temperature was 76°.5, at Paisley; at Edinburgh the highest temperature was 60°.4. The general mean was 67°.4.

THE
"INVINCIBLE" LAWN MOWER
 (SAMUEL EDWARDS' PATENT),
 AWARDED
THE ONLY GOLD MEDAL
Ever offered in England for Open Competition.

LATEST AWARDS.

Royal Horticultural Show, The Gardens, South Kensington, London, May 23 to 25, 1882.

FIRST PRIZE SILVER MEDAL (for Horse-Power).

FIRST PRIZE SILVER MEDAL (for Hand-Power).

FIRST PRIZE (Society's Medal) International Horticultural Show, Botanical Gardens, Manchester, August, 1881, in competition with the leading makers, both English and American.

Send for Illustrated Price List to Sole Makers,

JOHN CROWLEY & CO., Sheffield.

(REGISTERED)

Hydro-Carbon Oils as Insecticides and Washes for Plants and Animals.

**SOLUBLE
 FIR TREE OIL INSECTICIDE.**
 Bottles, 12. 6d., 25. 6d., 45. 6d., and 75. 6d.;
 Gallons, 12s. 6d.; Cases, 11s. per gallon.

It destroys all insect pests on plants and fruit trees, whether at the roots or on the foliage. It destroys all parasites and fungoids which infect animals and human beings.
 It is free from poison, very clean and pleasant in the using.
 It is the cheapest insecticide ever produced.

(Testimonial.)

Willersley Gardens, February 15, 1882.
 Mr. HUGHES.—Sir,—Please send me at once a gallon of Fir Tree Oil. I have again tried the above, and believe it to be what has been said of it. My previous disappointment with it was on account of its not being stured sufficiently.—Yours, &c.,
 JAS. TISSINGTON.

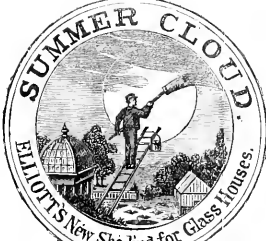
From all Seedsmen and Chemists. Manufactured by
 E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 1 to 15 oz. as a winter dressing for Vines and Fruit Trees. Has outwitted many preparations intended to supersede it. In Boxes, 12, 3s., and 10s. 6d.

AMERICAN BLIGHT ON APPLE TREES
 CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the latter into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 12. each.

Wholesale by **MRS'S PATENT CANDLE COMPANY** (Limited). Retail by Seedsmen and Oilmen.



ELLIOTT'S IMPROVED

"SUMMER CLOUD" SHADING,

FOR

GREENHOUSES, CONSERVATORIES, SKYLIGHTS and all GLASS STRUCTURES that require Shading Material.

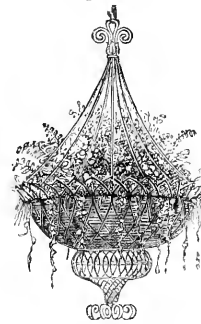
It combines Efficiency with Appearance, Convenience with Economy, and its effects are Lasting.
 Sold in Packets, 12. each, with full Directions for Use, and may be obtained from all Seedsmen and Nurserymen.

Sole Manufacturers and Proprietors,

CORRY, SOFER, FOWLER & COMPANY (Limited), FINSBURY STREET, E.C., and London, SHAD THAMES, S.E.

TANNED NETTING, from 1 yard to 4 yards wide, 1d. per square yard, subject to a liberal discount on large quantities.
SHADING CANVAS, from 3 1/2 ft. per yard, and upwards.
BEST ROLL TOBACCO PAPER, RAFFIA FIBRE, RUSSIA MATS.
SACKS and BAGS, New and Second-hand. **ROPES, LINES, and TWINES**. Descriptive Catalogue post-free on application.
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HANGING BASKETS for CONSERVATORY
Largest Show of Baskets in London.



- Suspending Baskets
- Iron and Wire.
- Flower Stands.
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- Ealloon Trainers
- Garden Arches.
- Roseries.
- Wirework Screens.
- Garden Fencing.
- Wire Fencing.
- Conservatory Aviaries.
- Pheasantries.

R. HOLLIDAY, Iron and Wire Works,
 LARGE SHOWROOMS,
 The Pheasantry, Beaufort Street, Chelsea, S.W.

RALPH WALLER and CO. (Limited),
 45, Dale Street, Manchester, Manufacturers of all kinds of GARDEN NETTING for protecting Fruit Trees from Frost. Also HOTHOUSE SHADINGS for Orchids and Conservatories.

GARDEN NETTINGS.

No. 2, at 5d. per run 54 in.; 72 in., 63 1/2 d. per run; 100 in., 9d. per run.
 No. 3, at 6d. per run 54 in.; 72 in., 8d. per run; 100 in., 1s. per run.

HOTHOUSE SHADINGS.

Fine Netting, 6d. per run 54 in.; 72 in., 8d. per run; 100 in., 1s. per run.
 No. 62 Netting, 11d. per run 54 in.; 72 in., 1s. 3d. per run; 100 in., 6d. per run.
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 No. 6 improved, 1s. per run 54 in. In pieces 30 yards long.

TIFFANV.

No. 1, 3s. 6d. per piece 20 yds. by 38 in.
 No. 2, 4s. 6d. per piece 20 yds. by 38 in.
 Samples on application.

Protection for Fruit and Flowers.

GARDEN NETTING, 2 yards wide, 1 1/2d.; and 4 yards wide, 3d. per yard. **SCRIM CANVAS**, 1 yard wide, 3d.; 1 1/2 yards, 4 1/2d.; and 2 yards, 6d. per yard. **TIFFANV**, 38 inches wide, in pieces of 20 yards each, at 2s. 6d. per piece. Can be obtained of **HENRY VAN AND CO.**, 17, Tooley Street, London, S.E.

NETTING FOR FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
FANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards not; 4 yards wide, 6d. per yard, or 50 yards not.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; 1/2-inch mesh, 4 yards wide, 1s. 6d. per yard.

TIFFANV, 6s. 6d. and 7s. 6d. per piece of 20 yards.
EATON and DELLER, 6 and 7, Crossed Lane, London Bridge.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE STRATFORD LABELS.

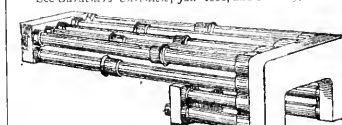


The above Labels are made of a White Metal, with RAISED GILDING and LETTERS.
 The *Gardener's Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."
 Samples and Price Lists free.
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GARDEN REQUISITES.—Sticks, Labels, Virginia Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of **WATSON and SCULL**, 50, Lower Thames St., London. E. C.

**ROCHFORD'S IMPROVED
 HORIZONTAL BOILER**
 Unequalled for Simplicity, Power, and Economy.

See *Gardener's Chronicle*, Jan 1880, and Nov. 19, 1881.



As inferior imitations of this now well-known Boiler are being advertised and sold to the detriment of its reputation, C. P. R. & Co. have in conjunction with *Gardener's* and the *Iron*, generally list Mr. Rochford has assigned to them the sole and exclusive right for its Sale and Manufacture.

HOT WATER PIPES and BOILERS

From our large and complete stock at wholesale prices.
CHARLES P. KINNELL & CO.,
 IRONFOUNDERS, 31, BANKSIDE, LONDON, S.E.

HOSE—HOSE—HOSE.

PATENT RED-RUBBER GARDEN HOSE.

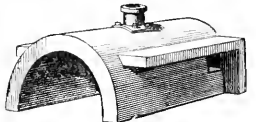
Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary India-rubber Hose, Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."

Private Customers Supplied at Trade Prices.

Sample and Price of
MERRYWEATHER & SONS,
 Manufacturers, 63, Long Acre, London, W.C.

Silver Medal, 1874. First-class Certificate, 1867.
 Highly Commended, 1873. First-class Certificate, 1875.



Mr. W. THOMPSON, Tweed Vineyard, has written the following letter to a gentleman who inquired respecting this Reel:—"

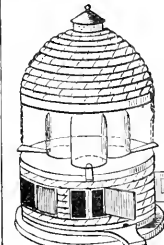
"The Terminal Saddle Reel is the best one we have here, and we have had all sorts. It does its work well, and with less fuel than most Reels. It is the most economical and efficient Reel we have, and has not cost us expense since we fixed it some eight years ago."

Illustrated Prospectus Post-free.

THOS. JONES, Temple Street, Manchester.

"Gather Honey from Your Flowers."
NEIGHBOURS' Celebrated BEEHIVES, for taking Honey without the destruction of the Bees.

PHILADELPHIA EXHIBITION, 1876.
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 Three Silver Prize Medals awarded to Geo. Neighbour & Sons. Also the First Silver Cup at the Caledonian Apiarian Society's Show at Edinburgh, 1877 (in connection with the Highland and Agricultural Society's Annual Exhibition), for the largest and best display of Bees, Bee-Hives, and Bee Apparatus.



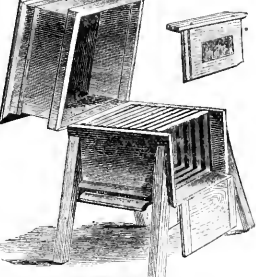
NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE

as originally introduced by Geo. Neighbour & Sons, working three bell-glasses, is neatly and strongly made of straw; it has three windows in the lower Hive.

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

Price, complete £1 15 0
 Stand for ditto 0 10 0

PHILADELPHIA PAR-FRAME HIVE, from which the Combs can be removed at side opening whilst supers are on. This Hive affords remarkable facility for manipulation, because the frames can also be taken out from top as with other Frame



Hives, and at the same time afford great opportunity for full inspection, having glass on three sides closed with shutters.
 Price, complete, with Cover and Stand, 42s.; also Par-Frame Hives, of most approved construction, at 7s. 6d., 12s. 6d., to 15s. each.

An **ITALIAN ALP QUEEN**, with full directions for uniting to Black Stocks, at current prices.

LIGURIAN and ENGLISH BEES.—Stocks and Swarms may be had at heretofore.

"THE APRIARY." By ALFRED NEIGHBOUR. 5s. postage 5d.

A newly-arranged Catalogue of other Improved Hives and Appliances, with Drawings and Prices, sent on receipt of two stamps.

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FOR SALE, a SPAN-ROOF CONSERVATORY, 30 feet long, 17 feet wide, 7 feet at eaves, price, £67; 21 feet by 23 feet GREENHOUSE, £33; LEANTO, 21 feet by 13 feet, £38; AMATEUR GREENHOUSES, from £8. They can be seen temporarily fixed at H. FREEMAN and SONS, Horticultural Builders and Hot-water Engineers, Cambridge Heath Bridge, Hackney, E.

APPLEBY & CO.,

Renshaw Ironworks, near Chesterfield,
WILL EXHIBIT
LIFT and FORCE PUMPS,
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PUMPS



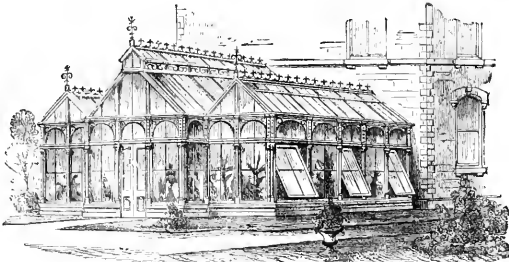
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ROLLERS,
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BOILERS,

BOILER STOVES,
New Pattern,

HOT-WATER PIPES
WITH INSULATOR JOINTS,

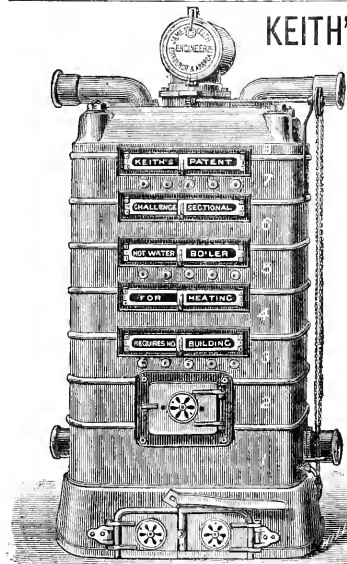
VALVES, GRATINGS, &c., &c.

MESSINGER & COMPANY,
MIDLAND HORTICULTURAL BUILDING & HOT-WATER
ENGINEERING WORKS, LOUGHBOROUGH.



Horticultural Buildings erected on MESSINGER & CO.'s Patent Method of Construction are very strong, most durable, light, elegant, amply ventilated, perfect efficiency for intended purpose is guaranteed, are economical in cost and maintenance: combine the peculiar advantages of Wooden and of Iron Houses, without their disadvantages.

MESSINGER AND CO., from their long experience, and having large Works exclusively devoted to the Construction and Heating of Horticultural Buildings, are in a position to execute with despatch, in the best manner, the Orders with which they are entrusted. Only thoroughly well seasoned timber used.



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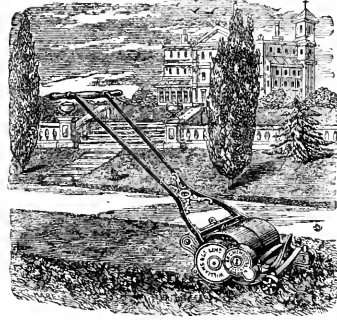
Patronised by
HER MAJESTY,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
15,000 OF THE NOBILITY, GENTRY, AND CLERGY.

Is extensively used for all kinds of
OUTDOOR WORK, CONSERVATORIES,
Greenhouses, Frames.
CAN BE LAID ON BY UNSKILLED LABOUR.

1 Coat, and Oil Mixture, Free to all Stations.
Price, Pattern, and Testimonials, Post-free.
CARSONS,
LA BELLE SAUVAGE YARD, LUDGATE HILL,
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Discount for Cash.

Geometrical Mosaic and Encaustic
TILE PAVEMENTS, for Conservatories,
Verandahs, Entrance Halls, &c. Enamelled and Deco-
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Extensive Indestructible Terrazzo Plant Markers. Patterns and
Prices sent post-free on application.
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"ARCHIMEDEAN"
AMERICAN
LAWN MOWERS.



AWARDED
HIGHEST PRIZE
At the PARIS EXHIBITION, 1878;
And the Jury, in their Report, say—"The 'ARCHI-
MEDEAN' did the BEST WORK of any Lawn Mower
exhibited."

ALSO
At SYDNEY EXHIBITION, 1879-80,
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MELBOURNE EXHIBITION, 1880-81.

OPINIONS OF THE PRESS.
"Far superior to any of ours."—Vide The Field.
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used."—Vide Gardeners' Chronicle.
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best mowers we have as yet made acquaintance with"—Vide
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Prices from Twenty-five Shillings.
Delivered Carriage Free to all Railway Stations in Great Britain.

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Manufacturers and Patentees.
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OLD SWAN WHARF, THAMES ST., LONDON.
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LONDON; and BACHELOR'S WALK, DUBLIN.

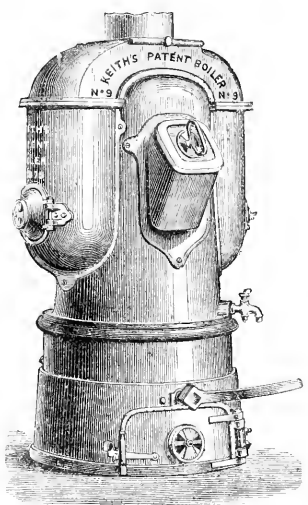
BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.
B. & Son have always a large stock in London of 20-in. by
12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., 16-oz.
and 21-oz.; and also large sizes in all qualities for cutting-pur-
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KEITH'S PATENT HOT-WATER BOILERS.

Can be heightened or lowered, or made to suit any requirements. They stand complete in themselves, and require no building work, being wholly water-jacketed and thus entirely free from risk by fire. They can be had all sizes, to heat from, say, a few feet, up to 8000 feet of 4-inch pipe each; are now in all parts of the world, and are unrivalled as being the best, most powerful, and most economical Hot-water Boilers in use.

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"I am delighted with your Boiler; it answers admirably, and the directors are satisfied that it is one of the best I've worth ever put in the hotel."
From Q. C. CHALMERS, Gardens of James Madie, Esq.,
Broughty Ferry, September 15, 1883.
"Your Boiler beats all my expectations, at present one fire serves for twelve hours, and keeps up a good, steady heat."
From ISAAC HOLDEN, Esq., Oakworth House, Keighley, York-
shire, June 10, 1881.
"Your Boilers are the best we have tried." (Note: one of these Boilers heats nearly 8000 feet of 4-inch pipe.)
From WM. FRASER, Kippes Gardens, Dinwiddie, Perthshire,
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"I consider your Boiler most efficient; as for economy, it is the acme of perfection."
From Rev. James CARDBELL, Military Academy, Highlands,
Perth, December 31, 1881.
"Nothing could be better than the Boiler you sent me; it burns all sorts of rubbish, and gives an excellent heat."
From ARTHUR BOOTY, Esq., Rose Villa Nurseries, High Harrogate, March 22, 1882.
"Your Boiler has exceeded all my expectations; it will pay for itself as a fuel saver in a short time. It heats 2000 feet of 4-inch pipe."
Keith's Treatise on "Heating by Artificial Means," post-free for twelve stamps.

JAMES KEITH
GAS, HYDRAULIC, AND HOT-WATER ENGINEER,
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Just awarded "Three First-class Medals" and "Honourable Mention" by the Philosophical Society of Glasgow.



SHANKS'S PATENT LAWN MOWERS.

The only Lawn Mower fitted with Double-edged Sole-plate, which enables the Cutting Parts to Last Twice as Long as in other Machines.

H A N D M A C H I N E .



PRICES.

To cut 10 inches wide	£3 10 0	To cut 10 inches wide	£8 0 0
To cut 12 inches wide	4 10 0	To cut 22 inches wide	8 10 0
To cut 14 inches wide	5 10 0	To cut 24 inches wide	9 0 0
To cut 16 inches wide	6 10 0		

"THE YANKEE" LAWN MOWER.

PRICES.

10-inch	.. £1 0 0
12-inch	.. 4 0 0
14-inch	.. 5 0 0

Will Cut either Long or Short Grass.

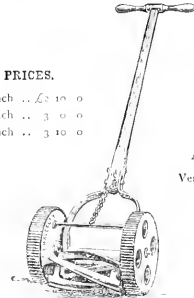


"THE WAVERLEY" LAWN MOWER.

PRICES.

10-inch	.. £3 10 0
12-inch	.. 4 0 0
14-inch	.. 5 10 0

A New Machine. Very Easily Waked.



ALEX. SHANKS & SON,

DENS IRONWORKS, ARIKROATH, FORFARSHIRE;

AND

57, LEADENHALL STREET, LONDON, E.C.

Small Lawn Mowers, 6 in., 7 in., 7 1/2 in., 8 in., 8 1/2 in., 9 in., 10 in., 11 in., 12 in., 14 in., 16 in., 18 in., 20 in., 22 in., 24 in., 26 in., 28 in., 30 in., 32 in., 34 in., 36 in., 38 in., 40 in., 42 in., 44 in., 46 in., 48 in., 50 in., 52 in., 54 in., 56 in., 58 in., 60 in., 62 in., 64 in., 66 in., 68 in., 70 in., 72 in., 74 in., 76 in., 78 in., 80 in., 82 in., 84 in., 86 in., 88 in., 90 in., 92 in., 94 in., 96 in., 98 in., 100 in.

To Market Gardeners.

J. SMITH, Draper, Eastbourne, has MOST QUANTITY KEPT for the use of Gardeners for the Protection of the Fruit from Insects, 60 in. wide, 1/6 per yard.



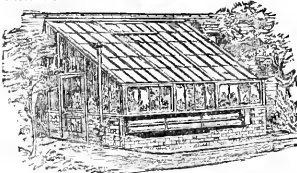
"ART WITH ECONOMY." Applied to Conservatories and Greenhouses. With Illustrations, Prices, &c. Part I. now ready. Post-free twelve stamps.

HORTICULTURAL BUILDINGS Of every description Made, Erected, Fitted and Heated. ESTIMATES and PLANS GRATIS.

CHEAP ART SUMMER-HOUSES. Illustrations and Prices Gratis. Mr. Fawkes' New Illustrated Work of Reference on Horticultural Buildings, post-free, 10s. 6d. Prospectus sent gratis.

T. H. P. DENNIS & CO., MANSHON HOUSE BUILDINGS, LONDON, E.C. WORKS: CHELMSFORD.

AMATEURS' GREENHOUSES.

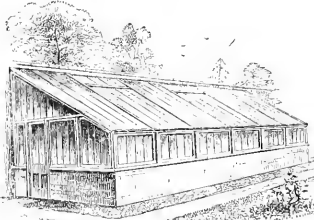


A LEAN TO or SPAN GREENHOUSE, 12 feet long by 10 feet wide, £28 14s. delivered. Made of thoroughly well-seasoned Red Deal, lights 2 inches thick, ventilators at top and in front, painted two coats, and glass cut to size; door with lock and key, pattering and down pipe.

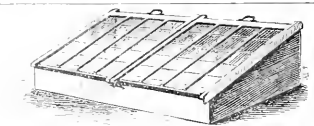
Makers of the "GALVANA GREENHOUSE" size 20 feet by 6 feet. These houses are made in lights, have all been erected in our own shops, and can readily be put together again. Many sizes in stock ready for despatch. Full particulars and illustrations and prices on application. See also advertisement alternate weeks.

MESSENGER AND CO, Loughborough, Leicestershire.

W. H. LASCELLES, HORTICULTURAL BUILDER, 121, BUNHILL ROW, LONDON, E.C.



W. H. LASCELLES will prepare Special DRAWINGS and ESTIMATES for GREENHOUSES, if desired, without charge, and send by Illustrated Sheets, post-free, and also Sketches of Wooden Buildings for Cool-houses, Store-houses, &c. Horticultural Work of every description executed in the very best manner.



NO. 75. MELON, or CUCUMBER FRAMES. CASH PRICES—Carrage Paid. No. 2 size .. 8 ft long .. 6 ft wide .. £3 7 0 No. 3 size .. 12 ft long .. 6 ft wide .. 4 17 0 No. 4 size .. 16 ft long .. 6 ft wide .. 6 7 6 These Frames are 24 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. The lights are made of the best hand red deal, shipped from the best districts in England and Wales; also to Edinburgh and Dublin. Estimates for Garden Frames, Pet Litters, Sashes, &c. "The Frames you sent me give the greatest satisfaction."—W. SHELTON, Birkley Farm, Milton Keynes.

BOULTON & PAUL, NORWICH.



Rustic Garden Furniture in great variety. Garden Seats, Avnices and Tents, Rustic Tables, Chairs, and Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows, Wheelbarrows, Garden Tools, Summer-houses, Sun Dials, Fancy Waterwork, Weather Vanes, Hammocks, and all kinds of Garden Furniture at lowest marked prices. Catalogue post-free. PANKLIHANON COMPANY, 56, BAKER STREET, W.

BOULTON & PAUL, Manufacturers, NORWICH. Poultry Appliances, &c. ILLUSTRATED CATALOGUE FREE BY POST.

DENVN'S Unrivalled ROLL PAPER and CLOTH, as supplied to over 3000 Nurseries, 14 lb., 9s.; 28 lb., 18s.; cut, 70s.—J. DENVN, Manufacturer, 73, Kensington Road, Clapton, London, E.

DOULTON & CO., LAMBETH POTTERY, LONDON, S.E.

VASES, PEDESTALS, FOUNTAINS, GARDEN EDGINGS, &c., IMPERISHABLE "TERRA COTTA." Plain and Ornamental Pavings.

Tiles for Lining Walls of Conservatories. ART POTTERY, including JARDINIERES AND OTHER Table Decorations, and Vases, Fountains, &c., for the Conservatory, in DOULTON WARE, LAMBETH FAIENCE, AND THE NEW SILICON WARE.

Show Rooms, Albert Embankment, S.E.

T. MILLINGTON AND CO. 43, Commercial Street, E. PLATE, SHEET, CROWN GLASS.

Horticultural and all kinds of Glass having so much advanced, we are compelled to withdraw our prices, but on receipt of application the prices will be forwarded, but will be only from day to day until the market is in a more settled state. We have some bargains in 21-ounce, from 9x7 to 14x10 and upwards; sizes sent if required. Propagating Glasses, Hard Frames, Cucumber and Horticultural Glass, genuine White Lead, best Lined Oil Putty, Paints, Cils, and Colours.

HORTICULTURAL SHEET GLASS. 21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:-

14x12	20x12	20x14	20x16	20x18
16x12	16x14	20x15	22x16	22x18
18x12	18x14	18x16	24x16	24x18

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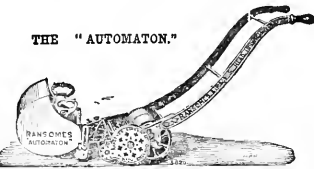
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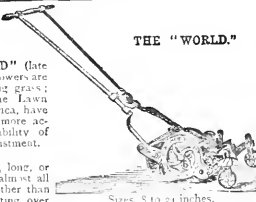
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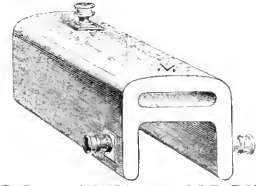
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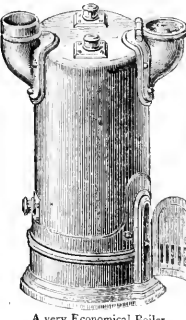


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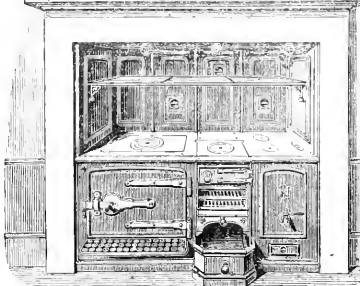
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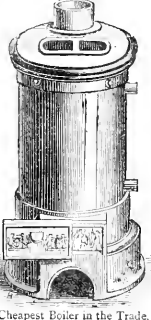
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17 "	0	9	6
18 "	0	10	0
19 "	0	10	6
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To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS. JAMES CARTER and CO. have at all times upon their Register, reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, are in a position to recommend an exceptionally good man as GARDENER, or as FLOWER AND VEGETABLE GROWER, to any Nobleman or Gentleman requiring such.—Address the MANAGER, Vineyard and Nurseries, Garston, near Liverpool.

RICHARD SMITH and CO. beg to announce that they are constantly receiving applications from Gardeners seeking Characters, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

MESSRS. CURTIS, SANFORD AND CO. can strongly recommend a GARDENER, who has had twenty years' experience and possesses a good general knowledge. Age 35, married, with one child, 8 years of age.—Devon Rowley, Torquay.

GARDENER (HEAD) ; age 32, married.—A Nobleman desires to recommend his late Gardener, of excellent character and ability. Understands Stock.—A. B., Mr. Lowater, Nurseryman, Ethham, Kent.

GARDENER (HEAD).—Married, one child (age 12) ; experienced in his duties. Employed by a Gentleman of high position, and as present employer is incontrovertible.—GARDENER, Mr. Glaze, 39, Hampden Road, Upper Holloway, N.

GARDENER (HEAD).—JOHN MILLER, who for the last twenty years has been employed, in the Dukeries, under the late Right Hon. Lord Foley, Worksop and the Trustees of His Grace the Duke of Newcastle, at Clumber, is now open for a re-engagement as above. Has had considerable practical experience in transplanting large trees and hedges, with street-planting machines. Highest testimonials given.—Cheapside, Worksop, Notts.

GARDENER (HEAD, where two or three are kept, or good SINGLE-HANDED).—Age 32, married ; understands the duties of an Out-door Gardener. Four years' good character.—E. M., The Fins Gardens, Lawie Park, Sydenham, S.E.

GARDENER (HEAD), age 35, married.—A Nobleman desires to recommend his Gardener to any Nobleman or Gentleman requiring the services of a thoroughly efficient and trustworthy man. Five and half years' character.—J. STILLAWAY, Oldfild Cottage, Gerris Road, Bournemouth.

GARDENER (HEAD WORKING).—Age 39 ; married, one child. Well up in all branches. Eleven years' personal character.—T. H. B., 111, Edgware Road, W.

GARDENER (HEAD WORKING).—Age 26, married ; well understood Gardening in all its branches. Total Abstainer.—E. BALLINGER, The Pools, Upton St. Leonard's, near Gloucester.

GARDENER (HEAD, WORKING, or good SINGLE-HANDED).—Married, no family, 10 years' experience. Highly recommended.—H. A., The Gardens, Duncombe Park, Helmsley, Yorks.

GARDENER (HEAD WORKING).—Age 40 ; married. Twenty-five years' experience in all branches of Gardening. Five years' good character from last situation.—EDWARDS, Grove Cottage, Grove Road, Emsay, Surrey.

GARDENER (HEAD, WORKING, or good SINGLE-HANDED).—Age 29, married, no family ; fourteen years' experience in all branches of the profession. Wide no objection to Lodge. Good references. Leaving on own account.—GARDNER, 5, Victoria Road, Netley, Southampton.

GARDENER (HEAD WORKING).—Married, one child, Scotch ; thirteen years' practical experience ; thoroughly understands the Growing and Fencing of all kinds of Fruit and Vegetables. First-class references.—W., 15, Malham Road, Forest Hill, S.W.

GARDENER (HEAD, WORKING).—Age 26, married ; well up in the Management of Vines, Peaches, Melons, Plants, &c. Highly recommended. Comfortable situation preferred to high wages.—A. B., 23, Junction Road, London, N.

GARDENER (HEAD, WORKING).—Age 35, married, no family ; thoroughly understands early and late Fencing of all branches of the profession. Wide no objection to Lodge. Good references. Leaving on own account.—GARDNER, 5, Victoria Road, Netley, Southampton.

GARDENER (HEAD WORKING).—Age 35 ; married, no family. Thoroughly understands early and late Fencing of all branches of the profession. Wide no objection to Lodge. Good references. Leaving on own account.—GARDNER, 5, Victoria Road, Netley, Southampton.

GARDENER (HEAD WORKING).—The Advertiser is anxious to recommend a thoroughly practical man, who has had good experience in Gardening in all its branches, who is leaving his present situation through death of his employer. Can produce first-class testimonials.—M. OLIVER GOLDSMITH, The Gardens, Polesden Lacey, Dorking.

GARDENER.—Age 27, a thorough good man ; Gardener to Lord Right, Padstow Hill, Mold. Three years' good character ; total abstainer ; left last place of own free will, to settle down.—GEORGE LYON, Blue Bell Cottage, Hupton, Liverpool.

GARDENER.—Mr. D. T. FISH, of Hardwicke House, Bury St. Edmunds, can with confidence recommend his Foreman, Robert Briggs, to any Lady or Gentleman requiring a thoroughly competent good Gardener with an excellent character.—Apply as above.

GARDENER (WORKING).—Age 28, married, two children ; thoroughly experienced in all branches. Highly recommended.—C. D., Mr. Wise, Wokefield, near Reading, Berkshire.

GARDENER (SINGLE-HANDED OR SECOND).—Age 24 ; no objection to Cow or Poney.—C. COPE, 17, Devonport Mews, Hyde Park, London, W.

GARDENER (SINGLE-HANDED or otherwise, or SECOND) in a large establishment.—Young married. Eleven years' experience. Understands Stove and Greenhouse Plants, Vines, Melons, Cucumbers, Flower and Fruit Cans. Highly recommended.—T. J., The Laurels, Hartington, Middlessex.

GARDENER (good SINGLE-HANDED, or with help)—Age 39, married, no family. Well experienced in all branches. Good character.—E. F., 3, Queen's Road, West Chislehurst, Kent.

GARDENER (SECOND), where four or five are kept.—Age 24, single ; has had good experience inside and out. Two years and seven months' character.—A. H., 205, Goldhawk Road, Shepherd's Bush, W.

GARDENER (SECOND), or FOREMAN.—A G. AGR., 231, 3 years' good character from present situation.—A. C. GRANT, Hungerford, Waltham St. Lawrence, Twyford, Berks.

GARDENER (UNDER), where he can improve himself.—Age 20 ; fourteen months' good character.—E. G., Rose Cottage, Letcombe Regis, Wantage, Berkshire.

GARDENER (UNDER), in a good establishment.—Age 20 ; two years' good character.—G. JESSER, Alghurth, Spalding, Lincolnshire.

GARDENER (UNDER), in a good Nobleman's place.—Age 24, single ; has been preferred. Good character.—FRANK COLE, Fairfield, Chiddingfold, Godalming, Surrey.

GARDENER (UNDER, or SECOND in a good establishment).—Nine years' excellent practice. Can be very highly recommended by present and former employers.—G. W., Mr. Goldsmith, The Gardens, Polesden, Dorking.

FOREMAN, in a Nobleman's or Gentleman's establishment.—Age 28 ; energetic, thoroughly understands the profession in all its branches. Ten years' present situation. Fourteen years' experience. First-class testimonials.—R. HALE, Groombridge, Tunbridge Wells.

FOREMAN, in the Houses.—Age 25, single. Understands Fencing, Propagating, Fruit and Plant Growing, in all branches. Can be highly recommended from previous situations.—State wages, &c., to C. DUMFEE, Church Road, Highfield, Southampton.

FOREMAN, or SECOND, in a good establishment.—A steady, single young man requires a situation as above. Can have first class character.—A. W., The Gardens, Bramham Park, Tadcaster, Yorks.

JOURNEYMAN (FIRST), in large establishment.—Age 22 ; two and a half years in present situation. Can be well recommended by present and previous masters.—WM. BIRD, Water Ferry, Pocklington, York.

JOURNEYMAN, in the Houses.—Age 21 ; respectable. Five years' good character.—T. HOWELLS, Beacom Farm, Burwarton, near Bridgworth.

JOURNEYMAN, in a good establishment.—Age 18 ; five years' good character. Both preferred.—ALPHA, Mr. Locke, Nurseryman, Station Road, Red Hill Surrey.

JOURNEYMAN, in a Nobleman's or Gentleman's establishment.—Age 23 ; seven years' experience in all branches. Good references. Both preferred.—O. WING, Husbands Bosworth, near Rugby.

JOURNEYMAN, in the Houses.—Age 20 ; five years' experience. Indoors and Out. Good character from previous and present employers. Abstainer. State particulars.—T. H., 3, Cromwell Place, Twickenham, S.W.

JOURNEYMAN, in the Houses ; age 21.—Mr. WESS, Kelham Hall Gardens, Newark, would be pleased to recommend a thoroughly experienced character from present situation.—Address to the above, to E. HERKING, Kelham, Newark, Notts.

JOURNEYMAN, or IMPROVER, in a large establishment.—Age 22. Good references.—C. WILLET, Wyesham, Mammouth.

IMPROVER, in a Gentleman's Garden.—Age 18 ; respectable. Good character.—HEAD GARDENER, Chalfont Park, Gerrard's Cross, Slough.

IMPROVER, in a Gentleman's Garden.—Age 19. Both preferred.—CHARLES SORSBY, Moorgate House, Rotherham, Yorks.

IMPROVER, in a Gentleman's Garden.—Age 17 years. Houses preferred. Four years' present situation.—B. TODD, Bottesford, Ergo, Lincolnshire.

IMPROVER.—Age 19 ; good knowledge of In and out-door Gardening and Vines. Good references.—R. P. P. P. P., 92, Mulhish Street, Chelmsford, Essex.

IMPROVER, in a good establishment, both Inside and Out.—Age 18 ; three years' experience, with good character from present employer.—H. E., Mrs. Muller, Rotherham, Yorkshire.

TO NURSEYMAN ; age 30.—Advertiser wishes to obtain situation in the Trade. Has had some experience in General Propagation and Plant and Fruit Growing. References from some of the leading houses in the Trade. State particulars and salary to A. B. C., 15, Eglon Terrace, Maiden Vale, London, W.

TRAVELLER, or MANAGER.—Mr. STEVENY BAKER offers to those requiring a thoroughly practical, experienced, and competent man, conversant with every branch of the Nursery and Seed Trade. Has travelled the United Kingdom. Six and a half years last engagement.—37, Euston Street, St. Pancras, London, W.

INVOICE CLERK, or ASSISTANT.—Age 20. Respectable. Good references.—C., 91, Fernlea Road, Baltham, S. W.

EPPS'S COCOA. "A thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast system, is perfectly harmonized with the stomach, affording a beverage which may save us many heavy doctor's bills. It is the judicious and safe remedy for all those numerous and sad affections which arise directly or indirectly from a disordered constitution, may be gradually built up until strong enough to resist every tempest of disease. It is the most beneficial of food, and affords a healthy basis for the system. It is the most reliable of remedies for all those ailments which arise from a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—Civil Service Gazette. Made simply with boiling water or milk. Sold only in packets, labelled. JAMES EPPS and CO., HOMOEPATHIC CHEMISTS, London. Makers of Epps's Chocolate Essence for Afternoon use. HOLLOWAY'S PILLS.—In general debility, nervous excitation, and mental depression, these universal Pills have a marvellous effect, they have won the confidence of millions in all parts of the civilized world. Constitutions shaken by sensual excesses, by long residence in unwholesome climates, by sedentary habits, overwork, worry, or anxiety, are wonderfully renovated by a course of this extraordinary medicine, which, powerful as it is its action on the whole system, is perfectly harmless. The most sceptical cannot be composed of rare and carefully selected balsams, without the admixture of any mineral, vegetable, or other deleterious substance. They operate gently, powerfully, and beneficially upon the whole mass of blood, the most sceptical cannot question the fact when we see indigested curd, liver complaints assayed, the oppressed lungs brought into healthful play, and every physical function renewed and strengthened by their agency.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING and COLLECTING MACHINES for 1882.

THE WINNERS OF EVERY PRIZE IN ALL CASES OF COMPETITION.

Patronised by Her Most Gracious Majesty the Queen on many occasions. His Royal Highness the Prince of Wales, the King of the Belgians, the late Emperor of the French, the Emperor of Russia, and most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. See "Journal of Horticulture," of June 9, 1881.—MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Son, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them.

Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856, And Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

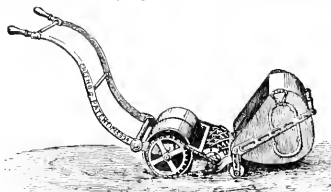
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible.
- 2d. They are worked with much greater ease than any other.
- 3d. They are the least liable to get out of order.
- 4th. They make little or no noise in working.
- 5th. They will cut either short or long Grass, wet or dry.

Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower.

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
* To cut 22 inches. By Two Men ...	8 10 0
* To cut 24 inches. By Two Men ...	9 0 0
* If made stronger, suitable for Donkey, 30s. extra.	

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

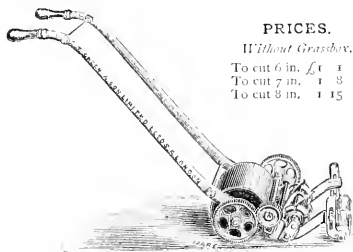
To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 36 inches	£22 0 0
To cut 38 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.



PRICES.

Without Grassbox.

To cut 6 in. £1 1 0
To cut 7 in. 1 8 0
To cut 8 in. 1 15 0

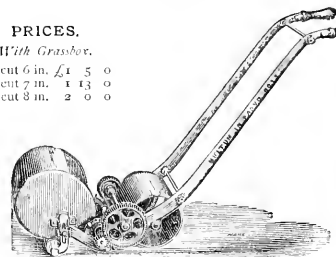
This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, serviceable machine, and very easy to work.

PRICES.

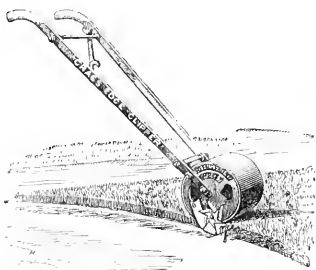
With Grassbox.

To cut 6 in. £1 5 0
To cut 7 in. 1 13 0
To cut 8 in. 2 0 0



GREEN'S PATENT GRASS EDGE CLIPPER.

Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.



SIZE and PRICE.

Wide.	Diam.
8 in.	7 in. £1 10
Packing Case, 2s.	

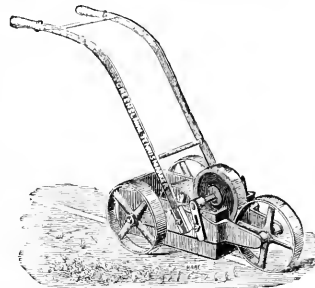
GREEN'S PATENT LAWN TENNIS COURT MARKER.

This Machine is of novel design and construction, and the simplest and most effective in its operations.

In the trough containing the liquid there is a loose drum which revolves when the machine is in motion, and conveys the marking material to the intermediate pulley, which in its turn transmits it to the front one, so that the ground is marked effectively as the machine is pushed along.

Price, 21s.

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.



Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

No Lawn Mower Manufacturer keeps so large a stock of Mowers as is to be found at our London Establishment, 54 and 55, Blackfriars Road, where purchasers can select out of several hundred Machines, of Hand, Pony, and Horse Power, and have their Orders executed the same day they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention,

Garden Seats and Chairs, and Horticultural Implements of every description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

THOMAS GREEN & SON (Limited), Smithfield Ironworks, Leeds; and 54 and 55, Blackfriars Road, London.

Editorial Communications should be addressed to "The Editors." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, MAY 27, 1882. Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

SALES BY AUCTION.

Monday Next.

ODONTOGLOSSUM ALEXANDRE (CRISPUM) MESSRS. PROTHEROE AND MORRIS are favoured with instructions from A. Colborne, Esq., New Malden, to SELL by AUCTION at the Mart, Tottenham Yard, City, E.C., on MONDAY NEXT, at 10 o'clock precisely, a magnificent importation of the above ORCHID in splendid condition. A large quantity were exported in flower, and comprise several very fine varieties. At the same time will be sold about 100,000 seedlings of plants of DENDROBIUM WALKERIANUM, 50,000 of ODNOPSIS LINDLEYI, 50,000 of ODNOPSIS SPECIES, and 100 lots of ESTABLISHED ORCHIDS, from Mr. Colborne's collection, including Cattleya Wagneri and C. Edzardzo Wagneri, C. Farrovi, C. Massae magnifica, C. Mossae superba; Lucca, and several other species, &c. Catalogues had at the Mart, and at 1, New Broad Street, E.C.

West Dulwich.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Nursery, Thurston Park, West Dulwich, on TUESDAY, June 6, at 12 o'clock precisely, the first portion of the extensive Stock in Trade, comprising about 10,000 beautifully grown Zonal GERANIUMS, nearly all new varieties of 1882; 4000 Show and Royal Bedding FLORES, very fine plants, and consisting almost entirely of varieties raised by Messrs. Smith's choice collection of EPHYLLIUMS; 2000 ERICAS in flower, and other ELEGANT HOUSE STOCK. May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone. W. F. The old established and valuable BUSINESS to be DISPOSED OF by order of the Mortgagee in possession. Particulars may be obtained of the Auctioneers.

Stoke Newington, E.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Larkman to SELL by AUCTION, on the Premises, The Barrat's Grove Nursery, Stoke Newington, E., on THURSDAY, June 8, at 10 o'clock precisely, a large quantity of FINE GREENHOUSES, with HEATING APPARATUS and BOLLERS, several Ranges of PITS, SUMMER HOUSES, and the whole in good Trade, comprising 10,000 BEDDING PLANTS in the usual variety, 1000 ELYSIUMS, &c. May be viewed. Catalogues on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Flowering Orchids.

MR. J. C. STEVENS will include in his SALE by AUCTION, on THURSDAY, June 8, some choice ORCHIDS in flower or bud, also some specimen PALMS, BRACINEAS, &c. May be viewed. Catalogues had, and of the Auction Rooms and Offices, 27, King Street, Covent Garden, W.C.

Thursday Next.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 27, King Street, Covent Garden, W.C., on THURSDAY NEXT, JUNE 8, at half past 12 o'clock precisely, by order of Messrs. Shuttleworth, Carter & Co., Ltd., Park Road, Clapham, a large importation of ODNOPSIS LINDLEYI, in fine condition and splendid specimen; also DENDROBIUM WALKERIANUM; MASDEVALLIA SHUTLEWORTHII, M. BENEDECITHI, ODNOPSIS VENTILARIUM, &c. May be viewed the morning of Sale, and Catalogues had.

Magnificent Collection of British and Exotic Ferns belonging to the late JOHN MANSON, Esq. MR. T. ARMITSTEAD will SELL by AUCTION, on the Premises, Perrowdale Road, Lancaster, on MONDAY and TUESDAY, June 12 and 13, each day at 10 o'clock precisely, the above collection, comprising upwards of 10,000 Plants, including over 1000 SPECIMEN PLANTS in pots which have been First-prizes at the Royal Show, 1875, and also at local shows for a number of years, and having received upwards of fifty prizes and medals; his collection a high reputation throughout the North of England. Wagonettes will leave Market Square at 10.45 each day, and will convey passengers to the station to catch the evening train. Catalogues may be had from the Auctioneer, 8, Cheapside, Lancaster, and will be forwarded post-free.

FRUITERS, FLORISTS, and GREEN-GROGERS BUSINESS, well situated, and in the neighbourhood of Blackheath. Opportunity of purchase. KENT, Gardeners' Chronicle Office, W.C.

To Florists and Others.

TO LET, or LEASE, a HOUSE, only 2 1/2 per annum, fitted with every convenience, and with Garden 30 feet x 755 feet, containing a supply of pure water and option of taking any quantity of Lard, Situation in gravel, and well adapted for Florists, Nurseries, &c. About twenty minutes ride in Fulwell Station, South-Western Railway. Full particulars apply to J. EMLEYSON, Suffolk House, New Hampton, and 47, York Road, Waterloo Station, S.E.

TO BE LET, as a Going Concern, on September 1, 1882, or earlier if desired, a complete NURSERY and small SHEED BUSINESS, situated in the best part of Middlefield, comprising about 3 Acres of well-selected Nursery Stock, also 3 Acres of Garden and a Descriptive Catalogue in a large stock of 1000s in variety, which do well here, as does particular Nursery No. 30, the Soil being deep Loam, and a never failing supply of water. J. EMLEYSON, Suffolk House, New Hampton, and 47, York Road, Waterloo Station, S.E. nearly sixty years, and declining health, the sole cause of disposing of it.

For particulars address, R. S. R. Barber Cooper, Esq., Seed Merchant, 90, Southwark Street, London, S.E.

WANTED, a first-class VINERY, or WINEY and PEACH-VALE combined.—Address, status size, when to be seen, and if up, with price, to A. WILTSHEP, 57, St. Street, Ware.

Fifty Nurseries, Market Gardens, Florist and Seed-BUSINESSES to be DISPOSED OF. MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

DESIGNS Made and Works EXECUTED In the Arrangement of TERRACES, CONSERVATORIES, FLORAL GORRIDORS, ROOF GARDENS on uninteresting Lead Floors, &c., firm of substantial PULHAMITE KERRIE for the FLORAL BORDERERS, JARDINIERS, &c., in TERRA-COTTA or ARTIFICIAL STONE of various colours.

BALUSTRADES, VASES, PEDESTALS, FIGURES, FOUNTAINS, CONSERVATORIES and WINDOW BOXES in great variety, suitable for any style of House. Various Specimens of KERRIE or ELLING, PULHAMITE PERMANENT GRAYE PAVING for GARDEN, TERRACE and other WALKS and FLOORS, to be seen at the Horticultural Company's, Regent Street; at The Orchard, Philip Lane, Tottenham; and at our Winton Depot there is the greatest variety of the above to be seen. DURABILITY GUARANTEED.

A Photographic Book of over 200 Illustrations, with Sizes and Prices, sent for inspection on receipt of twelve stamps.

Address—PULHAM & SON, The Works, Brockbourne. Established in 1837.

MANSON HOUSE, LONDON. A Grand Rose Show

WILL BE HELD AT THE MANSSION HOUSE, 108, FRIDAY, JUNE 30, 1882, IN AID OF THE FUNDS OF THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN, WATERLOO BRIDGE ROAD, AND THE Convalescent Home for Scarlet Fever Patients.

The Exhibition, which will be arranged by Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace, will consist of 10,000 first-class gardens of the principal growers, arranged with Ferns and other accessories in an artistic manner, and of a Competition confined to Amateur Growers.

All Roses to be grown by Exhibitor, and exhibited in boxes to be shown as cut from the trees. Any buds and leaves may be left, but no loose leaves to be added. Added foliage will disqualify. All the exhibited Roses, unless reserved, will be sold at fixed price, and delivered at the close of the Show, at 7 P.M. All exhibitors to be ready for judging by 10.30, or they will not be eligible for competition. Entries to be made on or before June 27, addressed to the Secretary, Mansion House.

- CLASS I.—24 BLOOMS, named, distinct—single. CLASS II.—12 BLOOMS, named, distinct—double. CLASS III.—12 HYBRID BLOOMS, named, distinct—three of each. CLASS IV.—6 HYBRID BLOOMS, named, distinct—single. CLASS V.—6 HYBRID BLOOMS, named, distinct—three of each. CLASS VI.—6 TEA or NOISETTE, named blooms, distinct—single. CLASS VII.—3 TEA or NOISETTE, named blooms, distinct—three of each. CLASS VIII.—6 BLOOMS of ONE ROSE, any description. CLASS IX.—HAND BOUTIQUE of ROSES and FOLIAGE, with or without Ferns, 12 to 15 inches across. CLASS X.—BASKETS of ROSES, various, 20 to 30 blooms. There will be TWO PRIZES in each Class. SILVER MEDAL, 1st Prize. ERONZE MEDAL, 2d Prize. The LADY MAYORISS will also be glad to receive for Sale.—Bouquets or Branches of Roses, Bouquets of Mixed Flowers, Buttoned Flowers, Baskets of Roses (large or small). Judges, Mr. G. PAUL and Mr. C. TURNER. Admission between the hours of 12 and 7 o'clock, 2d. 6d.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

DUBLIN MERTON, on 27th, 28th, and 29th, 1882. A GRAND FLOWER SHOW will be held in conjunction with the above. TWO HUNDRED and FIFTY POUNDS in PRIZES, for Professionals, Amateurs, and Cottagers. PRIZE LISBS may be had from J. S. HAYWOOD, Seed Merchant, 51, Broad Street, Worcester, the Hon. Sec. for the Horticultural Department. ENTRIES CLOSE June 20. N.B.—Those who have received Prize Lists, will please read in Classes 12 and 13.—Pelargoniums, Show or Fancy, instead of Show and Fancy.

SEEDLING POTATO EXHIBITION.—THE FIRST EXHIBITION of SEEDLING POTATOS (Open to all England), in connection with the Northamptonshire Agricultural Society will be held at Northampton, on THURSDAY and FRIDAY, September 21 and 22, under the Patronage of Lady KENTLEY, Fawley, Daventry; and the Most Honourable Marquis of ELY, Buryleigh, Stamford; ROSS, Lord; Earl of M. de Winton, Worcester. Particulars and Schedules of Prizes may be had on application to Mr. GILBERT, Buryleigh, Stamford; Mr. COLLE, Abchurch, Northampton; Mr. MILLER, Whitcheury, Worcester; Mr. E. ROWE, 13, Sheep Street, Northampton; and the Secretary, Mr. W. FARR, Fawley, Daventry.

TSPWICH and EAST of ENGLAND HORTICULTURAL SOCIETY. GRAND SUMMER SHOW, with SPECIAL PRIZES for ROSES, will be held on THURSDAY, July 6. Open to all England. Schedules and full particulars may be obtained of the Secretary, H. RAY, HUGH BERNERS, Secretary, Hartstead Rectory, Ipswich.

DOUBLE and SINGLE PYRETHRUMS and PINKS.—A grand collection in full bloom may now be seen at THOMAS S. WARE'S, Hale Farm Nurseries, Tottenham, London.

Notice.—GRAND EXHIBITION DAHLIAS at greatly reduced price. Strong Plants, and best sorts only. CATALOGUES free. C. R. HERRY, Cedars Nursery, Castle Bromwich, near Birmingham.

CALECEOLARIA "CLOTH of GOLD" (Ragley) — Awarded First-class Certificate Royal Horticultural Society and Royal Botanic Society. New Seed. Price per packet, 3s. 6d. and 5s. free by post. JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

SINGLE DAHLIAS. The Grandest Collection extant. CATALOGUE post-free upon application. THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

To the Trade. GREVILLEA ROBUSTA.—Strong plants from Stores, for growing on. Price on application to E. COOLING, Derby.

CALIFLOWER, BRUSSELS SPROUT PLANTS. VEITCH'S AUTUMN GOLD, 3s. 6d. per 1000. BRUSSELS SPROUTS, 1s. per 2000. Packages 3s. and 7s. per 1000 extra. Order of R. BATH, Cayford; or J. BATH, 34, Wellington Street, Covent Garden, W.C.

CUT FLOWERS.—White CLOVES in any quantity, enormous blooms; largest and best well known. Also plants and cuttings of the same. Buy while in flower. Sample Box 12 stamps. W. WEALE, Taplow, Bucks.

DAHLIAS, new single varieties, 12s. per doz.; all the best of the older kinds, 6s. per doz. WHITE ANISE, best pom-pom, for cutting, 4s. per doz. J. R. PEARSON, Chilwell Nurseries, Notts.

Altenantheras.—Altenantheras. JOHN SOLOMON offers good strong plants of the following varieties, from stores 1s.—Amosa, magnificent variegated Grandee, narrow chloides major var. (new) COLEUS Verschaffelti, MESEMBRYANTHEMUM cordifolium variegatum, 6s. per 100. Any of the above, established in thimbles pots, 12s. per 100, for cash with order. Queen's Road Nursery, Walthamston.

SPECIAL OFFER TO CLEAR OUT.—Large buyers of VERENAS, CALCOLARIAS, HELIOTROPES, IRESINES, &c., should write for Special Quotations (which will be found to be about half the usual price) to the Executors to the late H. BLANDFORD, The Dorset Nurseries, Blandford.

HARDY LAKE DISTRICT FERNS, for ROCKERIES.—100 large rocks, in fifteen varieties, including Pteris, Royal, Becca, Hart's-tongue and Shield, for 6s. by rail. good clumps of Pteris, 3s. per 100. Montans, 3s. per 100. Royals (good roots), 5s. ; Hart's-tongue (in good foliage), 3s. per 100, carefully named and packed, hamper or box included. —JAMES STEVENSON, 42, Foli Graft, Dalton-in-Furness.

CUT FLOWERS, including Double and Single Pyrethrum, Violets, &c., on application. THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

THE VERY CHOICEST STRAINS.—PRIMULA, CALCOLARIA, CINERARIA, ECGONA, CYCLAMEN, and AURICULA, in packets, 1s. to 5s. each, post-free. Extremely showy Coloured COWSLIP, SEEDS, 1s. per packet, post-free. The best Evergreen LAWN MIXTURE (sow now), 12s. 6d. per cwt. carriage paid.

SEEDS and PLANTS of every description, of best qualities, at the most moderate rates. Priced CATALOGUES post-free. JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

DAHLIAS, finest Show and Fancy kinds, 12s. to name, 20s. per 100. GERANIUMS.—Madame Thibaut, White Veauvius, Wonderful, &c., strong plants, 12s. per 100. Choice named PHLOXES, 20s. per 100. VERBENAS, Best Show kinds, 12s. per 100. VIOLETS, strong roots, Victoria Regina, &c., 10s. per 100. W. JACKSON, Bilsdale, near Kildermister.

VIOLA S.—30,000 fine strong plants: VIOLA CORNUTA, WHITE VIRGIN } 5s. per 100. " QUEEN of BLUES } 4s. " BLUE KING } 5 per 1000. Cash. Catalogue and package free.

H. I. HARDY, F.R.H.S., Steur Valley Seed Gardens, Bures, Suffolk.

Verbenas. VERENAS.—Strong and beautifully rooted little plants of Purple, White, Crimson, Pink, Rose, and Scarlet, at 10s. per 100; 2s. per 1000; in single pots, at 12s. per 100. Package free, cash with all orders.

T FLEICHER AND SON, Florists, &c., Chesterfield. AZALEAS, with Buds, for September.—Indian, hardy Mollis, hardy Ghent—4s. 6s., 6s., 6s., 6s., 6s., 6s. per 100 plants. CATALOGUES, with illustrations, may be had. JOSEPH NAPOLEON EAUMANN, Nurseries, Ghent, Belgium.

For Present Planting.

FREDERICK GEE can supply excellent Spring-stock Plants in any quantities (grown from his super stocks), as follows, for cash with orders, viz.:—

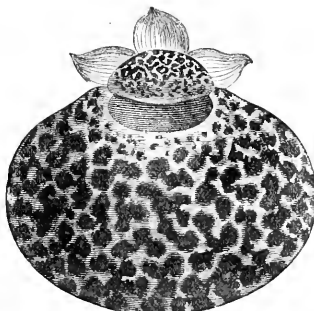
Table with columns: According to Size (Per Score, Per 100 of Six score, Free on Rails here. Per 1000 of 1200) and rows listing various plants like Celery Plants, Cauliflower Plants, and others.

Special prices to large buyers, stating quantities required. F. GEE being determined not to undersold. Genuine Bedfordshire-grown Seeds and Plants for present Season of all kinds for the Garden or Farm, of best quality, at lowest prices. CATALOGUES on application to FREDERICK GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

LIST of BEDDING PLANTS (free on application), comprising Descriptions and Prices of Established Plants of the most eligible varieties for the Terrace Parterre, the Tropical and Ordinary Flower Garden, the Mixed Border, and of Groups en masse with Shrubs or on the Lawn. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Verbenas - Verbenas. WILLIAM BADMAN offers the following VERBENAS - Purple King, Crimson King, Le Grand, Boule de Neige (White), Lady Cowley (Pink), strong well-rooted Cuttings, 6s. per 100, 50s. per 1000; or established in pots, 10s. per 100, 80s. per 1000. 100 in 12 choicest Show varieties, 8s.; in 25 best sorts, 10s. per 100. DAHLIAS, best sorts, good plants, 15s. per 100. Terms Cash, Packing included. Cemetery Nursery, Gravesend.

WEBB'S SUPERB STRAINS OF FLORISTS' FLOWER SEEDS.



WEBB'S SUPERB CALCEOLARIA, 1s. 6d. and 2s. 6d. per packet, post-free.

- Per Packet - s. d. Webb's Superb Calceolaria ... 1 6 2 6 Webb's Perfection Cyclamen ... 1 6 2 6 Webb's Superb Chieraria ... 1 6 2 6 Webb's Exquisite Primula ... 1 6 2 6 ... Finest Fringed Red ... 1 6 2 6 ... Finest Fringed White ... 1 6 2 6 ... Mixed Colours ... 1 6 2 6 ... Webb's Gold-laced Polyanthus ... 0 6 1 0 ... Webb's Wallflower "Canary Bird" ... 1 6 ... Webb's Brompton Stocks, Mixed Colours ... 0 6 ... Webb's Picotee, Mixed Colours ... 1 6 ... Webb's Carnation ... 1 6 2 6 ... Webb's Excelsior Gloxinia ... 1 6 2 6 ... Webb's Defence Auricula ... 1 0 2 6 ... Webb's Show Pansy ... 1 6 2 6

All Flower Seeds Post Free. WEBB & SONS, THE QUEEN'S SEEDSMEN, WORDSLEY, STOURBRIDGE.

CAULIFLOWER, BRUSSELS SPROUT PLANTS. VETCH'S AUTUMN GIANT, 5s. 6d. per 1000. BRUSSELS SPROUTS, 3s. per 1000. Packages 3d. per 100 extra. Order of R. BATH, Grayford or J. BATH, 34, Wellington Street, Covent Garden, W.C. Tuberosus Begonias. JOHN LAING AND CO.'S Gold Medal Collection is unrivalled. They have now in cultivation 100,000 Begonias, which will present to the public an unprecedented floral display this summer. Orders now booked for blooming plants middle of June. Prices, 12s. to 60s. per dozen. CATALOGUES on application. Address JOHN LAING AND CO., Forest Hill, S.E.

NOTICE.

SELLING OFF OF NURSERY STOCK. EWING & CO., EATON, near NORWICH.

Great Reduction in Price for Cash Payments, viz.: 15 per Cent. for Cash before delivery. 10 per Cent. for Cash within One Month of date of invoice. 5 per Cent. for Cash within Three Months of date of invoice. After Three Months no discount can be allowed.

In addition to their immense Outdoor Stock of ROSES; FRUIT TREES, Bushes and Roots; ORNAMENTAL TREES and SHRUBS, they have ready for immediate Sale a very extensive Stock of New and Scarce ROSES in Pots; Tea and Noisette ROSES in Pots; CLEMATISSES of best Old and New Varieties, in Pots; Variegated and Choice Green-leaved IVIES, in Pots; AMPPELOPSIS VEITCHII, and many other Hardy CLIMBING and CREEPING PLANTS, in Pots, &c.

N.B. Cut Roses, &c., can be supplied at cheap rates, carefully packed for travelling long distances. A slight extra charge must in most cases be made for packing. Where cash or payment of notes is sent with the order, the amount for postage may be forwarded in stamps after despatch of goods. N.B. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application. Grape Vines for Present Planting. THE LIVE BLOOD HORTICULTURAL COMPANY (JONES COWAN & LITTLE, The Vineyard, Garston, Liverpool, have still on hand a fine stock of strong, well ripened GRAPE VINES suitable for present planting, consisting of all the leading varieties, 25s. 9s. 6d. per dozen. Fruiting Cases. CATALOGUES free. The Trade supplied.

F. W. COOPER offers the following to the Trade - Per 100 - s. d. PYRETHRUMS, Double, in eighteen fine varieties ... 18 0 .. in twenty-four fine varieties ... 25 0 PHLOXES, Herbaceous, twelve best sorts ... 20 0

Bedding Plants in Separate Pots. GERANIUMS, Vesuvius, and other scarlet ... 12 0 .. Madame Vaucher ... 14 0 .. Lady Shelduff, Master Christine, and other pinks ... 12 to 14 0 CALCEOLARIAS, yellow and dark ... 12 0 VERBENA, Purple King ... 12 0 LOBELIA SPIRITUA ... 12 0 DACTYLIS VARIATA ... 14 0 ZONAL GERANIUMS, Choice, in twenty-five fine sorts ... 20 0 Most other kinds of Bedding Plants at like reasonable rates. Cash with order from unknown persons. Packing free, but baskets to be at once returned, carriage free and advised. F. W. COOPER, Florist, Huntington.

Notice. THE AMERICAN PLANTS at Knap Hill are now in bloom, and may be seen daily, Sundays excepted. THE EXHIBITION of RHODODENDRONS and AZALEAS at the Botanical Gardens, Regent's Park, is also now open daily. Orders of Admission may be obtained from Fellows of the Society, or from the Exhibitor, ANTHONY WATERER. The RHODODENDRONS in Kotten Row are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Aerides falcatum var. Leonell. WM. MAULE AND SONS, having flowered this beautiful new variety of AERIDES, which they received two years ago from Burmah, beg to call the attention of Orchid growers to its great novelty, and distinction from all others in the same family. The stock is limited. A photograph and all particulars will be furnished on receipt of address. The Nurseries, Bristol.

Exhibition Plants. W. G. CALVERT AND SONS have the following selected SPECIMEN PLANTS to offer, many of which are well known at Liverpool, Manchester, and other large Shows, having taken many First Prizes. All are in excellent condition, and fit for competition this season. ERICA CAVENDISHII, 8 feet by 5 feet through, splendid specimen, well set with bloom. ERICA TRIKOLEUR SPECIOSA, 4 feet by 4 feet through, well set with bloom; many other varieties of Ericas in all sizes. ALMANDRAS, APHELEXIS, BOGANVILLEAS, CLEMATISSEAS, LOCOS, CROTONS, CYCAS, GLEICHENIAS, LANIANAS, KONDELETIAS, SEAFORTHIAS, STEPHANOIDS, SWAINSONIAS, VINCAE, &c. Prices, names, and sizes on application. The Nurseries, Knutsford.

JULES DE COCK, NURSERYMAN, Ghent. Belgium, offers to the Trade PALMS in store pots. - Areca Baueri, 60s. per 100; Cocos Weddelliana, 80s. per 100; Caryota sechelliana, 40s. per 100; Corypha australis, 10s. per 100; 8s. per 1000; Latania borbonica, 8s. per 100, 75s. per 1000; Phoenix reclinata, 8s. per 100, 70s. per 1000; Pinus tenuis, 10s. per 100, 80s. per 1000; Psychotria Alexandrina, 30s. per 100, 250s. per 1000; Scaevola elegans, 12s. per 100, 100s. per 1000; Sabal Blackburgiana, 8s. per 100, 60s. per 1000.

PEARLARGONIA EDWARD PERKINS, MADAME THEBAUT, are two of the most showy and distinct Decorative Pearlargonias ever offered. Strong flowering plants, 3s. 6d., and 5s. each. Small plants, one of each free by post, 5s. Trade price on application. FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

Pearlargonias, Dahlias, &c. JAS. HOLDER AND SON have still a few hundred strong PEARLARGONIA to offer, in small 60-pots, 25s. per 100; in 48 pots, strong and bushy, 50s. per 100. DAHLIAS, to about 40 varieties, 2s. per dozen, 25s. per 100, strong hardy sorts in large 60-pots. CALCEOLARIAS, Golden Gem, in 60-pots, 15s. per 100; strong, from pits, 2s. per 100. GERANIUMS, Flower of Spring, in 60-pots, 16s. per 100; strong from store pots, 10s. per 100. Whitman Seedling, in 60-pots, 16s. per 100; from stores, 10s. per 100. Mixed, from store pots, 10s. per 100. LOBELIAS, Blue, Crystal Palace and Lustrous, in thumbs, 10s. per 100; 1s. from stores, 5s. per 100. AGERATUMS, Dwarf, in 60-pots, 12s. per 100; from stores, 6s. per 100. All packing free. Cash with order. Crown Nurseries, Reading.

PRIMULAS, PRIMULAS, &c. - Fine young plants of the beautiful strain we have supplied for some years, 1s. 6d. per dozen, 10s. per 100. 60s. extra strong, 2s. per dozen, 15s. per 100; do, do, in 2 1/2-inch pots, 3s. per dozen, 20s. per 100. CINERARIAS, fine young plants, 1s. 6d. per dozen, 10s. per 100. W.M. CLEKIN AND SON, Oldfield Nursery, Altrincham. Verbenas - Verbenas. - Strong, healthy, well-rooted Cuttings, perfectly free from disease, of White, Purple, Scarlet, and Pink, 6s. per 100, 50s. per 1000; 100 strong rooted Cuttings, in twelve most splendid varieties, first-price Flowers, 3s. 6d. per 100. EXECUTORS of the late H. ELANDFOUR, The Dorset Nurseries, Blandford.

To the Trade Only. TEA ROSES, on own roots, extra strong, out of 4 1/2-inch pots, 2s. per 100, for cash. MAIRIS AND CO., Weston-in-Gordano, Bristol. BALCHIN'S New Ready Double White MIGNONETTE. For Description, see Advertisement in Gardeners' Chronicle, April 29. Strong plants, now ready, in 5-inch pots, 7s. 6d.; ditto, in 3-inch pots, 5s. Usual Discount to the Trade. Terms Cash. W. BALCHIN, Haslock Gate Nursery, Sussex; or, 57, Western Road, Brighton.

"Special Offer of Bedding Plants." H. I. HARDY, F.R.H.S., offers here strong unusually heart-shaped Plants. GERANIUMS, Vesuvius and other best Scarlets, from single p. 1s. 1s. 6d. per dozen, 10s. per 100; Master Christine, M. Vaucher, Happy Thought, from single pots, 2s. per dozen, 15s. per 100. MISS TOITIE HARDY (Hardy's New), beautiful rose-salmon, 4s. per dozen. QUEEN OF PRINCE'S (Hardy's New), fine magenta-pink, 4s. per dozen. STOUR VALLEY BEAUTY (Hardy's New), delicate touch, 4s. per dozen. LOBELIAS - Emperor William, brilliant blue, the very best Dwarf for Bedding and Borders, from single pots, 9d. per dozen, 7s. per 100. DAZZLER (Hardy's New), dark crimson, grand tross, 4s. per doz. CALCEOLARIAS, aureo-floribunda, from single pots, 1s. 6d. per dozen. VERBENAS, best named sorts, from single pots, 1s. 6d. per dozen; 5s. per 100. LOBELIAS - Emperor William, brilliant blue, the very best Dwarf for Bedding and Borders, from single pots, 9d. per dozen, 7s. per 100. DAHLIAS, fine Show varieties, in single pots, 2s. per dozen. Terms cash. Packages free, extra plants for carriage; a reduction made for quantities. CATALOGUES post-free. Stour Valley Seed Grounds, Bures, Suffolk.

Verbenas, Pelargoniums.—Special Offer.
WILLIAM BADMAN offers the below-named Plants, of which he has a large healthy stock—
VERBENAS, Purple, White, Scarlet, Crimson and Rose, only best bedding strains, *6s.* per 100, *5s.* per 100; *10s.* per 100. **Show varieties**, 100 in 25 very best, *8s.*; *6s.* in 25, *9s.* per 100.
PELARGONIUMS, *10s.* per 100; **Madame Yvonne and Virgo Marie**, best whites, *10s.* per 100; *2s.* per 100; **Master Christine**, fine pink, and **Mrs. de la Vallée**, *10s.* per 100; **Mrs. de la Vallée**, salmon, and **Walham Seedling**, crimson, *10s.* per 100; **White Vuesin**, **Dr. Denny**, **New Life**, **Bonfire**, **The Shah**, and many others, *12s.* per 100.
TRICOLORS, **Mrs. Pollock**, *18s.* per 100; **Sophie Dumaresque**, **Lady Callaghan**, **St. R. Napier**, *20s.* per 100.
BRONZE, **McMillan**, **St. R. Napier**, **St. R. Napier**, **St. R. Napier**, *18s.* per 100, or in 25 choice sorts, *25s.* per 100.
SILVER VARIETIES, **May Queen** (**Turner's**), **Princess Alexandra**, **Princess Silveringens**, **Little Tit**, **Flower of Spring**, all at *12s.* per 100.
GOLD-LEAF, **Crystal Palace Gem**, *10s.* per 100; **Happy Thought**, *12s.* per 100.
DOUBLE, **Madame Amelia** **Ballet**, finest white, *15s.* per 100; **Madame Thibaut**, market pink, *12s.* per 100.
TROPEOLIUM Vesuvius and **coccinea elegans**, good bedders, *6s.* per 100.
IRISINE, **Lindeni**, *6s.* per 100.
AGERATUM, best dwarf blue, *5s.* per 100, *4s.* per 100.
LOBELIA **Biancha** (**Fine**) and **White**, *10s.* per 100, best of all, from cuttings, *6d.* per 100, *20s.* per 100.
HELIOIOTRIS, dark and light, *6s.* per 100, *5s.* per 100.
CENTAUREA candidissima compacta, *15s.* per 100.
FUCHSIAS, in 25 distinct sorts, *10s.* per 100, *25s.* per 100, *50s.* per 100.
CHRYSANTHEMUMS, best sorts only, 100 in 25 varieties, *10s.*
 Packing included. Terms cash. **Cemetery Nursery, Gravesend.**

FRESH PALM SEEDS.
 To arrive shortly, in conditions, good Seeds as under.
LANTANA BORBONICA, *5s.* per ounce.
TRINAX SPECIES, *15s.* per ounce.
ARCA LUTESCENS, *10s.* per ounce.
CARYOTA URUS, *10s.* per ounce.
 Also some fine Crowns of **CYCAS REVOLUTA**.
 Immediate Orders are solicited.
HOOPER AND CO., Forest Garden, London, W.C.

SPECIAL OFFER of some Thousands of BEDDING PLANTS.
AGERATUM BIANCHA, *10s.* per 100; **Calceolaria** **the Gem**, *15s.* per dozen; **Dahlias**, finest Show, *4s.* per dozen; **Dahlias**, Pompon, in beautiful colors, *4s.* per dozen; **Echeveria**, *2s.* per dozen; **Fuchsias**, 25 in 25, *10s.* per 100; **Geraniums**, Bronze and variegated, in sorts, and **Crystal Palace Gem**, *2s.* per dozen; **Vesuvius**, fine Scarlet, *2s.* per dozen; **Zonal** and named **Blechnums**, a fine assortment, *4s.* per 6; **Scarlet**, in various colors, *2s.* per 10; **Pansy**, in named sorts, *2s.* per dozen; **Viola**, *1s.* per dozen; **Flower** **D. grandiflora**, *2s.* per dozen; **Golden Feather**, *2s.* per 100; **German Stocks**, best imported, *3s.* per 100; **Petunias**, Double, *4s.* per dozen; **Margold**, best named French, *3s.* per 100; and other cheap Annual Flowering Plants, **Francks** of best sorts, including **Williams Red**, **White**, and **Meteor**, and **Carter's** superior strain, nice plants, *2s.* to *15s.* per dozen; **Cyclamen giganteum**, *2s.* per dozen; **Chrysanthemums**, fine selection of all the best show varieties, *4s.* to *6s.* per dozen; **Ficoides** and **Carnations**, *4s.* to *6s.* per doz. **Cash** to accompany all orders.—**THOS. POPE**, Blackfriars Road Nursery, Astley Bridge and Market Hall, Bolton.

One Dozen of Each for 25s.
GOOD VALUE FOR MONEY.
 Only the best grown, all true to name, and strong Plants.—
 12 choice splendid **ZONAL GERANIUMS** for *3s.* 50 per 100
 12 choice splendid **BRONZE GERANIUMS** for *3s.* 50 per 100
 12 choice splendid **FLORIDA GERANIUMS** for *3s.* 50 per 100
 12 choice splendid **GOLD TRICOLORS** for *3s.* 50 per 100
 12 choice named **PHLOX** for *3s.* 50 per 100
 12 choice Silver-edged **FANCY FLOWERING GERANIUMS** for *3s.* 50 per 100
 12 choice striped Single **PETUNIAS**, *2s.* 50 per 100.
 See Descriptive CATALOGUE. Cash with order. **Package free.** They are honestly worth double the amount.
 The Catalogue list every offering.
CHARLES BURLEY, Brentwood, Nurseries.

SPECIAL CHEAP OFFER.
LOBELIA SPECIOSA and **BLUE STONE**, from cuttings, *2s.* per 100; *20s.* per 1000; *5d.* per dozen.
GERANIUMS, **Scotch** and **Rose**, *7s.* per 100; *15s.* per 100; **Sample dozen**; **Treolier Italia Unita** and **Glen Eyre** **healy**, *16s.* per 100, *20s.* per 100.
IRISINE, *6s.* per 100, *12s.* per 100.
HELIOIOTRIS, *6s.* per 100, *12s.* per 100.
CHLÆUSINE, eighteen new varieties, *12s.* per 100, *25s.* per 100.
CHRYSANTHEMUMS, best varieties, *10s.* per 100, *15s.* per 100.
FUCHSIAS, all the leading varieties, *6s.* per 100.
 newer varieties, *8s.* per 100, *12s.* and *14s.* per 100.
VERBENAS, **Purple**, **White**, **Scarlet**, **Crimson**, and **Rose**, *6s.* per 100, *5s.* per 100, *12s.* per 100.
GOLDEN FEATHER, *2s.* per 100, *20s.* per 100.
 Sample dozen post-free, others package free. Cash with all orders.
T. FLETCHER AND SON, Florists, &c., Chesterfield.

Novelty.
GRAND NEW BEDDING PLANT.
LOBELIA "ANDREW HOLMES"—
 This splendid variety is now offered at the best value extant. It is possessed of a hardy growth, compact, cushion-like habit, and excessive floriferousness, combined with the intense deep blue color that marks the well-known variety "Blue" remarkably having, at the same time, a small well-defined white eye, being brighter and of much evener growth than that variety, and lacking its tenderness. Conspicuously recommended by the exhibitor, who is now distributing it, as superior to every kind cultivated.
 The following testimonials are from Mr. J. FIELDEN, Head Gardener to the York and Airedale Railway Society:—
 "The Museum Gardens, York, May 23, 1882.
 "LOBELIA ANDREW HOLMES I consider in the fore-front of the many really good Lobelias now before the public. It has a good compact habit, very floriferous, and its color, so unlike Gentiana vera, one of our loveliest alpine plants, and most soon become a popular favorite."
 "J. FIELDEN, York." Price 12s. each, 9s. per dozen, 60s. per 100.
 The usual discount to the Trade.
GEORGE HOLMES, Florist, York.

CHEAP BEDDING
 and OTHER PLANTS.
GERANIUMS, from single pots, **Scarlet**, **Pink**, **&c.**, *2s.* per dozen, *10s.* per 100.
HELIOIOTRIS, **MESEMBRYANTHEMUMS**, **CALECULARIAS** (**Yellow**), **SALVIA**, **LANTANA**, **LOBELIAS**, **AGERATUMS**, **TROPEOLUMS**, **IRISINES**, 12 per dozen, *1s.* per doz., and *2s.* per doz., *7s.* and *10s.* per 100.
COLEUS, 12 beautiful distinct sorts, *2s.* per dozen, *10s.* per 100.
FUCHSIAS, 12 fine distinct varieties, *2s.* per 100 in 100 varieties, *10s.*
DAHLIAS, 12 fine named sorts, *2s.* per doz.; *10s.* in 50 or 100 varieties, *10s.*
PENTSTEMONS, 12 beautiful sorts, *2s.*
BEGONIAS, 12 fine and pretty kinds, *2s.* per doz., *10s.* per 100.
CARNATIONS and **PICOTEES**, 12 distinct sorts, *6s.*
CARPET BEDDING PLANTS, such as **Sedums** and **Saxifragas**, **Daisy**, **Golden Marjoram**, **Antennaria tomentosa**, *1s.* per dozen, *5s.* per 100.
BEDDING PANSIES and **VIOLAS**, in splendid variety, all colours, *1s.* per dozen, *10s.* per 100.
SHIBBANA and FANCY PANSIES, 12 beautiful kinds of either class, *2s.* per doz., *15s.* per 100.
DOUBLE PYRETHRUMS, 12 fine sorts, *6s.*
POTENTILLAS, 12 fine sorts, *6s.*
PHLOXES, 12 beautiful varieties, *5s.* per 100 in 200 sorts, *10s.*
PELARGONIUMS, 12 beautiful distinct varieties, *6s.* per 100, *50s.* per 100.
WM. CLIBBARD AND SON, Oldfield Nursery, Altrincham.

Carters HIGH PURE CLASS SEEDS 'IN USE THROUGHOUT THE WORLD.

Carters ILLUSTRATED CATALOGUES
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NEW ROSES of 1882, in pots.—Vendors' Selection, *30s.* per dozen; **Fuchsias**, *36s.* per dozen. The above comprise all the best English and French raised Hybrid Perpetuals, Perpetual Polyanthas, Teas, Hybrid Teas, and Oriental Mosses.

ROSES of 1881, of above-named classes, *18s.* to *24s.* per dozen, in pots.
CHOICE ROSES.—Tea-scented, Hybrid Tea, Neisette, China, and Bourbon, *18s.* to *24s.* per dozen, strong plants in pots.
 Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Verbenas—50,000 Now Ready for Sale.
SIDE can now supply really good strong tea-scented plants of Purple, Scarlet, White, and Pink **VERBENAS** at *6s.* per 100. Good exhibition varieties, *8s.* per 100. Packages free for cash with order. Also strong healthy Cuttings at the above at half price free by post.
S. BIDE, Alma Nursery, Farnham, Surrey.

Primulas—Primulas—Primulas.
 Thirteenth Year of Distribution.
WILLIAMS' superb strain, *15s.* per doz., *10s.* per 100. **CINERARIAS** same price. Package and carriage free.
 The above are quite equal to those I have sent out in previous years. Cash with order.
JOHN STEVENS, The Nurseries, Coventry.

ALTERNANTHERAS, CARPET and other BEDDING PLANTS.
 The finest stock of the above in the country, prices low: special quotations for large quantities. Experienced men sent to any part of the country to arrange and plant out beds, &c., to any extent.
 Traicings of Geometrical and other Designs for Carpet Bedding supplied to suit all requirements as to form or colour. All designs arranged and stamped on thick paper, which will enable any Gardener or Amateur to plant out such designs with only ordinary care. For any further information, or Plans, address,
W. MILES, West Brighton Nurseries, Hove, Sussex.

NEW CATALOGUES of Vegetable and Flower Seeds, Stove and Greenhouse Plants, for 1882.
 Florists' Flowers, Herbaceous Plants, &c., &c.
 Bedding Plants, for Plant advertisements, see last week's *Gardener's Chronicle*.
CHOICE STRAINS of FLOWER SEED, post-free, at low prices. The undernamed are all of one quality, and that really good, and we have the best selection of—
SEEDS of BEDDING PLANTS, *3s.* and *6d.* packets.—**Ageratum**, **Lobelia** of sorts; **Perilla nankinensis**, **Single** **Primula**, **Golden**, **White**, **Black**, **Orange**, &c.
SEEDS of FLORIST'S FLOWERS, *6d.* and *1s.* packets.—The best strains procurable. **Carnations**, **Picotees**, **Pinks**, **Francks**, **Show** or **Fancy**, **Antirrhinum**, **Hollyhock**, **Stage** or **Alpine Auricula**, **Franckia**, &c.
SEEDS of GREENHOUSE PLANTS, *6d.* and *1s.* packets.—A fine assortment of the most reliable kinds. See Catalogues.
SEEDS of HARDY BORDER PLANTS, *2d.* and *6d.* packets.—**Wallflowers**, of sorts; **Sweet Williams**, **Polyanthus**, **Primroses**, **Canterbury Bells**, **Antirrhinum**, **Alyssum**, **Arabis**, &c., in great variety.
SEEDS for CONSERVATORY DECORATIONS, *6d.* and *1s.* per packet.—Special care taken to supply the finest strains of **Primula sinensis**, **Spotted Calceolaria**, **Balsam**, **Cyclamen**, **Cineraria**, **Gloxinia**, **Tuberose Begonia**, **Cockscomb**, **Petunia**, **Geranium**.
SEEDS of STOCKS and ASTERS, *3d.* per doz., and *1s.* packets, from the best growers only, English and German.
COLLECTIONS, ANNUALS, *12s.* per packets, distinct varieties, *2s.* per doz., or *2s.* doz., or *3s.* doz., or *5s.* doz., or *10s.* doz.
COLLECTIONS of HARDY BORDER PLANTS, *2d.* and *6d.* packets, distinct varieties, *1s.* per doz., or *3s.* per doz., or *5s.* per doz., or *10s.* per doz., or *15s.* per doz., or *20s.* per doz.
VEGETABLE SEEDS, see Catalogue. Carriage free for orders of 50 and upwards. *3d.* and *6d.* packets post-free of **Beet**, **Borecole**, **Broccoli**, **Brussels Sprouts**, **Cabbage**, **Carrot**, **Cauliflower**, **Celery**, **Cress**, **Cumcumber**, **Endive**, **Lettuce**, **Marrows**, **Melon**, **Mustard**, **Onion**, **Parley**, **Parsnip**, **Radish**, **Spinach**, **Tomato**, **Turnips**, **Herbs**, &c.
COLLECTIONS of the most valuable VEGETABLE SEEDS made up into **albums** of carriage paid, for *10s.* per doz., *25s.* and *40s.* per doz. See Catalogue.

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SPECIAL OFFER OF ORCHIDS

The following beautiful and rare Orchids are offered at low prices; and will be found to be nice-sized, healthy plants; they have not yet been flowered, and probably contain many rare varieties in value quite out of proportion to prices at which they are quoted. They are offered by the importer to make room for fresh importations constantly arriving.

Orchids	Each—	doz.—	doz.—
Acridas alba	7	60	6
Fielding	6d.	6	6
Freemans	5	50	5
Lobbii	5s.	7	6
musculum	3	30	3
Wardianum	3s.	30	3
Angarum citratum	5s.	7	6
Calceolaria Schobli	5s.	7	6
Callaea Archbold	5	50	5
autumnalis	5	50	5
vestita	2	20	2
Dayana	5	50	5
maialis	5	50	5
Masdevallia amabilis	5s.	7	6
Haryana	5s.	7	6
igneis	5	50	5
maculatum	5	50	5
tovarensis	5	50	5
Wagneriana	10	100	10
Maxillaria grandiflora	3	30	3
Mormodes pardinum	5	50	5
Odontoglossum Alexandrinum	5	50	5
leavis	5	50	5
bictoniensis	3	30	3
Citrosium curvicauda	5	50	5
cruciatas	2s.	20	2
Cymbidium eburneum	5s.	7	6
Cypripedium barbatum	3	30	3
Hooker	3s.	30	3
Lawrenceanum	5	50	5
niveum	3s.	30	3
venustum	3	30	3
Pedicularia vitiellum	1	10	1
Dendrobium bigibbium	7	70	7
chrysanthum	3	30	3
crassanole	7s.	70	7
fermosum giganteum	1	10	1
platanus	3s.	30	3
zosterophyllum	5	50	5
Pleione laganaria	3s.	30	3
maculata	3s.	30	3
prænitens	5	50	5
Phalaenopsis amabilis	7s.	70	7
Phalaenopsis	7s.	70	7
Saccolabium bursatum	3	30	3
Vanda tricolor	7s.	70	7
curculita	7s.	70	7
zosterophyllum	5	50	5

Orders and letters to be addressed to 13, **Cullinan Street**, London, E.C., and not to Nurseries, Twickenham, Middlesex. P.O.O. payable to **W. GORDON**, Mark Lane.
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EXOTIC AND BRITISH FERNS, In great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
 Intending Purchasers before buying elsewhere should send for our **SPECIAL LIST of CHEAP FERNS**, which will be forwarded free on application.
W AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

WANTED, LARGE HEALTHY PALMS,

Well Furnished and Clean, consisting of

SEAFORTHIAS, ARECA LUTESCENS, KENTIAS, RAPHSIS, or any tolerably erect-growing and not too tender sorts; also ASPIDISTRA LURIDA and PANDANUS VEITCHII, for Stock, IN EXCHANGE for OTHER PLANTS or CASH.

W. HOWARD, Southgate, N.

NEW DOUBLE CINERARIAS.

R. H. VERTEGANS

Is now Booking Orders (delivery in the autumn) for his unrivalled Collection of 12 superb and distinct varieties: the set of 12 for 30s.; Single Plant, 3s. 6d. Descriptive LIST on application. Seed (saved from the above) 3s. 6d. and 5s. per packet. If sown now, will flower in December.

LAPAGERIA ALBA.

This splendid Cool Greenhouse Climber—pure wax-like Flowers, and a profuse bloomer—Plants well-established in pots, from 10s. 6d. to 65s. each.

Price per Dozen to the Trade on application.

CHAD VALLEY NURSERIES, EDGBASTON, BIRMINGHAM.

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Now ready, a Revised Edition of the

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GARDEN OPERATIONS.

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

Price 3d., Post Free 3½d.

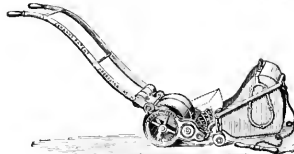
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Established A.D. 1700.

GARDEN SEATS, New Patterns, from 17/-
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STOVES and HOT-WATER APPARATUS.
THE AMATEUR'S GREENHOUSE, price £7, 20-in., 45s.; 22-in., 52s.



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15 per Cent. for Cash on MAKERS' PRICES.
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16-in., 32s.; 18-in., 35s.;
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FOR SALE, SUNFLOWER PLANTS,
extra selected, Double or Single, 2s. per dozen. A
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FOR LAWNS,
Of the finest close growing Evergreen kinds, 2s. per lb. Special
preparations for all purposes, soils and situations. Advice gratis.

Unsolicited Testimonials:—
"Knowing how difficult it is to obtain pure stocks of grass
seeds, even when price is a secondary consideration, I write to
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has given the greatest satisfaction."

"Please send me three bushels of the very best Lawn Grass
Seeds, suitable for an exceedingly hot ripened soil. . . . The
seed I have had of you has been the only kind which has
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my thin, gravelly soil."

FARM SEEDS

Of all kinds, which have given unqualified satisfaction. See
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UNSURPASSED FLOWER and VEGETABLE SEEDS. LIST Free by Post.

RICHARD SMITH & CO.,
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(ESTABLISHED 1804)

CRANSTON'S NURSERY and SEED CO.'S SPRING CATALOGUE

(Free on application) contains a List of all the
NEW FRENCH and ENGLISH ROSES,
TEA-SCENTED and NOISSETTE ROSES

In great variety, now ready for planting out;
STANDARD TEA-SCENTED and NOISSETTE ROSES,
Established in Pots;

HYBRID PERPETUAL ROSES

For Greenhouse Culture;
BEDDING and HERBAGEOUS PLANTS
Of all the Leading Varieties;

CLEMATIS, DAHLIAS, &c.
KING'S ACRE, near Hereford.—May, 1882

All the Season CINERARIA and PRIMULA SEEDLINGS.

We consider it only just to inform all those who have
a desire for the best PRIMULAS that we have been
awarded 12 FIRST-CLASS CERTIFICATES
at the most important shows during the last two years,
which is quite unparalleled, and it is well known that we
possess much the finest strain ever seen.

CINERARIAS.—We simply append the following
extracts, which clearly prove that we have also such the
nearest perfection strain in existence.

2s. per doz., 12s. per 100, post-free.

Magazine, April 1, 1882—Royal Horticultural Society.
"From Messrs. Cannell & Sons, Swanley, came VICTORY
CINERARIA, a superb Self, the flowers 2½ inches in diameter,
very stout in substance, and perfect in form, and of a rich
magenta-crimson colour."

Magazine, March 18—Royal Horticultural Society (14th).
"Messrs. H. Cannell & Sons' Cinerarias (Swanley strain) is
unquestionably one of the very finest in existence, the plants
being compact, and the flowers of large size and the finest
possible form. MARCH PAST is one of the most perfect Cinera-
rias yet raised. The group included several other most
excellent varieties, on one of which a First-class Certificate was
conferred."

The Gardener—Royal Horticultural Society, March 28.
"Cineraria called VICTORY, the finest that has yet been
shown, the flowers measuring nearly 3 inches across, perfectly
circular, with overlapping petals, and of a beautiful saffry
magenta-pink."

March 28.—"First-class Certificate was awarded to
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a large, handsome, reflexed flower of great substance and
perfect form, and of a rich crimson."

Journal of Horticulture, March 16—Royal Horticultural
Society.

"Messrs. H. Cannell & Sons, Swanley, exhibited plants of
some remarkably handsome new Cinerarias, the flowers large,
of good form, and rich colour."

The Seedlings we now offer are from Self-sown Seed of the
above beautiful and other grand varieties.

H. CANNELL & SONS,

THE HOME FOR FLOWERS
SWANLEY



This Design was invented by Messrs. SUTTON & SONS, in July, 1861, and is their property.

No similar Design was in existence until long after this date, notwithstanding statements put forth which appear to contradict the fact.

Messrs. Suttons' Customers are hereby cautioned against imitations.

THE QUEEN'S SEEDSMEN, READING.

PASSIFLORA CÖRUELA, strong seedlings, 12 to 2½ feet, in thimble, ready for shifting into larger pots, 2½ per 100.

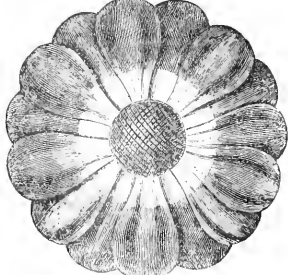
W.S.L. RUMSEY, Joining's Nurseries, Waltham Cross, N.

To the Trade.
VESUVIUS—VESUVIUS—VESUVIUS.
1000 in 48's, at 25s. per 100.
2000 in large 60's, at 16s. per 100.

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DANIELS'
CHOICE STRAINS OF
FLORISTS' FLOWER SEEDS,
For Present Sowing, Post-free.

Tip In the Rearing of Florists' Flowers from Seed, the first essential point is to secure carefully Hybridized Seed, saved from the finest flowers of the finest kinds, the chances of success in raising some really good varieties being vastly greater from a few plants, from seed of the choicest quality, than from a large quantity raised from seed of an inferior description.



	Per packet—s. d.
AURICULA, Daniels' Prize Alpine	1 0
CARNATION and PLOUÉE, from same flowers vary	2 0
Do. do. choice	2 0
Do. do. yellow varieties	2 6
CALCEOLARIA, Daniels' superb Prize	1 0, 2 6 and 5 0
CINERARIA, Daner's superb Prize	1 0, 2 6 and 5 0
GLOXINIA HYBRIDA, magnificent	1 0 and 2 6
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STOCK, Giant Brompton, Scarlet	1 0 and 6 6
Do. do. Mixed	1 0
Do. East Lothian, Scarlet	1 0 and 6 6
Do. do. Mixed	1 0
VIOLA, choicest mixed, 20-flowered varieties	1 6
WALLFLOWER, Double German, very fine, mixed	1 0

DANIELS BROS.,
Royal Norfolk Seed Establishment, Norwich.

EXHIBITION OF ORCHIDS.

B. S. WILLIAMS

Has much pleasure in announcing that he has determined to make a grand show of his flowering ORCHIDS, during the next two months, at home. The Exhibition will include, in addition to the usual stock of young Flowering Plants, all the grand specimens that he has been in the habit of including in his Collections, which have obtained the leading prizes for many years both at home and abroad.

Patrons of Horticulture are especially invited to inspect this Exhibition.

The Exhibition will contain large and small specimens of ODONTOGLOSSUMS, CATTLEYAS, LÆLIAS, ONCIDIUMS, CYPRIPEDIUMS, MASDEVALLIAS, VANDAS, AERIDES, SACCOLABIUMS, and other rare and showy ORCHIDS.

**AN EARLY INSPECTION IS RESPECTFULLY INVITED.
NO CARDS TO VIEW REQUIRED.**

A hearty welcome will be given to all who honour us with a visit.

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Carriage Route from the West End is through Albany Street, Regent's Park, Park Street, Camden Town, Kentish Town, and Junction Road.

The North Metropolitan Tramway Cars, in addition to the Street Tramways Company's Cars, arrive at and start from the Nurseries, for the City and West End, every few minutes.

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NEW ROSES FOR 1882.

WM. PAUL & SON,

(Successors to the late A. PAUL & SON, Established 1806.)

PAUL'S NURSERIES, WALTHAM CROSS,

beg to announce that they are now sending out strong plants of the following

NEW ROSES:—

DUKE OF ALBANY, H.P. (Wm. Paul & Son).

This fine variety produces large and full flowers of magnificent petal, vivid crimson in colour when first opening, but changing darker as they expand, and developing a beautiful shading of velvety-black. It has been figured in the *Floral Magazine* for November, 1881. Price 10s. 6d. each.

THE NEW AFGHAN YELLOW ROSE (Rosa Ecœ).

This interesting novelty has been recently introduced from Afghanistan, by Dr. Aitchison, and is figured and described in Nos. 117-119 (vol. xix.) of the *Journal of the Linnean Society*. The flowers are bright yellow, single, and exceedingly numerous, being borne on short lateral shoots all along the branches. 10s. 6d. each.

THE NEW FRENCH ROSES FOR 1882, including HELEN PAUL (probably the best light Hybrid Perpetual) and ULRICH BRUNNER FILS (Certificated by the Royal Horticultural Society). 3s. each; 30s. per dozen.

P.S.—In reply to numerous enquiries Wm. P. & S. beg to state that their new variety "QUEEN OF QUEENS" (Certificated by the Royal Botanic Society) will **NOT** be sold this spring.

ROSES in Pots, for Spring and Summer Planting.—A very fine stock or all the leading varieties, 12s. to 18s. per dozen; the same of extra size, 21s. to 30s. per dozen.

CLIMBING ROSES in Pots—The best kinds both for Outside and Conservatory Planting, at the same prices as the preceding.

ROSES in Pots, for Pot Culture.—All the most suitable varieties, 12s. to 18s. per dozen; extra strong established plants, 21s. per dozen and upwards.

Priced Descriptive CATALOGUES, post-free, on application.

Wm. Paul & Son, Waltham Cross.

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PATENT

"Silens Messor" and "Multum in Parvo"
LAWN MOWERS.

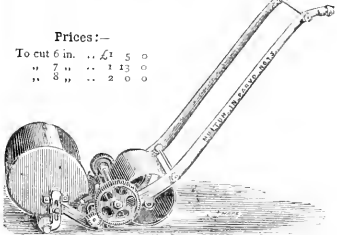
They have proved to be the best, and have carried off Every Prize in all cases of competition. Every Lawn Mower is guaranteed to give entire satisfaction, otherwise they may be returned at once, free of cost to the purchaser.



HAND MACHINES,
"Silens Messor" Pattern.

To cut 8 in. wide .. £2 10 0	To cut 16 in. wide .. £6 10 0
" 10 " .. 3 10 0	" 18 " .. 7 10 0
" 12 " .. 4 10 0	" 20 " .. 8 10 0
" 14 " .. 5 10 0	" 22 " .. 8 10 0
To cut 24 in. wide .. £9 0 0	

GREEN'S PATENT "MULTUM IN PARVO" MOWER.



Prices:—

To cut 6 in. .. £1 5 0
" 7 " .. 1 13 0
" 8 " .. 2 0 0

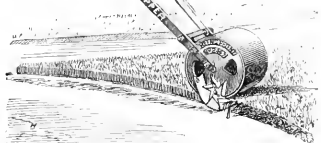
It is simple in construction, easily adjusted, is well adapted for Mowing Small Plots, Cutting Borders, Verges, round Flower Beds, the Edges of Walks, &c. It is a most handy, serviceable Machine, and very easy to work.

GREEN'S PATENT GRASS EDGE CLIPPER.

A MOST USEFUL MACHINE.

Price, £1 10s.

Size: 8 inches wide by 7 inches diameter.



GREEN'S PATENT LAWN TENNIS COURT MARKER.

Price, 21s

Small Bag of Patent Marking Composition, Mat, and Packing, 1s. 6d.



They can be had of all respectable Ironmongers and Seedsmen in the United Kingdom, or direct from the Manufacturers,

THOMAS GREEN & SON (LIMITED).

SMITHFIELD IRONWORKS, LEEDS;
And 64 and 65, BLACKFRIARS ROAD, LONDON, S.E.
Carriage paid to all the Principal Railway Stations to the United Kingdom.



Is now being used extensively by all the principal Nurserymen, Market Growers and Gardeners throughout the United Kingdom with the most remarkable success, and has established a reputation never obtained by any other Manure.

- FOR FARM CROPS,
- POTATOS,
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- STRAWBERRIES,
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- TOMATOS, MELONS,
- LAWNS,
- ROSES, CAMELLIAS,
- GARDENIAS, FERNS,
- FINE-FOLIAGED PLANTS,
- AND ALL SOFT-WOODED PLANTS.

In Packets, 1s.; and in Bags,

7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
2 6	4 6	7 6	12 6	20 -

Special Quotations by the Ton.

MANUFACTURED BY

CLAY & LEVESLEY,
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LONDON, E.

CAUTION.—It having come to our knowledge that some unprincipled persons have been substituting other Manures for Clay's Fertiliser, we beg to state that we guarantee the genuineness of none except in our bags, marked:—



THE

Gardeners' Chronicle.

SATURDAY, JUNE 3, 1882.

EPPING FOREST.

THE patriotic public have enjoyed ample opportunities of learning the "whole truth" about the enclosures of Epping Forest, through the medium of the Press. The struggle, which forms a curious episode in the history of the Forest, began in earnest about 1842, and may be said to have ended in the visit of the Queen on May 6, in the Lord Mayor's baronetcy, and in the appointment of a superintendent of the Forest. The whole history from 1842 up to 1878, when the struggle practically terminated, was impartially related in the pamphlet, *Epping Forest*, motto *Suum cuique*, publishers, Hardwick & Bogue, Piccadilly. That the Corporation are the fit and proper guardians of the Forest those who know its history, and how the Lord Mayors hunted in this forest for hundreds of years, are perfectly aware. It is a curious history. All forests have had curious histories since

"Nature first made man,
Ere the laws of servitude began,
When wild in woods the noble savage ran."

But no forest history in England can compare with that of the extended woodland of which the Epping Forest of the present time is a mere remnant. When Julius Cæsar first described this forest, it comprehended Essex. In its depths and in its borders were, discarding British names, Colchester the capital, and London the second town of the chief British tribe. The fortresses of the British were, as Cæsar tells us, encampments in the deepest forests, hence the strength of Colchester, which the Romans presently won nevertheless, and hence the last stand of poor Queen Boadicea was made here in the centre of Epping Forest within a mile of the Superintendent's house. Here she marshalled and harangued her wild hosts, amazons included, and here the part played by trees in the defence of England, 500 years before she had a fleet, may be learned with advantage.

At the next stage of a very much abridged forest history, Harold having very richly endowed the Abbey of Waltham—a name signifying in Saxon "the town in the Forest"—the diminished woodlands of the district took the name of Waltham Forest, which included, 200 years ago, only about 12,000 acres of unenclosed woods and wastes, so that the enclosures must have proceeded from the British epoch in proportion as the population of the country advanced. We may conclude, therefore, that enclosures were not always hostile to the public interests, and it is obvious that Boadicean forests must be undesirable in a thickly populated country, while, on the other hand, 5,000 or 10,000 acres of public forest near London must be in every way a boon, except that it produces no food.

Hainault Forest, lying east of the river Roding, while Epping Forest has always been included in the long strip of woodland lying between the Roding and the Lea, was disforested by Act of Parliament in 1851, leaving

6000 open acres in the Epping part of the old Waltham Forest. This is the area, minus 400 acres, which has now been secured from further inclosure, and opened for the recreation of the public. The whole of the district watered by the Lea and the Roding is rich in historical memorials. Boadicea, the Amazonian queen of this part of Britain at the invasion of Julius Cæsar, fell here, near Loughton; "Harold infelix" was buried here in Waltham Abbey; Edward the Confessor lived within the bounds of the ancient forest at Havering Atte Bower, where he practised his devotions in seclusion amid the gloom of woods, exposed, as he said, to only one annoyance, the noise made by the numberless nightingales at a particular period of the year when they disturbed his midnight reveries. This same delightful residence was used by many of our kings and queens, including Elizabeth, who rode through the glades towards London on her Spanish jennet, stiff and starched, with a gay court round her, a Diana of three score. Among other visitors a reign or two later, were Cromwell's Ironsides, who left the sweet bower a ruin.

In the history of the Forest King Alfred figures conspicuously, and always as a hero. How he surveyed the camp of the Danes near Ware, on the Lea, at the risk of his life; and how he drained the river by a new channel to the Thames, and left their ships stranded and useless, may be read in the excellent account in the *Pictorial History of England*. All about Isaac Walton, too, and the Lea between Ware and Waltham, the paradise of anglers, may be learned from the *Complete Angler*, where some hospitable wayside inns are mentioned, which have since multiplied, and with them have grown, I am happy to add, the number of exceedingly pretty gardens—some attached to inns, some to cottages, and others, more ornate, belonging to the villa and suburban residences which, in all the prettiest parts of the ancient forest tract near London, are numerous and notable.

Every visitor to Epping Forest who alights at Chingford has admired Queen Elizabeth's hunting lodge, now restored and occupied by a "keeper"—a sort of perambulating policeman. The Royal Forest Hotel, hard by, entirely overshadows it, and exemplifies in its large proportions the needs and the wealth—far greater than that of kings and queens—of that potent power, "the public." Beneath the lodge lies Fairmead Bottom, and those innumerable visitors to the spot who have something more than a vague idea of the *genius loci* of the Forest, will here recall with interest the "Easter hunt," first held in 1226, and still continued as an annual though altered festival: not many years ago the *Illustrated London News* published an account of the revelries, enlivened by numerous cuts.

At Epping, on the northern edge of the Forest, other historical memorials crop up. There is a Maple tree between Eppingbury and the church, beneath which one of the manors held its Court-leet, and all the inns in the town—and they are numerous—claim the credit of having served as the harbours of highwaymen who in the last century infested the great roads to London and the dubious forest highways—Dick Turpin among them.

Near Chigwell, a convenient station for an unequalled farm-garden district, where the leviathan growths of Cabbages, and Onions, and vegetables for the London market farm 500 or 600 acres in crops of that kind, that celebrated village inn, the "Maypole" of *Darnaby Rudge*, John Willett, the landlord, was supposed to be situated. Hainault Forest, not far distant, disafforested in 1851, was grubbed up a few years later by John Fowler, inventor of the steam-plough, who drained it by steam-power, laying the pipes by

an ingenious arrangement of them strung upon a rope, and deposited with the aid of a "mole." The Fairlop Oak in this neighbourhood became the site of the Fairlop Fair about 1720, when Mr. Day, commonly called "Good Day," started the custom of distributing beans and bacon beneath the tree on the first Friday in July. A limb of the tree formed his coffin in 1767, and he lies in the churchyard at Barking. The tree was torn up by a storm in 1820, and furnished the oak for the pulpit and reading-desk of St. Pancras Church, Marylebone.

A very brief examination of the records of the past would reveal many other historical events and reminiscences connected with Epping Forest. Nature conferred on this part of Essex a rather poor soil, but time has left the Forest a valuable legacy, which, as already said, now forms the *genius loci* of the district, peopling it for ever, and far more effectively than the fairies ever did. The finest view from the Forest is, perhaps, that from High Beech, where the northern and north-western landscape stretches 20 or 30 miles beyond the neighbouring ruins of Waltham Abbey, over a level country of field and farm, once a forest like that which still hedges in the spectator, and still appearing, from this low eminence, a wood with "openings," instead of what it really is, a richly cultivated tract with trees in the hedges, and here and there a copse and patch of timber, or a wooded park. High Beech is a noted rendezvous for the holiday keeping million. The Queen drove to this spot on May 6, in opening the Forest, and planted a tree which one may hope may prove, in distant centuries, a memorial of the day. The Lord Mayor's baronetcy also commemorates the occasion.

During a long day in the Forest with Mr. McKenzie, who has held the office of Superintendent since the Corporation accepted the costly guardianship of the Forest, I became fully aware of the very valuable inheritance which the public have acquired. Mr. McKenzie's experience in landscape gardening and arboriculture is a guarantee that the £4000 a year he expends in wages will be well employed. The works already executed or in progress consist in drives and a lake, thinning and throwing down the miles of hedges and fences of illegal enclosures. The trees of the Forest generally, except in Monk's Wood, which the abbots of Waltham kept to themselves, have been mutilated for centuries by the ancient custom of lopping and topping. There are about 550 pollards per acre on an average, and that is more than twice as many as can ever produce, on such a space, fine heads resembling in the least degree the Burnham Beeches, whose picturesque appearance has been occasioned by the growth of the heads, springing from the rugged crowns of pollards since the pollarding was discontinued many years ago. The Beech prevails, but there are many Hornbeams and some Oaks, and, in fact, all the English forest trees and shrubs are represented in this ancient forest, including white Thorns, Crabs, and exquisite Birches. There is an avenue of black Poplars, growing rapidly, in the approach to Mr. McKenzie's house, The Warren, at Loughton, and his Rhododendrons on the lawn are very fine, and form an ample shelter.

A curious incident in forestry is that one year when the commoner's pigs were smitten with disease and unable to run out in the forest for their usual pannage, a thick crop of seedling Oaks and Beeches sprang up and, as the animals do not eat young trees, they still thrive.

At the time of my visit the nightingales, banished by the Confessor, had returned in great force and sang at mid-day under an unclouded sun, hidden in the thickets. It is satisfactory to know that a safe retreat will be preserved for them here in future, and that the wellbeing of the Forest is secured by the wealth of the Conservators and the skill of their accomplished Superintendent. H. E.

New Garden Plants.

OLEARIA GUNNIANA (fig. 113).

UNDER the name Eurybia Gunniana this beautiful flowering Composite shrub has been long known in gardens, but as Eurybia cannot be generically separated from Olearia the older name must give place to that here adopted. Olearia Gunniana, a fine specimen of which was shown recently by Messrs. Veitch, is a Tasmanian shrub of 3–5 feet in height, with hoary branches and polymorphous leaves. In the form before us they are oblanceolate, coarsely toothed, and hoary on the under surface. The starry flower-heads are very numerous, clothing the ends of the branches with a sheet of white. Each flower-head is about the size of a shilling, with spreading white rays and a greyish disc. In sheltered situations it would survive our winters, as we believe it does at the Combe Wood Nurseries, near Kingston-on-Thames, and its beauty is such that it may be safely recommended for cultivation in any suitable locality. Even in less favoured spots a very slight amount of protection would probably suffice to preserve the plant. In any case it would make a fine conservatory shrub, though we doubt if the blooms would be as handsome as they are out-of-doors. Olearia Gunniana was described as an Eurybia by De Candolle in the *Prodrômus*, vol. v., p. 268, and afterwards by Sir Joseph Hooker in the sixth volume of the *London Journal of Botany*, p. 107, as well as in the same author's *Flora of Tasmania*, vol. i., p. 175, where a coloured illustration of the plant is given.

MILTONIA WARSCEWICZII ATHEREA, *Rehb. f., Gard. Chron.* 1881, xv., 428.

When I described this very curious variety from a specimen kindly sent by Mr. C. Winn, I stated that it was new to me. Nothing comparable to it had ever come to my sight; and yet I had a fine wild-grown specimen which had been in my herbarium since 1879, collected by Sir Joseph Falkenberg as "a variety with a white lip," and kindly presented to me by Mr. F. Sander. It is in flower now at St. Alban's, and proves to be quite identical with Mr. C. Winn's plant—a fact which I could not guess from Mr. Falkenberg's dried specimen. H. G. *Rehb. f.*

HOYA GLOBULOSA, *Ilk. f., incl.* (fig. 115, p. 741).

This is a newly introduced species from the Sikkim Himalaya, where it was discovered by Sir Joseph Hooker, who is the sponsor for the name, though he has not hitherto, unless we are mistaken, published it. The plant was sent out by the Cranston Nursery Company, Hereford, who have exhibited it on several occasions, and who kindly furnished the materials for our illustration. It is a stove climber, with oblong leathery leaves, rounded or subcordate at the base, acuminate at the apex. The flowers, which have the same conformation as in other species of the genus, are in globose umbels, each flower being of a pale straw or cream colour, the coronal appendages pink at the base. The pods, according to the dried specimen in the Kew herbarium, are nearly a foot long, and very slender. Mr. Keenan, who met with the plant in Cachar, describes the flower as having a perfume like that of a Turk's-cap Lily. The plant has been previously figured in the *Floal Magazine*, 1880, t. 406, without botanical description. The curious way in which flies are caught by it (as in the case of the nearly allied *Apocynum*) has been recently described and illustrated in these columns by Mr. W. G. Smith. For garden purposes it is one of the prettiest of the Hoyas, its globose heads of flower being very attractive, while it is probable, from its native locality, that it may bear a cooler temperature than some of its allies.

EULOPHIA PULCHRA, *Link.*

Now they come, the Malagascarp plants! This one was sent, as far as I know, from the Comoro Islands, by dear poor Hildebrandt, who may not have seen the flower. I saw but weak plants, labelled as "Acanthophippium, No. 3," by some would-be orchidist.

A case has just been sent by Herr Kittel, jun., Hirschschäftliche Gärtnerei, Eckersdorf bei Glatz,

Kreis Neuroda, Schlesien. It contains an enormous plant from Hildebrandt's sending. It would hence appear, either that Herr Kittel had the first pick (which is not very probable at Berlin), or that he is a first-rate grower. The orchidist's heart beats higher at the sight of such a plant, intended to be only a specimen for naming. The stems are of the deepest green, and one is 2 feet high. The leaves are two, petiolate, oblong acute, the largest 2 feet by 7 inches. The part of the bulb just under them is fine, brown-purple. The younger bulb shows two mighty horn-like breaks of the same colour, one standing higher by two joints than the basilar one. The strong peduncle springs from the base of the third articulus of bulb; it has the same colour, excepting its green top and green lateral branches. Flowers very numerous, with linear lanceolate acute long bracts. Sepals and petals light yellowish-green. Petals with purple streaks. Lip with a short round green didymous spur, and with a four-lobed blade, with dark purple streaks. Column with similar longitudinal streaks in front. It

The plant being British Indian, might have been expected by the reader to have been sent from England. *Quod non!* It is now in flower with Herr Benary, of Erfurt, who is so well known for his warehouses filled with the finest seed, those of *Pensées* being proverbially appreciated. Well, Herr Benary took a hobby for Orchids. The other day Herr Oberhofgartner Wendland sent me from these a raceme of *Otocilius alba*, which previously I never had had from gardens, and now a grand living plant in this is sent direct by Herr Benary. *Vivant sequentes!* H. G. Rehb, f.

DENDROBIUM SECUNDUM (Lindl.) NIVEUM, n. var.

Messrs. Maule & Son, The Nurseries, Bristol, have kindly sent me a very fine inflorescence of this. Flowers quite snow-white, excepting the orange top of the lip, and the light green ovary. It is said to have the advantage of throwing its stems about 6-8 inches only, while the old pink one is much taller. H. G. Rehb, f.

only negligence of a gross and wilful kind could justify a charge of this serious nature, it must not be overlooked that this fatal tree, as well as numerous others which fell at the same time, might have stood safely for many years but for the terrible force of the wind, which so far exceeded all ordinary atmospheric conditions as to become productive of disaster. For such disasters, be they great or trivial, no man can be held responsible. None the less it is desirable that some proper precaution should be adopted in relation to trees that overhang or are in proximity to public thoroughfares.

That some other and similar catastrophes to the one above noted took place during that hurricane there can be little doubt, and, indeed, within a limited range, we can tell of a market gardener's van proceeding homeward, that was found by the driver to be suddenly pinned to the road by a huge tree falling on to its tail, thus giving the horses and driver but a very narrow escape. In another case a farmer driving home from market heard a



FIG. 113.—OLEARIA GUNNIANA. (SEE P. 732.)

is remarkably near *Eulophia Sandersiana*, Rehb. H. G. Rehb, f.

CRYPTOCHILUS LUTEA, Lindl.

This curious plant was very well understood and described by Dr. Lindley in his second and last contribution to the *Orchidology of India*. It appears to be very rare, it having only been known by the Doctor from Griffiths' specimens, and from Cathcart's drawings, kindly lent by Sir Joseph Hooker.

The specimen at hand appears to be in much better health than Griffiths' plant, it having stout bulbs and much shorter leaves. The inflorescence is very curious. The bracts stand in a biplicate order, and the nice light yellow urceolate tridentate flowers hang down in two rows, just as if they were small sulphur-coloured flowers of some new Lily of the Valley. The green ovaries are covered with white papillæ; the chin is very short and rounded; petals lanceolate; lip obtusangled rhombœo-lanceolate, all sulphur coloured. The column has abrupt upright horns, nearly as in a *Bulbophyllum*. The pollinia are nearly white, and this is the only statement I cannot describe in the same terms as Dr. Lindley. Both cases may occur, or Dr. Lindley thought it might be variable in colour.

DANGEROUS TREES.

THE prosecution at the recent Old Bailey Sessions of an estate agent, in the person of Mr. Oakley, member of a well-known firm, on the charge of manslaughter, was as novel of its kind as it was untenable. A large tree standing by the roadside was blown down upon an unfortunate passer-by during the hurricane of April 29 and killed him. The coroner's jury, doubtless naturally feeling that some one ought to be punished, returned a verdict of manslaughter against the estate agent. Coroners' juries are too apt to take their views of law from their own notions of what is right and wrong rather than from the Statute Book, and hence acquittals at the hands of judges as often follow as do convictions from such charges. In this case the only responsibility that could be charged upon the agent was that he had been warned that the tree might fall at any time, and no doubt it would have been wise to have attended to that warning, but we have no information as to whether the agent had authority to remove the tree, whether it was sought and refused, or even whether the tree was really in a more dangerous case than thousands of others are that stand by the roadside under similar circumstances. But whilst

sharp cracking sound come from a tree just beside him, and whipping his horse into a sudden spurt, just escaped destruction. It would have been absurd in these cases to assume that any one was wilfully negligent; but disaster might have happened just as readily as if some one had blundered. The moral of these accidents and hairbreadth 'scapes is, that trees of dangerous tendencies should not be planted too near to highways, and where they are so standing now it would be but right that some easement should be given them on the road side, so that danger might be minimised; not that any one would desire to see such trees distorted into the weird shapes and forms which disfigure the landscape of some of our home counties. Elms are the chief offenders, but Elms, grand as they are in all their bold outline and vigour, had better cease to exist altogether than to live as naked stems with brown heads, literally pictures of nursery burlesque—trees that degrade their tribe and render the landscape truly detestable. If, however, trees lend to our highways some elements of dauger at occasional, and certainly unrequited periods, they give in return so much that is picturesque, beautiful, and grateful, that their entire removal would be a loss far too heavy to be borne. Lopping at occasional intervals of all the more dangerous limbs would be productive

of dense growth, luxuriant leafage, and renewed exuberance; but it is just this occasional lopping which owners decline to carry out. With too many perhaps the market value of timber is of more moment than regard for human life, but judicious lopping can hardly be productive of loss to timber if it be performed with judgment, and in such a way as to relieve the trees from undue strain, without detracting from their market value.

One result of the great fall of trees during the winter and spring has been a remarkable fall in the market value of Elm timber, and it is stated that trees which would have obtained 1s. per foot under ordinary conditions will not fetch more than 4d. per foot. The timber trade has been glutted for some time to come with this wood, and buyers have got an abundance at their own price. Yet landowners have themselves largely to blame, because all the trees which have fallen have been the victims of too much top hamper. They have been left as sailing ships are, carrying a huge breadth of sail safely enough in ordinary weather, but in the fierce and often sudden storms have been taken aback, struck with the full force of the cyclone, and crashed to destruction. The carrying power of trees in exceptional weather should be studied and provided for. If these are unduly strained, ease should be given, and thus, whilst removing a source of danger, the tree will prove grateful by exhibiting renewed life and adding new elements of beauty. Our roadside trees, no doubt, are often permitted to become too lofty, and as hedge-row trees are not uncommonly crowded, such trees naturally grow weak and insecure. An expert woodman could soon remedy this, were he permitted. Highways that are overhung with trees suffer greatly from drip, and surveyors have to the overhanging branches a natural dislike. As these officials, however, are often farmers or persons somewhat dependent upon landowners, they hesitate to put in force the powers with which the law has clothed them, and insist on all such trees being lopped; were this the case, and the lopping done with skill and judgment, human life would be safer, the roads would be less injured, and the trees would lose nothing of that beauty which so largely tends to create picturesqueness in our English landscapes.

CLIVEDEN IN SPRING.

THE manifold beauties of Cliveden in spring have been so often commented upon in these columns that it would seem like repeating an oft-told tale to revert to the subject; and yet there is a charm about the spring gardening as carried out on the classic slope beyond "Cliveden's proud alcove" that is ever fresh and indescribably pleasing—a perennial delight that one never tires of. But a few weeks back the grassy banks and mossy glades were all aglow with the flowers of early spring—Daffodils and Daisies, Primroses, and Polyanthes, Bluebells, Squills, and wood Anemones, and wild flowers of all degrees, in a profusion that speaks volumes for the fostering care that has been bestowed upon them. At the present time the great banks of Rhododendrons that flank the drives and occupy other coigns of vantage are in all the glory of their early summer garb of floral beauty, and again would we say that the flower garden never looked brighter, never more harmoniously filled with the simple hardy annuals that form the sum and substance of the grand display. It is a sight, indeed, that once seen can never be forgotten. Long practice in this style of gardening, of which Mr. FLEMING may be said to be the father, has enabled him to successfully ring the changes on many plants, and by careful and constant selection to arrive at the results before us—every bed a perfect mass of colour at the same time—a triumph that it would seem almost impossible to improve upon.

As all visitors to Cliveden will remember, the design of the garden is composed of two sets of beds, divided by a broad stretch of grass, and terminated by an immense ring at the bottom, each set of beds consisting of eight elongated triangular patterns, scooped out on one side, the recess so formed being occupied by a circular bed. These small circles are all filled with a white-flowered variety of *Silene pendula*, a variety of Mr. FLEMING'S own sowing, and the large ring at the bottom, which takes 15,000 summer bedding plants to fill it, is occupied with the true *Silene pendula* only. Then commencing with the large beds

from the terrace end, they are filled:—1, with *Silene pendula*, pink; 2, *Nepeta cærulea*, blue; 3, Chinese Roses, with a broad band of Lady-grass or Gardeners' Garters; 4, white Rhododendrons, with a broad band of *Lasthenia californica*, orange-yellow; 5, *Linnanthus Douglasii*; 6, crimson Rhododendrons, John Waterer, surrounded by *Myosotis sylvatica*; 7, the old Fellenburg China Rose, surrounded by Lady-grass; and 8, white Rhododendrons encircled with the blue *Nepeta*. Nothing could be more simple than the materials used; nothing more costly could produce a finer effect. The annuals are sown in the last week in August or first week in September, and are pricked out from the seed-beds into their present quarters, a process that is found to give much more satisfactory results than sowing the seeds in the beds at once.

ASHTON COURT.

PERHAPS at no season of the year can a more pleasurable visit be paid to this fine domain, near Bristol, than during the month of May, and a few notes made during a recent hurried visit may not be uninteresting to your readers. The park, with its rare undulations and magnificent trees, is seen to the best advantage in spring, but on every hand were traces of the terrible gale of a short time ago. Many a huge Elm was knocked over like a mincepin by the fierce dash of the hurricane. It was curious to notice that in every case the tap-root, if any existed, had apparently rotted quite away to the very base of the trunk, leaving only the strong horizontal roots that spread near the surface of the soil as an anchorage. The devastation wrought by the gale of last autumn was seen in the gaps created in the fine avenues and clumps of Elms, the *Ashes* of which had only just been cleared away. The lofty specimens of Beech were prominent objects in the landscape, the bright emerald-green of the young foliage contrasting with the deeper hues of other arboreal giants. The common white Thorns, in the full flush of their spring bloom, were as beautiful as the eye could well desire.

In the somewhat restricted pleasure-grounds on the right of the mansion the beds of mixed Rhododendrons, with rich patches of high-coloured American *Azaleas* here and there, are objects of great beauty; huge bushes of *Deutzia gracilis*, clothed in a floral raiment of the purest white, harmonised with the crimson-hued Rhododendrons. The grouping of the American *Azaleas* is the work of a master-hand. Large bush trees of Paul's crimson Thorn, laden with flowers, looking very pretty, are dotted about on the greensward. Hedges of variegated Yew take on a surprising colour, owing doubtless to the presence of limestone in the soil, and bush trees of *Acer Negundo variegatum*, kept pruned back to restricted dimensions, are equally attractive, rich hues of red dashing the white variegation. On the rockwork at one end of the broad walk Ferns and rock plants luxuriate, and such flowering specimens of *Hoteia japonica* as one seldom sees in the open ground. These have been planted out for four or five years, and are never protracted. *Thuya aurea* colours finely in this locality.

In the plant-houses is much to attract attention. *Bougainvillea speciosa* in a cool-house is coming into fine bloom; Rhododendron Mrs. John Clutton is fine in pots, and makes a rare conservatory plant, being quite white, and small plants flower very freely; *Habrothamnus elegans* in small pots is flowering freely. Mr. Austen plants it out in June, and lifts the plants in September, and they bloom when lifted up to November; they are then cut back, and soon bloom again, and go on doing so all through the winter. Mr. Austen prefers to strike cuttings every year to make young plants for planting out.

Close by is a curious old Sycamore grove, the trees planted on either side of a broad walk. Originally there were some sixteen trees on either side, but a very few have succumbed to old age, or died from other causes. These trees must have been planted many years ago, and it is said there is some old family tradition connected with their presence here. For years past the trees have been cut back to something akin to pollards, and the consequence is they threw out branches across the path, and so formed a kind of covered way, and the stems have united with and interlaced each other in a remarkable manner. These Sycamores take on a very fine leaf colouring at this season of the year.

Some fine specimens of coniferous plants are found in the pleasure grounds; among them is a rare example

of the funeral Cypress, over 30 feet in height. All coniferous plants do well here: the subsoil is dry and well drained.

Against the walls of the mansion, and also the terrace walls, *Escallonia macrantha* makes a wonderful growth; and there are many other fine shrubs of this character. Camellias do well planted out. *Choisya ternata*, planted out against the terrace wall, is growing very freely. Against the front wall of the mansion the white Banksian Rose flowers very freely and finely. Growing against the balustrading of a large flight of steps leading from the lower to the upper terrace garden is an ancient *Wistaria sinensis*, that in the course of time has thrown out right away branches, the longest of which measure fully 100 feet. The plant bore dense clusters of fine racemes, with more blue in them than is generally seen. One branch was brought across, under the broad path, and, trained up the other balustrade, is gradually covering that also.

In the fruit garden everything is highly promising. The vineries are in the best condition, and there is a rare promise of fruit. In the Peach-houses wall and bush trees are laden with fruit, and overhead Grapes show the promise of an abundant and fine crop. In an annex to one of the vineries are some Vegetable Marrows in pots, the plants trained up stakes and so on to the interior of the roof. The seed was sown at the beginning of February, and the plants potted into 32's, and then into very large fruiting pots. The first brace was gathered the second week in April. This is a capital plan for getting Vegetable Marrows early in the season. In one of the vineries some plants of *Zephyranthes carinata* in pots were in full bloom, carrying fine deep fleshy-pink flowers. By their side were some plants of *Urcollina pendula aurea*, which are potted every spring, three and four bulbs in a pot, where they flower finely.

Like every other department, the kitchen garden at Ashton Court is in admirable condition. Mr. Austen has had to deal with a very stubborn, retentive, clayey soil, but by dint of perseverance he has brought it into something like subjection. All the outdoor fruit crops promise fairly well, vegetables are a great success. The early Munich Turnip should be noted as an exceedingly useful early variety. Sown in the open ground at the end of February, it is now fit to pull. The American Wonder Pea is an excellent early dwarf variety. Sown in the open ground on January 20 it has made a very fine branching growth, and on May 13 had formed some good sized pods. It grows only to a height of 15 or 16 inches in a strong soil, is very free, and pods in pairs. All the early Peas look well, and as late as earliest is concerned, it appeared to be a neck and neck race with the Early Champion, William I., and Emerald Gem. *R. D.*

CANADIAN NOTES.

We have had a very variable winter, constantly changing every few days, so that frequently, at the beginning of the week, the cutters and sleighs were in vogue for very respectable sleighing, and perhaps by Saturday the snow had partly melted and made the roads practicable only for buggies and waggons. The winter Whent shows some of the effects of this fluctuating temperature, although not so much as might have been calculated on, as it is only in a few districts that it is likely to be necessary to plough white fields up for spring crops. The winter has been a prosperous one for the farmer, and now the spring season, although cold till this last day or two, has afforded a good opportunity for ploughing and seeding the ground earlier than usual, as the land is nice and dry.

The money realised by the enhanced price of grain, hay, pork, and Potatoes, and an advance of something like cent. per cent. on many descriptions of timber when utilised into railway material, has enabled large numbers of farmers, farmers' sons, and tradesmen to take a trip to Winnipeg and try their hands at speculation in land, and arrivals from Europe of farmers and others swelling the multitude of those who are determined to get rich in a very short period has created a demand for individuals prepared to supply riches to order which has been abundantly met by sharpers, who have adopted many schemes to fleece the unwary speculators. They have sold them town lots at high prices in eligible city sites which when the enthusiastic purchasers come to see they found the only sign of civilisation to be a water tank along the railway-track. They have accommodated them with excellently fertile and well situated farms which on inspection have only turned out to be muskegs, or swamps are called, and utterly

valueless for any purposes of cultivation. They have sold them land which cannot be found at all. They have played on the cupidity of some of the resident farmers by purchasing their cleared farms at exorbitant rates and then sending one of their party to offer 2000 dollars more and suggesting that the farmer should buy the farm back, which he has accomplished by paying 500 dollars more than he sold at, expecting to realise 1500 dollars profit on the transaction, and of course never saw the original purchaser again. Town lots in Winnipeg have sold at extravagant rates, and in all other places where there is any population and speculation has almost equalled the South Sea Bubble in many instances, and many unfortunates have come to grief already. However, the great North-west is being rapidly settled by those who mean to make it their home, and its fertile soil, with a healthy although very cold climate, will afford comfortable homes for many millions of immigrants. The Government has sold sufficient land to large companies, mostly at 2 dollars an acre, to recoup themselves the 50,000,000 dollars promised to the Canadian Pacific Railroad, in addition to 50,000,000 of acres of land for constructing an iron highway from the Atlantic Ocean to the Pacific; and this spirited undertaking is attracting many noblemen and gentlemen from England, who are coming to share the spoils of this magnificent country, which has been for so many years only the pasture ground of the buffalo, the hunting region of the red man, and the reserved commercial fur-district of the celebrated Hudson's Bay Company's traffickers. *Ministry, Ontario, Canada, May 10.*

LIST OF GARDEN ORCHIDS.

(Continued from p. 642.)

- 198. D. RHODOCENTRUM, Rehb. l., *Gard. Chron.*, 1872, p. 425.—Native country unrecorded. First flowered by Mr. Wentworth Butler. Allied to *D. cumulatium*. Flowers light rose; petals tipped with purple; lip white, with a purplish stain at the apex, and a yellowish base.
- 199. D. RHODOSTOMA x Rehb. l., *Gard. Chron.*, n.s., v. p. 795.—A hybrid between *D. Huttonii* and *D. sanguinolentum*, raised by Mr. Seden for Messrs. Veitch, who exhibited it at the great Flower Show at Brussels in 1876. "Flowers whitish, tipped with rich purple."
- 200. D. RHODOPTERYGIUM, Rehb. f., *Gard. Chron.*, n.s., iii, p. 624.—Moulmein. Introduced by Mr. Boxall for Messrs. Low. Closely allied to *D. Parishii*. Colouring of the flowers in the way of *D. superbum*, wanting the velvety hairs on the lip, so conspicuous in *D. Parishii*. Hort. Kew. *D. RHOMBUM* = *D. aureum*.
- 21. D. ROSENBERGII, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv, reprint, p. 13.—Amboina. Buitenzorg Botanic Garden, 1862.
- 2. D. ROSEUM, Hort. = *D. crepidatum*, ex Planch., Hort. Donat.
- 3. D. ROTUNDIFOLIUM, Hort. = *D. speciosum* var., ex Planch., Hort. Donat.
- 201. D. (EUDENDROBIUM) RUCKERTI, Lindl., *Bot. Reg.*, 1843, t. 60.—Philippine Islands (?). Supposed to have been introduced by Cuming. First flowered in the garden of Mr. Sigismund Rucker, Wandsworth. A pretty species, allied to *D. aureum*, with flowers of a deeper colour within, though almost white externally. Flowers fragrant. Hort. Kew.
- 202. D. RUMPHIANUM, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv, reprint, p. 13.—Molucces. Buitenzorg Botanic Garden, 1862.
- 23. D. SALACENSE, Lindl., *Gen. and Sp. Orch.*, p. 86; *Proc. Hort. Soc.*, ii, p. 373. *Gravatum salacense*, Blume, *Bijdr. tot. Fl. Nederl. Ind.*, p. 333.—Java. Buitenzorg Botanic Garden, 1866; also cultivated by Messrs. Low. Inconspicuous.
- 204. D. SALICORNIODES, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv, reprint, p. 11.—Rakata Island. Buitenzorg Botanic Garden, 1866. Inconspicuous.
- 205. D. (EUDENDROBIUM) SANGUINOLENTUM, Lindl., *Bot. Reg.*, 1842, Misc., p. 73; 1843, t. 6; *Gard. Chron.*, 1842, p. 879; 1843, p. 143.—Ceylon. Introduced by Mr. Nightingale for the Duke of Northumberland. Stems and under-surface of leaves of a delicate purple when young. Flowers medium size, clear fawn colour, tipped with a deep rich violet, and having a scarlet spot on the lip. Hort. Kew.
- 206. D. SARCONTIUM, Lindl., *Journ. Linn. Soc.*, iii, p. 20.—Java. Buitenzorg Botanic Garden, 1866. Whole plant only 2 inches high.
- 207. D. SCABRILINGUE, Lindl., *Journ. Linn. Soc.*, iii, p. 15; *Journ. Linn. Soc.*, xxx, p. 150; *Gard. Chron.*, n.s., xii, p. 616. *D. doctroinum*, Bateman, *Bot. Mag.*, t. 5345.—Moulmein. Introduced by Rev. Mr. Parish for Messrs. Low in 1863. A pretty species, with short stems, clothed when young with black hairs. Sepals and petals white; labellum orange with crimson stripes.

- column green. Said to possess the fragrance of the Wallflower. Hort. Kew.
- 208. D. SCALEPPELLIFORME, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxv, p. 3.—Malayan Archipelago. Buitenzorg Botanic Garden, 1866. Inconspicuous.
- 2. D. SCHEINUM = *D. striolatum* (?).
- 3. D. SCHREBERI, *Exot. Flora*, t. 299 (copied from).
- 209. D. SCOPA, Lindl., *Bot. Reg.*, 1842, Misc., p. 55; *Gard. Chron.*, 1842, 597.—Manila. Imported by Messrs. Loddiges. More singular than beautiful. Flowers small, whitish, in axillary clusters; labellum cut up into long entangled curling threads.
- 210. D. (EUDENDROBIUM) SCULPTUM, Rehb. f., *Bot. Zool.*, 1865, p. 143.—Java, t. 12, p. 143.—Borneo. Discovered and introduced by Mr. Hugh Low, for Messrs. Low & Co., of Clapton. Flowers ivory-white, with a yellow labellum, about the size of a moderate *D. longicornum*.
- 211. D. (EUDENDROBIUM) SPECIOSUM, Wallich, *Bot. Reg.*, t. 253; Rehb., *Exot. Flora*, t. 299 (copied from *Bot. Reg.*); *Bot. Mag.*, t. 4332; Lindl., *Gen. et Sp. Orch.*, p. 81; *Vriese, Orch.*, t. 6.—Malayan Islands. Introduced from Sumatra, by Mr. W. McKilligin, and flowered in Mr. Tate's nursery, Sloane Square, London, in 1829. Stems stout, with short broad leaves; flowers small, purple, with a yellow labellum, in dense racemes from near the top of the leafless stems. Pretty and distinct. Hort. Kew.
- 212. D. (EUDENDROBIUM) SENILE, Parish, *Gard. Chron.*, 1865, p. 434; *Bot. Mag.*, t. 5320; *Venus*, ii, t. 15; Birtch., *Exot. Flora*, t. 299 (copied from Rev. Mr. Parish for Messrs. Low & Co.). A small species with wholly yellow flowers, except a few reddish transverse stripes on the labellum, in pairs or leaves on the short stem. It is very pretty, and at the same time remarkable in the stems and leaves being clothed with long white hairs.
- 213. D. (EUDENDROBIUM) SEKKA, Lindl., *Gen. and Sp. Orch.*, p. 71; *Journ. Linn. Soc.*, iii, p. 3.—Java, Singapore. Cultivated at Kew, 1861. Inconspicuous.
- 214. A. SINUATUM, Lindl. et Rehb. l., *Walp. Ann.*, t. 280; *Journ. Linn. Soc.*, Lindl., *Bot. Reg.*, 1841, Misc., p. 3.—Singapore. Introduced by Mr. Cuming, and flowered by Messrs. Loddiges. Allied to *D. anceps*; flowers pale yellowish-green.
- 215. D. SMILLIEI, F. Muell., *Fragm. Phytog. Austral.*, vi, p. 94; Benth., *Fl. Austral.*, i, p. 282; *Gard. Chron.*, n.s., x, p. 101.—New South Wales. Cultivated by Mr. Bull in 1879. Flowers small, in dense racemes, rose-purple, green and chocolate.
- 216. D. (APORUM) SPATELLA, Rehb. f., *Hamb. Gartenz.*, xxv, p. 298.—Assam, India. Imported and cultivated in 1864 by Mr. J. Day. Flowers small, greenish-yellow.
- 217. D. (EUDENDROBIUM) SPECIOSUM, Smith, *Exot. Bot.*, i, p. 17, t. 10 (very bad); Benth., *Fl. Austral.*, vi, p. 279; *Bot. Mag.*, t. 3074; *Bot. Reg.*, t. 1610.—Eastern Australia, Queensland to Victoria. Flowered in the Liverpool Botanic Garden in 1837 from a plant introduced by Fraser. A robust species, with ample foliage and large dense spikes of yellowish-white, fragrant flowers. Hort. Kew.
- 218. For HILLI, Hooker, *Bot. Mag.*, t. 526 (species); *Gard. Chron.*, n.s., vi, p. 112 (with a whole page figure. Sepals and petals narrower and paler than in the type. Described as a free-flowering and desirable species. Hort. Kew.
- 219. For BANCROFTIANUM, Rehb. f., *Gard. Chron.*, n.s., v, p. 762.—More slender than even the var. Hilli, but having flowers nearer the type in Australia. Introduced by Dr. Bancroft, and cultivated by Mr. Thomas Christy in 1851.
- 218. D. (DESMOTRICHIUM) SPHEGHILOGLOSSUM, Rehb. f., *Boissiania*, ii, p. 88; *Walp. Ann.*, vi, p. 200.—India. Introduced by Consul Schaller, Hamburg, about 1854. Allied to *D. scopia*. Flowers white suffused with rose.
- 219. D. SPLENDIDISSIMUM, Rehb. l., *Gard. Chron.*, n.s., ii, p. 298.—A hybrid between *D. aureum* and *D. nobilic*, or *D. macrophyllum*, raised by Mr. Seden, in Messrs. Veitch's establishment, in 1870. Sepals and petals cream-coloured tipped with purple; labellum yellowish with a blackish purple disc; column greenish. A very handsome Dendrobe.
- 220. D. (EUDENDROBIUM) STRICKLANDIANUM, Rehb. f., *Gard. Chron.*, n.s., vi, p. 749; *Venus*, iii, p. 71, t. 206.—Japan. Introduced by Sir C. W. Strickland. Flowers pale yellow and white.
- 221. D. STRIOLATUM, Rehb. f., *Hamb. Gartenz.*, 1837, p. 313; *Venus*, ii, p. 24, t. 109; Benth., *Fl. Austral.*, vi, p. 284; *Bot. Mag.*, t. 3074; *Bot. Reg.*, 1839, Misc., p. 32, non R. Br. *Exot. Bot. Mag.*, t. 5345.—Moulmein. Introduced by Mr. Nightingale for the Duke of Northumberland. Stems and under-surface of leaves of a delicate purple when young. Flowers medium size, clear fawn colour, tipped with a deep rich violet, and having a scarlet spot on the lip. Hort. Kew.
- 222. D. STROBILANUM, Rehb. l., *Gard. Chron.*, n.s., ix, p. 462.—India. Flowers densely racemose; sepals dark violet-brown at the base, the petals spotted with the same colour, margin and apex of the lip darker. I do not know whether this has actually been cultivated in this country. Dr. Reichenbach received "a new splendid representation of it" from Mr. T. C. Hinks, of Thirsk, in 1878.

(To be continued.)

ALPINE PLANTS.

(Continued from p. 670)

Gentiana acaulis, L., occurs in the high pastures of the Jura and throughout the Alps. The best plants of *G. acaulis*—those which succeed best, and which bear the finest flowers—are not those which grow in the pasturages, but those which are found in the fissures of the limestone rocks, and especially on the northern slopes of the Jura. Many people do not know how to cultivate *G. acaulis*, while others succeed without any trouble. It is evident that in hot, dry regions, the acclimatisation of this alpine plant presents some difficulty. In England, especially in the seaside districts, and where the air is constantly moist, this species succeeds admirably. The system of culture which we adopt in Geneva is the same as that adopted for *G. verna* and *G. excisa*. It must have a large pocket in the rockery, the bottom of which should be well drained with stones or pieces of coke. Above the drainage a good layer of rich and porous leaf-mould should be placed, mixed with calcareous sand in the case of *G. verna* and *G. acaulis*, granitic sand in the case of *G. excisa*. The aspect should be easterly or westerly. The plants should be thickly planted, receive an abundant supply of water in spring, but very little in summer and in winter. A very curious circumstance which I have observed in many alpine plants, especially in the case of the Soldanellas and plants which, unlike Saxifragas, have not the property of spreading, is that they are gregarious, living in masses, and not as isolated specimens. Social plants of this character are numerous. I have seen some fine edgings of *Gentiana acaulis* in flower in a garden where the plants grow separately did not succeed.

G. excisa, Presl, differs from the foregoing in its oblong obtuse leaves, longer than in *G. acaulis*, and by a different construction of the calyx. While *G. acaulis* has the calyx divided to the base into five free segments, the calyx of *G. excisa* is divided only half way down. Moreover, *G. excisa* flowers as a rule a fortnight later than *G. acaulis*. *G. acaulis* is a limestone plant, while *G. excisa* is found on schistose or granitic soil.

G. alpina, Villars, differs from the preceding species by its shorter and more slender stem, by its small oval leaves, and by its oval calyx lobes. Its corolla, moreover, is only half the length, but is relatively broader than that of *G. acaulis*. It occurs only in the highest alpine pastures, and especially in the granitic districts. This species abounds in the Pennine Alps, in the Valais, and in the Dent du Morcle, as also in the higher parts of the Grisons. It may be cultivated like the others, but with even more perfect drainage, consequently with a thinner layer of soil, consisting of peat mixed with granitic sand. I add to this compost a little sawdust.

G. verna, L., is no doubt after *G. lutea* the most widely spread species. It is met with throughout the greater part of the central European mountains. Its cultivation is easy, but it does not succeed well unless grown in masses. I think lime suits it better than granite. Nevertheless, it is met with in other than limestone soils, though in such localities it is less robust and less beautiful. It requires a soil rich in humus mixed with a little sand. I have discovered a white-flowered variety, which remains constant and flowers every year. What is very remarkable is that the white-flowered variety of *G. verna* which I brought from the Valais produced blue flowers under cultivation, while that which I procured from the Jura remained white. The white variety occurs mixed with the blue in the Jura, forming a very pretty contrast. *G. verna* frequently flowers a second time in autumn when the summer has been very dry. Thus, last autumn the summit of the Grand Salve was covered with the flowers of *G. verna*.

G. brachyphylla, Villars, grows in the highest alpine pasturages. It resembles *G. verna*, but its leaves are broader, thicker and spatulate. It grows in a cool moist soil.

G. hucarica, L., is one of our most beautiful species. It grows on the very edges of the glaciers, and I have often met with it at great elevations on our Alps where glacial species only occur. No *Gentiana* is more beautiful than this when it grows amid the crevices of the rocks. I have found it near the summit of the Schwarzwasser, accompanied by *Eritrichium nanum* and *Androsace glacialis*. It lives at these elevations in a sterile gravelly soil, which is continuously moistened by the melting ice. The plant varies in character according

as it grows at higher or lower elevations. Some botanists have considered the form which grows in the lower pasturages as a distinct species, and have given it the name of *G. imbricata*. In cultivation it is evident that the plant of the lower regions is to be preferred because it succeeds best in the low ground. The form which occurs in the higher glacial regions is very difficult to grow, rarely flowers, and never so alpine as its native heights. I grow it like *G. alpina*.

G. nivalis, L., is a very pretty annual species, which grows also at great elevations, and which must be grown every year.

G. ciliata, L., is an autumn-flowering species. It is not alpine, but belongs to the lower regions, being found in woods and copses throughout the Swiss plateau. This charming species has very bright blue flowers, ciliated and fringed at the edges. It requires a porous peaty soil, mixed with a little lime. There is also a white-flowered variety of this species.

Seedling plants of the *Gentians* succeed very well, but patience is required, because the seeds take a year and a-half or two years to come up. If the seeds are sown immediately they are ripe they do not come up for a year, and if sown in spring they will not germinate for eighteen months or even two years. Nevertheless, the *Gentians* raised from seed are much better than those which are transplanted. There are some, such as *G. ciliata*, of which it is very difficult to procure roots, because they are provided with small white stolons, which are often taken for roots, but which are underground shoots. To get at the true roots one must dig deep. *Henry Corcecon, Inspecteur du Jardin Botanique de Genève.*

WASTE LANDS IN INDIA.

We are requested by the Secretary of State for India to publish the following statement with reference to the waste lands available for planters in the Tavoy district:—

Waste lands, covered at present with forest, Bamboos, or grass, are available for plantations of Coffee, Tea, Cinchona, or spices at altitudes varying from 100 feet to 6800 feet above the sea in the Tavoy district. This region is between the 13th and 14th parallels of North latitude, and the rainfall ranges from 190 to 220 inches a year. The lands are mostly within 30 to 50 miles of the steamer station of Thayetchoing on the Tavoy river. Mail steamers ply between Thayetchoing and Moulmein or Rangoon once a week inwards and outwards, beginning from January 1, 1882.

II. Grants of land in lots ranging from 100 to 1200 acres can be had for planting Tea, Coffee, Cinchona, or spices on application to the Deputy Commissioner of Tavoy. Such grants will be made in accordance with the "Burma Land and Revenue Act, 1876," and with the rules sanctioned thereunder by the Governor-General of India in Council. Copies of the Act and rules can be obtained by intending planters on application to the Deputy Commissioner of Tavoy, the Commissioner of Tenasserim at Moulmein, or the Secretariat, Rangoon.

III. In addition to the concessions and conditions laid down in the Act and rules, the following special concessions will be made to persons taking up land for plantations of Coffee, Tea, Cinchona, or spices in Tavoy, namely,—(1.) A grantee will become proprietor of his grant as soon as he brings under cultivation one-third of the area thereof. (2.) A grantee will not be liable to pay any land revenue, or any price for the land of his grant, until the end of the tenth year after he enters on possession, provided that he takes *bonâ fide* steps to cultivate a reasonable proportion of the grant with Coffee, Tea, Cinchona, or spices. In the event of any grantee desiring a more precise definition of a "reasonable proportion" the Chief Commissioner may decide beforehand in each case what proportion of the grant ought to be thus cultivated in each year. (3.) After the end of the tenth year the grantee will be liable to pay land revenue, at the rate of 1.4 rupees per acre, and cesses at the rate of 2 annas per acre on one-third of his grant up to the year 1900 A.D.; after the expiration of such year he will be liable to pay for one-third of his grant the same revenue rate as is paid for garden lands in the nearest revenue circle where a garden rate obtains. (4.) A grantee will not be called upon to pay anything for timber, Bamboos, or grass which he may cut upon his grant, provided he takes *bonâ fide*

steps as aforesaid to cultivate Coffee, Tea, Cinchona, or spices.

IV. The only payment which a grantee will have to make, on receiving his grant, will be 8 annas an acre for the costs of survey and demarcation. In consideration of such payment, the Deputy Commissioner will cause a survey to be made of the grant, will furnish the grantee with a copy of such survey, and will cause boundary marks to be erected at suitable points in the outer boundary of the grant.

V. The wishes of applicants will be met as far as possible in regard to the situation and shape of their grants. But ordinarily—(a) No grant will be given where the Forest Department intend to make a forest reserve. (b) No grant will be given on such a place as will unduly circumscribe the extension of cultivation of the grazing grounds of any neighbouring village or hamlet. (c) Grants facing a road or navigable stream will have to be of a depth double the length facing such road or navigable stream. (d) Small strips will be reserved leading to landing-places for the benefit of neighbouring villages and grants.

VI. The Government is now spending much larger sums than heretofore on roads in the Tavoy district. It is settled in the district that further funds will be allotted for roads from their neighbourhood to the steamer station at either Tavoy or Thayetchoing.

VII. In order to encourage pioneers in the Coffee and Cinchona enterprise in Tavoy, the Government will pay to the first four grantees who begin *bonâ fide* planting operations 15 rupees per head for every Indian or Chinese coolie, male or female, over sixteen years of age, who may be settled and housed on their plantations before March 1, 1885.

VIII. In any case of doubt regarding the *bonâ fide* character of operations, or for the purposes of Concessions III. and VIII., the Deputy Commissioner will decide, and his decision will be subject to appeal to the Commissioner of Tenasserim, whose decision will be final.

IX. All minerals and metals under and within the lands granted under these rules are reserved by Government, together with the right to enter upon and resume such portions of land as may be necessary for examining or working mines, upon payment of just compensation to the grantee for loss of, or injury done to, the surface.

The Roseary.

CHINA ROSES EVERYWHERE. — Wherever these Roses succeed they do in many parts of Devonshire they are about the most profitable investment in the way of plants that all interested in what is both beautiful and useful can direct their attention to. A plant that will grow under the shade of other trees, and flower luxuriantly there, is a rarity among plants of any class, and it is even more so among Roses, the majority of which require special care and cultivation. For covering walls of almost any height they are especially useful, inasmuch as they are seldom without flowers even in the depth of winter, and during the spring months they not only adorn a wall, but they also supply unlimited quantities of cut flowers. At Mamhead House, the seat of Sir Lydstone Newman, Bart., the garden is literally aglow with these flowers, and has been so for some weeks past. Go where you will there is the old China Rose, looking more like July than May. Upon walls both high and low, covering unsightly places with a luxuriance of leaves and flowers that would gladden the heart even of the greatest of our great champion Rose-growers; in shrubby beds and borders, now a group of floral beauty *en masse*, or an isolated bush home to the flowers; climbing up a lead of unexpanded buds and flowers; climbing up the bare stems of naked trees, and clothing them with clusters of flowers which no other plant is capable of yielding in equal profusion at this season—at all events, not under the same circumstances, and under similar conditions. Planted round the stems of a group of *Magnolias* the effect is exceptionally bright and lovely. In no case should the plants be tied stily, or the beauty and natural effect will be spoiled. The habit of a bush grown in Nature's own way is sufficient to indicate that anything like stiff training is as unnatural as it is unnecessary. There are so many ways of adding both interest and beauty to a garden, even a small one, that one might dilate to any length upon the subject. One word more, however, about the old China Rose. A plant of it established at the base of a Portugal Laurel, which has travelled a distance of 15 feet or more, and now overhangs a considerable portion of the bush in question, in full flower, would convince even the greatest sceptic in gardening that we have not yet exhausted all the means by which a garden can be made more beautiful and interesting.

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—In the management of Orchids or any other plants under glass it is necessary that those in charge of the houses should study the weather, so as to be able to judge pretty accurately whether the day is likely to be bright or cloudy. During bright days the fires should now be damped down the first thing in the morning, and the hot-water pipes should be cooled as quickly as possible to prevent a mixture of sun-heat and fire-heat, which never blends well, and is always more difficult to keep charged with moisture, and an atmosphere of this nature is generally the forerunner of thrips and other insect pests. On the contrary, when the days are cloudy and the nights cold the fires should be kept in such condition that they are ready to act should a sudden spell of cold weather set in, as a check to the plants at this season when their growths are young and tender is easily given. Another point beginners should be guarded against is syringing their plants. There are a few plants that will stand syringing, but in a mixed collection much mischief is often done with the syringe. The only use we make of it is to dew the cool Orchids over in the evening after a very bright day, but in this case we only let the moisture fall on the plants like a mist. This practice, if carried out carefully, will be found very invigorating to the plants, and at the same time every available surface in the house should be heavily damped over. The autumn and winter-blooming *Lælias* will now be growing freely, and should occupy elevated positions near the glass. Avoid watering them too freely. *Lælia* anceps Dawsoni is the gem amongst these, but for yielding a good supply of useful flowers *L. albida* should be grown in quantity in all collections. *Lælia elegans* will be about in condition for being re-potted or re-surfaced over. The fine summer-blooming *L. purpurata* will now or soon be in perfection, and good forms of this are hardly surpassed by any other Orchid. *Catleya Skinneri* should now be re-potted if necessary. This is one of the most distinct in the genus, but it is not one of the best in constitution. It should be grown in the coolest end of the Cattleya-house, and in potting it very little material should be placed about its roots, and this should be of the best fibrous description, placed over ample drainage. As the plants of *Odontoglossum vexillarium* go out of flower the plants must be carefully cleaned, and should be placed in the lightest and warmest part of the cool house, to give them a slight rest for a month or six weeks, when they will break stronger and freer for the change. Some of the best *Cypripediums* will be in right condition for a shift, but any that require breaking up through any cause had better be left till the end of the season. C. Stonei, C. Lowii, C. caudatum, C. villosum, and C. Parishii, are among those referred to. Most of these will grow freely in good fibrous peat from which the finer particles have been removed. Give good drainage and a regular supply of moisture to the roots at all seasons. The *Dendrobium* will take a good share of attention just now, as some of the forwardest of those that flowered early in spring will now be growing freely, and will require liberal treatment to bring out their growths to the finest development; while those that are only now going out of flower must be re-surfaced or re-basketed at once, and put under growing conditions. The fine summer flowering *D. moschatum* will now be showing its spikes, and may receive a little extra moisture at the roots. During changeable weather attend carefully to the shading over all classes of Orchids, and avoid keeping the blinds down longer than is really necessary for the safety of the plants. *J. Roberts, Gunnersbury.*

DENDROBIUM DENSIFLORUM.—The annexed illustration (fig. 114) was prepared from a photograph kindly sent up by Mr. W. Macdonald, of Perth, and which represents one of his four plants which took a 1st prize in the Edinburgh Show on April 5. It is about 2½ feet through, and bore forty spikes with an average of forty flowers on each—a very well flowered specimen for its size.

MR. BULL'S DISPLAY OF ORCHIDS IN FLOWER.—Mr. Bull has again this year brought together the principal portion of such Orchids from his rich and extensive

collection as are in bloom, and a wonderful display they make. They fill one of the large span-roofed houses containing a centre stage separated from the side stages by a path all round. Associated with them are a few well chosen fine-foliaged plants, such as the more elegant leaved Palms, Cycads, Anthuriums, Aralias, Ferns, Dracaenas and others of a like description, present in just enough numbers to relieve the unbroken sheet of colour which, despite the endless diversity of form, and innumerable shades and tints of the flowers, would otherwise be excessive. It is only within recent times that it would have been possible to speak of such an assemblage of these plants in bloom, but it is only of late years that collections have been in existence containing such numbers as to admit of some 1500 flowering plants, such as Mr. Bull's exhibition consist of, being brought together in one establishment. As a matter of course the *Odontoglossums* furnish the largest contingent to the display; the many forms of *O. vexillarium*, from those that are almost white

sepals and petals are in striking contrast with the more than usual extent of purple and yellow that covers the massive lip; another with sepals and petals quite white, the lip presenting a series of distinct lines of pale purple running through where in most cases there is a solid blotch. Some half dozen examples of *Ceologyne Lowiana*, with its strange combination of colours, unmistakably assert their presence. Amongst the predominating lighter shades there is a grand form of *Lælia purpurata*, petals and sepals quite white, with the deepest purple lip; and *L. majalis*, one of the most lovely of this grand genus. Those named are only a fractional contingent of the beautiful display brought together, the vigorous healthy condition of which is not their least remarkable feature.

ORCHID SEEDLINGS.—Having sown seed from an imported pod of *Dendrobium crassinode* that came from Sanders' large importation, part of which I purchased on February 1, I have already over twenty-five

facts: The ovary is straight, not twisted as it usually is; the bract protrudes from the side of the ovary, not from its base; the sepals, instead of being "free," are joined at the base—that is, they have never been separated, and so they form a sort of imperfect tube on the top of the ovary, as in *Masdevallias*, and from the middle of this tube spring the side petals, which should come off at the sides of the column. Lastly, the lip is pressed up against the central stem instead of being turned outwards. Now, what does all this mean? First, as the ovary is not twisted, the lip is in its original position as it was in the very beginning of the individual flower, and as we may reasonably suppose it was in the progenitors of these Orchids. As the lip grew bigger, to facilitate insect visits, the position against the stem would be inconvenient as presenting the expansion of the lip—a twist would set all matters straight. Then, as to the unusual position of the bract. The outer fleshy part of an Apple or a Pear is not fruit but fruit-stalk—part



FIG. 114.—*DENDROBIUM DENSIFLORUM*. (SEE P. 736.)

to the darkest varieties, are alone worth going some distance to see; the delicate shades of these are lit up by an intermixture of the brightest *Masdevallias*, including many forms of *M. Lindenii* and *M. Harryana*. One of the latter bearing the varietal name of *regalis*, is, indeed, a regal flower, both in size and the intense depth of colour it possesses. This superb plant carries some twenty of its indescribably rich tinted flowers. Many other varieties of extreme rarity are present, amongst them being a remarkable hybrid *Odontoglossot*, bearing a huge half-erect seven-branched spike of bloom $2\frac{1}{2}$ feet long by 20 inches across, having over sixty flowers individually of extraordinary size; the lip is white, barred with reddish-chocolate, sepals lined with crimson as in *O. hebraicum*, the body of the flower creamy-yellow, heavily marked with chestnut. In the numerous forms of *O. citrosimum* is one with the whole of the parts—sepals, petals, and lip—deeply suffused with pink. Of the many distinct forms of *Cattleya Mossie* there are two especially deserving of mention—one bearing enormous flowers in which the pure white

seedlings up, with two leaves on them. They were sown in the basket of a *D. Cambridgeanum*, then growing, and the result is, they are now up, and are strong little fellows. Mr. Dominy, who was here on May 24, was astonished to hear of so rapid a growth. Is not this almost unprecedented in the germination of *Dendrobium* seed? I have also a pod of *Lælia anceps*, now almost ripe, that had been fertilised only last January. Is this not also very fast ripening? The season certainly has been very sunny. I should much like to know other hybridisers' experiences on these points. *D. E. C.*

A RETROGRESSIVE ORCHIS.—Among the questions every botanist puts to an Orchis are these: "How came you to have such an odd appearance?—why do you differ so greatly from the rest of the army of monocotyledonous plants?" and this intelligent inquisitiveness is enhanced when perchance a distorted Orchis makes its appearance. One such is before us, in the shape of a specimen sent by Mr. D'Ombrian, of one of our common wild species. These are the

of the stem of the plant—and from its sides sometimes protrude leaves. So in the Orchis the outer covering of the ovary is not ovary, but it is a portion of the stem hollowed out in course of growth and adherent on the inner surface to the true ovary. If so, what more natural than that it should produce from its side a leaf or bract? Or the latter may have been uplifted with the stem in its growth. The union, or rather the absence of separation of the sepals, is not at all uncommon; it simply indicates a sort of arrest of development in virtue of which sepals which should in process of time become disjointed and free, remain in union and form a tube. Is it, therefore, any great stretch of imagination to connect the long-tubed Irises and Amaryllids with the Orchids and to suppose that the ancestors of existing irregular Orchids were in some respects like the regular tubular flowered Crocuses and Narcissuses of the present? Of course, the converse is possible—that the Orchid type is the oldest, and that the more regular type is an offshoot from it; but, to our thinking, the evidence is all the other way, and goes to show that the Orchids are relatively a modern highly specialised offshoot from simpler progenitors.

Notices of Books.

The Rose: a Treatise on the Cultivation, History, Family Characteristics, &c., of the Various Groups of Roses, with accurate Descriptions of the Varieties now generally Grown. By H. B. Ellwanger. New York: Dodd, Mead & Co.

This is a little book with some defects of its own, many merits of its own, and a large infusion of characteristics, taken with due acknowledgment and honest recognition from other works on the same subject. It is a treatise which, although not original, and which, though written for a different climate to ours, is one which we should decidedly advise the English rosarian to possess. Beginning with the classification of varieties, which is not very satisfactory as it stands, and which wants working out on the lines followed in a subsequent chapter on the characteristics of certain Roses taken as the types of groups, and which we may subsequently refer to more at length, we come to a chapter on technical terms, which is, perhaps, the worst in the book, and which we should be glad to see entirely reconstructed. Then we come to some practical chapters on cultivation and propagation which are short and to the point:—"All the large commercial establishments [of the States] do most of their Rose propagation in the months of January, February, and March; the cuttings are made to one eye and dibbled in beds of sand, or in some cases are placed in pots of sand, and these pots plunged in beds of sand; underneath the staging which supports the cuttings run hot-water pipes or flues; these are commonly boarded in to secure bottom-heat. . . . The best results follow where plants are propagated in a bed at a temperature of about 70° with the temperature of the house a few degrees less. After the cuttings have taken root they should be potted in pots not exceeding 2½ inches in diameter. . . . The sorts most difficult to root are the various varieties of moss, most of the summer Roses, and certain of the hybrid perpetuals belonging to the Jules Margottin, Baronne Prévost, and Baroness Rothschild families. All the Tea and monthly Roses, with very few exceptions, root and grow freely from cuttings." The historical details given in the twelfth chapter are valuable, and we think fuller than have been before given in similar works.

The instructions given to amateurs as to the points to be looked to in distinguishing different varieties and estimating their relative merits are so serviceable as to merit citation:—"The flower is naturally the first to claim our attention; observe first the colour, second the form, degree of fulness and size; third, the fragrance. Next examine the vigour and habit of growth, whether the shoots are upright or spreading, the joints between the leaf-stalks [internodes] whether close together (short joints), or widely separated (long joints); the thorns, whether they be many or few in number, their thickness, length, colour, whether straight or hooked; the leaf-stalks and foliage, whether the leaflets be five, seven, nine, or eleven in number; the colour of the foliage and lark, sometimes dark green, sometimes pale, occasionally brown or red; further, whether the leaves be small or large, round or long, indented or regular [?], glaucous and smooth, or curled and rough. Then also we have to consider the productiveness and continuity of bloom and the hardness of the plant." Mr. Ellwanger tells us that as a general rule, subject to occasional exceptions, he has found that hybrid perpetuals with seven leaflets are light-coloured sorts, there being, according to him, no red or crimson hybrid perpetuals which bear seven leaflets to each leaf. Of course we must leave a wide margin for exceptions, but supposing this statement can be confirmed by the experience of others an important point will have been gained. Isolated details are a nuisance, but when they can be naturally co-ordinated and brought together they then become valuable tell-tales, and give a clue to the history of the plant and its characteristics. To those to whom unfortunately the romance of the life-history of plants seems not worth the trouble to unravel such distinctions would appear in the light of useless trifles were it not for the circumstance that the practical utility of these distinctions is getting pressed home by the increasing number of "too-much-alike" Roses. "As a practical illustration. . . we invite the amateur," says the author, ". . . to study and compare Alfred Colomb, Marie Baumann, and Marie Rady—three of our best Roses—sorts which have many qualities in

common, so much so, that the inexperienced, when first observing them together, might pronounce them the same Rose. But the expert at once sees distinctive traits that separate one from the other; he notices that Alfred Colomb is the darkest in shade of the three; that it has a more globular pointed bud and flower than Marie Baumann; that the wood is much more smooth than the others; that late in the season the flowers have more substance, and are of better quality than Marie Baumann; so, early in the year, he would select Marie Baumann or Marie Rady as in a degree the most beautiful; the former more circular and symmetrical, if possible, than Alfred Colomb, the latter with more substance, and better filled out; and so, continuing the examination, it is found that these Roses are sufficiently distinct one from the other, both in flower and habit, to make the presence of all three most desirable in all choice collections." Incidentally we may remark that it would be very interesting and important if Mr. Ellwanger, or some other rosarian with a competent knowledge of the Roses in their European aspect, would study and indicate what changes are produced in their appearance after having been grown in the climate of the various States of the Union. We all know how marked is the change in the appearance of the American descendants of European parentage after a comparatively short time. A distinct race is slowly but surely being evolved, and this leads us to Ellwanger's chapters on typical Roses and the characteristics which are common to certain varieties in different classes. The great advantages of some system of classification are obvious, and it is a wholesome sign to see the practical rosarians admitting the fact. "If," says our author, "new Roses were described as belonging to the La Reine, or Victor Verdier type, we should have some very important knowledge of their qualities, since these Roses have imparted to their progeny certain distinct attributes by which they may readily be distinguished from others." He then goes on to indicate the following typical groups, taking their name from their most prominent representative, thus:—Baronne Prévost, La Reine, Giant of Battles, Général Jacqueminot, Victor Verdier, Jules Margottin, Sénateur Vaise, Charles Lefebvre, Prince Camille, Alfred Colomb, Duke of Edinburgh—all these are hybrid perpetuals. Among hybrid Noisettes three types are indicated—Mademoiselle Bonnaire, Madame de la Rougemont, and Gloire de Dijon.

The idea here sketched out, is one that has occurred to Rose, and indeed finds constant expression when one Rose is described as "in the way of" or similar to some other. Mr. Ellwanger must be aware that however excellent the idea, it is of no use to novices in the way he puts it before them. A beginner would have to read through all the characteristics of the dozen or more types, and compare them, before he could ascertain to which type any particular Rose might have before him belonged. Long before he reached to the end of his task, he would become confused and give up the task; but if he could be led on step by step by an analytical process of selection and rejection, selecting those points in which his Rose agreed with the description, and ignoring those which do not apply to his specimen, he would, after several such operations—each step surer than the last—find the type he wanted.

The admirable analytical tables employed by Dr. Asa Gray, and other American botanists, in their popular "Floras," supply an illustration of our meaning, and may be recommended to Mr. Ellwanger as models. It is true that great patience and much careful labour are involved in the preparation of such tables, and that they can only be done satisfactorily by experts with full knowledge of details, and of their relative importance, but the result is so valuable as to amply repay the labour.

With reference to the raising of new varieties, we are glad to see Mr. Ellwanger advocating cross-fertilization rather than continued selection of seedlings from one or a few types. No one doubts that splendid results have been hitherto produced by acting on the latter plan almost exclusively, but now that the cry has gone up against "too-much-alike" Roses, it is time to consider how best to obviate this difficulty and to encourage new breaks. From this point of view, such experimenters as Mr. Bennett deserve more cordial recognition than they have yet gained. It is true that some of his new Roses have objectionable qualities, and do not come up to the standard, but the man who makes experiments must

expect to fail in the full assurance that through failure lies the road to certain success. Judgment and experience are not gained in a day, but their employment is sure to lead to success in the end. From the haphazard procedures we can scarcely hope for a new break except perhaps by way of a "sport." From the well-devised procedures of the hybridist, among many failures there is almost an absolute certainty of ultimate success, but then the right sorts must be crossed, and the determination of what are the right sorts is a matter of judgment and patient experiment. The author tells us that "crossing varieties of the same type will produce seedlings of the best form and finish, blending sorts of different types will bring forth the most distinct kinds," and this proposition is no doubt in a general sense true. It is also true that if weakness of constitution be the result of the crossing of extreme types—a circumstance we do not believe to be at all invariable—that defect could be cured in another generation by judicious infusion of the characteristics of some robust hybrid variety.

The last chapter in the volume before us is devoted to a full descriptive catalogue, with synonyms of modern cultivated Roses. That there is choice enough is obvious, from the circumstance that over 900 varieties are thus catalogued.

We have devoted space out of proportion in extent to the size of the little volume upon which we have been commenting, but we have done so in the hope that the author may be enabled by careful comparative study, and by working out his own ideas with such modifications as experience shows to be necessary, to produce a work worthy to take rank among the foremost in its class. We look upon the present volume, good as it is, as tentative only—as a seedling of very high promise and much value as it stands, and with great capacity for progressive evolution and improvement in the future.

The Flower Garden.

WITH the preparation of the beds and all hardy things planted as before recommended, the planting out of the tenderer plants for summer display will be greatly facilitated, and by concentrating a little extra labour on those operations a thorough transformation in the appearance of the flower garden is soon effected. After such an unprecedented and favourable winter and spring the stock of bedding stuff should be unusually good, so that the operator will be enabled to give the beds a better furnished appearance than usual; but at the same time the future size and habit of growth of the plants must be studied, and if possible sufficient room allowed for their proper development; much, however, will depend upon the season when the greatest display is required, and if late, a greater laxity may be allowed with regard to the number of plants; but if a fair display is required all through the season, there should be a sufficient number of plants to give a tolerably well-furnished appearance from the first, and to keep them in bounds the use of the knife amongst strong-growing kinds, and of the thumb and finger among those of smaller growth, will be constantly required. All bedding plants in pots, and all such as have been turned out of them in temporary erections, should be watered sufficiently to thoroughly saturate the balls before planting; the soil in the beds, also, if at all dry, should be well soaked some hours before being planted.

SUBTROPICAL PLANTS.—It is quite safe now to plant subtropicals of all sorts, and do not forget that where, as in the case of such plants as the various sorts of *Kleinia*, *Wigandia*, *Carduus*, and others, a large development of foliage is principally required, there must be an abundance of stimulating matter at the roots, so that in addition to the manure recommended to be trenched into the beds, and if the drainage is good, such stimulation may be very economically applied in a liquid state when the foliage indicates that roots are becoming abundant; and in the case of gross feeders even strong sewage carefully applied is not too much, but generally speaking the drainage from stable manure with a little guano stirred in occasionally may be deemed sufficient for the purpose and the most cleanly. In any case most of the

sorts will pay for stimulation at the roots during growth. I would specify the different coloured Beta cica, which is very striking when well grown; the Pampas-grass, too, revels in liquid-manure, and throws up very fine heads of flower; indeed, the judicious application of it forms the secret of many striking forms of vegetation.

PLEASURE GROUNDS.—The late genial rains, however good for vegetation generally, have greatly added to the amount of labour required in the garden at this already busy season. Grass grows incessantly and the labour of mowing, edging, and rolling both grass and gravel is greatly increased but must be attended to; weeds also grow apace, but being so busy bedding-out we can only threaten them. They are fortunate who can spare a hand or two to pass over the beds and borders requiring it with a light hoe; this indeed will soon become an imperative necessity to prepare such beds and borders for the reception of the various sorts of annuals, such as *Asters*, *Marigolds*, *Zinnias*, *Heli-chrysum*, *Nasturtium* and a host of others the planting of which will require to be immediately carried out as soon as the work of bedding-out is completed, and if they have been carefully pricked out as recommended they will scarcely miss their moving and should grow away at once.

SONG BIENNIALS.—The seeds of biennials, such as *Canterbury Bells*, *Brompton Stocks*, *Rose Campion*, *German* and other *Wallflowers*, *Sweet Williams*, as well as perennials, may now be sown. I should recommend them to be sown rather thinly in drills on a sheltered border, so as not to become drawn and to be eligible to be planted direct from the seed-bed to the borders in the autumn.

ROSE GARDEN.—This is now coming on to pay for good cultivation, and must be assisted with periodical applications of good liquid-manure, say, once a week at least, with plenty of soft-water in the intervals if dry weather prevails, always premising that the drainage is good enough to allow of the surplus water percolating away before becoming stagnant, for although *Roses* like a strong holding soil, stagnant water about the roots is very injurious. It is still necessary to wage incessant war against the weevil, that eats into the buds if left alone. *John Cox, Redleaf.*

The Pine Stove.

If loam has not been stored for summer and autumn use it should be done without delay. As good loam is indispensable, and in many cases not easily procured, any plan that will meet this want is welcome. To keep up a supply of good loam, year after year, means taking it away from good pasture-land or parks, and this loss must be made up by some practical, well devised, compensating system, to make the part good where the loam is taken away, by a well-balanced arrangement—for if this deficit should go on for some years it will soon impoverish a large area of land, which few proprietors could be expected to sanction. When allowed to select loams every endeavour should be made to make the loss good in the shortest time possible. When building, or alterations are going on, and the soil is to be disposed of, these conditions should be taken advantage of; but these contingencies cannot always be relied upon. When these means become exhausted, the only alternative is to go to the meadows or park. When turf is cut from these places it can only be cut two ways—one is to cut the turf all from one place, or, in the second, to cut it over in furrows. We prefer the latter mode, for in that case the broken ground can be made good in the shortest time. A plough is used to take out the furrows, which are 10 inches wide, and the depth is varied from 1 to 2 inches, according to the quality of the soil. This assists hand labour and saves time. In filling the furrows let the soil be a little higher than the sides, this allows for sinking, and in a short time the roots from the sides soon run through the new soil, making the whole green again. This way entails a little more labour than cutting all from one place, but it has many advantages. As the fresh cut loam is taken into the garden, the same team takes back rich manured soil from the garden to fill up the furrows. When the fruit borders are renewed in the houses, the soil, which contains unexhausted bone, lime-rubbish, charcoal, and soil that has lost its vegetable fibre is put in the outside fruit

tree borders, and the natural soil from the fruit-borders or wall-trees is taken to fill up the furrows where the loam is cut. Although this system takes time in doing, yet it is so gradual—a little every year—that the extra trouble and strain is not felt, and it forms a plan of making good and permanent wall-tree borders outside. When the soil is all taken from one place the same quantity of fresh soil as turf taken away should be spread over the ground: this makes up for the loss of the turf; the soil should be worked and made level, then sown with good quality grass seeds. After this is done the ground should be fenced round to keep the cattle from treading or disturbing the grass seeds before they are well germinated, as well as to give the ground sufficient time to become consolidated, and thereby allow the new grass or turf to establish itself. The soil should be packed in a dry shed only for a stated time before using, for if allowed to lie too long the vegetable fibre becomes too much decomposed, which means losing its highest virtue. The cultural directions given in recent *Calendars* still apply for the present. Succession plants, should be encouraged and watched in every detail of management, as the present is the time when the sinews and the backbone of next year's fruiting plants are formed. Where the planting-out system is carried out, it should be done at once, but this will form the subject of my next *Calendar*. *D. Wilson, Castle Hill, Devon.*

The Hardy Fruit Garden.

APRICOTS which were thinned last month are now advancing in growth rapidly. As the fruits swell it will be necessary to see that the roots do not lack a plentiful supply of water should the rainfall prove insufficient; if there be any neglect in this particular the commendable practice of shallow planting and occasional relifing will prove of no advantage through neglect of an essential operation. Examine the shoots frequently for evidence of the maggot that is so troublesome amongst *Apricot* shoots, and keep in check by pinching and frequent application of water. If there is the very convenient appliance of hydrants, and the water can be used with force from the hose, there is no great trouble in keeping trees clean after the weather becomes sufficiently mild to admit of the use of unwarmed water; but early in the year such application often proves too cold for the immature and tender foliage. The disbanding of *Peaches* and *Nectarines* on walls ought now to be completed, and the work of thinning the fruits be also correspondingly advanced. Where the set has been fairly regular over the trees, and the crop heavy, remove in this thinning all fruits at all under-sized, and any that are placed too near to any nails and are likely to require the removal of the latter when the fruits swell. It is not well to leave more fruits than it is considered expedient for the tree to carry to perfection to provide for possible loss during the stoning process, for all fruits left beyond the sustaining powers of the tree only help to induce the result they are intended to relieve. Vigorous and leading shoots will now require to be kept nailed-in, fastening in closely with matting the heels of any shoots that do not start properly in the required direction. It will be well to use only tepid water on *Peaches* until the water in the various reservoirs and pools becomes sufficiently warmed by the hotter weather we may now expect to experience, and on any re-appearance of greenfly use an insecticide—soft-soap being yet perhaps one of the most useful, and certainly the cheapest. See that the roots, in common with those of all fruit trees on walls with a southern exposure, be frequently supplied with water. Let all alleys in front of fruit walls be deeply stirred with the hoe to prevent cracking and evaporation, and if a dressing of long litter has not yet been applied to such positions it will be advisable to attend to such work without delay. Use fresh stable-manure where procurable, putting it on of a sufficient thickness to resist the wear of treading upon it for some months, and see that all suckers are carefully removed as the operation is proceeded with. The breastwood of *Plums* and *Cherries* is now advancing rapidly, and will demand speedy attention. Finch-in closely all gross shoots, and retain unpinched those short ones that give evidence of forming natural spurs. The black aphid will now speedily put in its appearance, and it will be necessary to see that it be not

allowed to establish itself on *Cherry* trees. Use an insecticide immediately upon its appearance, and this will most probably have to be repeated before a perfect clearance can be made of this persistent insect. The shoots of *Vines* on walls can now be pinched-in to a couple of leaves beyond the bunches, which will now be showing themselves, and all growth can be regularly arranged and secured in their places. Any shoots that were left at the previous disbanding, and which are not wanted, should be at once removed, taking care to preserve those selected for replacing old canes or for extensions, and see that they are properly tied in as they advance in growth. Continue to look out for the depredations of the *Gooseberry* caterpillars, and destroy these grubs in their early stages, before they have time to injure the bushes *R. Croutin, Castle Gardens, St. Fagan's.*

Grapes and Vineries.

THE earliest vinery where the *Grapes* are ripe or cut, can now have the fire-heat dispensed with if the wood is hard and well ripened, but if not, continue to use a little fire-heat in the daytime, with an abundance of air. Do not let them get dry at the roots, but keep the atmosphere drier. Succession *Hamburghs* that are colouring can be kept at a night temperature of 65° to 68°, with a rise of 10° by day; keep the evaporating pans dry, and do the damping down in the early part of the day, so that it will dry up before evening. Give air on both back and front ventilators, and do not close the back ventilators. After the *Grapes* commence to colour, turn extra heat on early in the day, and increase the air as the temperature rises, taking care to avoid cold draughts, for on cold or windy days much less air will be required. Water the inside border with clear tepid water when necessary, in the early part of the day; those that are swelling their fruit must have liberal supplies of tepid manure or guano water, taking care to give sufficient to go through the border, which, if very hard, must be loosened up with a fork. Close the house early in the afternoon, letting the thermometer run up to 90° after closing time, then very little fire will be required through the night, and in the morning the foliage will be laden with dew. Turn on the heat early in the day, and force in the daytime. On bright days the fire-heat can be turned off when the pipes are once well warmed. The latest house will soon be in flower, and will be better for a little fire-heat at that time to make the atmosphere light and buoyant. Give the inside border a good soaking of clear tepid water before they come in flower; tap the rods several times daily to disperse the pollen, and when thinning commences they will want more berries taken out than is generally done, with *Hamburghs*, for I find, if not severely thinned, they damp very much in the centre of the bunch through the month of November. I find, when thinned like *Alicantes*, they keep very well until the new year, and are much preferred at table to any other black *Grapes* at that time. Early *Muscats* that are changing colour must be kept at the temperature advised in last *Calendar*, keeping the atmosphere a little drier, and giving rather more air, but this requires to be given with great care, or shanking will follow if they get cold draughts or a check of any kind. When the borders are dry clear tepid water will be best. Those later that are swelling their fruit must have liberal treatment, for if the borders are well drained they will take an immense amount of tepid manure-water, say, about once a fortnight, but of course that depends on the weather being dull or bright. Keep the evaporating pans filled with weak manure-water, and close the house at 90° to 95° with bright sunshine and plenty of atmospheric moisture. It is a good plan now to always put a little back air on early in the morning, as then the confined moisture can escape, and there will be no burnt foliage. Late varieties of *Grapes* for keeping through the winter will now be thinned, but would be better looked over with the scissors again, taking out any cross berries that are left, as they require thinning with great care, so that the berries will not be crowded, and yet the bunches compact. Give liberal supplies of manure-water when required, and keep the temperature as advised in last *Calendar*. Newly planted vineries must have liberal treatment to induce a good early growth, giving plenty of heat and air in the daytime, and closing early in the afternoon, with abundance of atmospheric moisture. The earliest *Vines* from eyes will now be about the required length, and can be stopped, and the laterals or side shoots be stopped at the first joint, give air early in the day, for if the large leaves scold they never do so well the following year. *Joshua Atkins, Locking Gardens, Wantage.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	June 5	Sale of Imported and Established Orchids, at the Mart, by Proffers & Morris.
TUESDAY,	June 6	Sale of Bedding and Greenhouse Plants, at F. & A. Smith's, Dulwich, by Proffers & Morris.
THURSDAY,	June 8	Sale of Imported and Flowering Orchids, at Stevens' Rooms.

GREAT men lived before AGAMEMNON, we are told, and it is certain that great men have lived after him. DARWIN, assuredly the most modest and diffident of naturalists, certainly never laid claim to be the exclusive originator of those notions of gradual evolution and progressive development of species, by the amplification and application of which during the last quarter of a century he has so entirely changed the current of ideas in natural history. His indebtedness to the gardeners and botanists we have from time to time pointed out, and he himself, ever anxious to honour others rather than himself, made more than ample acknowledgment. It was not for him to appropriate other people's ideas or hush up their materials without permission or acknowledgment into the semblance of original work. But when the tide began to turn in favour of DARWIN'S views people began to say, as they generally do in such cases, that there was nothing new in them—they began to remember what somebody else had said years before, and authors who had given to the world similar ideas, which had fallen flat, remembered their earlier efforts, and were proud to see the notions they had advanced in vain become, as it were, the foundations of a great theory. It was so with our old correspondent, PATRICK MATTHEW, who recognised the principle of natural selection as far back as 1831, and whose article in our columns, 1860, p. 312, it is most instructive to read, not only from its direct bearing on the great principles of adaptation and natural selection, but for its practical lessons in the selection and culture of timber trees.

It is needless for us now to give further instances of this, or to point out why the scattered hints and comparatively isolated, unsupported notions of others failed to find acceptance, while in the hands of a DARWIN the self-same or very similar notions welded into a consistent whole have compelled general assent among naturalists. Our object at present is to make mention of an evolutionist who dates back even beyond LAMARCK—in fact, to the year 1766. A hundred years ago—twenty-five years ago—the generally accepted belief (apart from such scanty exceptions as we have mentioned) among naturalists, was, that species were immutable. They might vary within certain limits. No one knew what or where those limits were; it was only seen that what was true for one species was not necessarily so for another; in the one the range of variation, the limit, was very wide, in the other it was very restricted. Plants and animals had existed—there were incontrovertible proofs of it—in the former ages of the world's history, but they were not looked on as possibly, and sometimes certainly, the direct progenitors of existing species. Indeed, not so very long ago such fossilised plants or animals were supposed, like the hills and valleys, like the strata in which the fossils are embedded, to have been created just as we now see them, and where we now see them, for some inscrutable reason. The ideas of continuity, of lineal descent, of family characteristics handed down from ancestor to offspring, of variation according to circumstances, resulting in the gradual creation of new forms, of the struggle for life, the survival of the fittest best fitted to contend and hold their own in the universal competition, and such-like notions, if they existed at all, were only partially and separately recognised. The concurrent action of all these causes, the one modifying and controlling the other, was not perceived.

Assuredly if there is one class of men to whom the variation of species and the variation perpetuated and enhanced by continuous selection, comes home, more than another, it is to the gardener and the raiser of new varieties. As we have seen, some of the gardeners of old did recognise the truth, but did not push it home to its legitimate consequences. PATRICK MATTHEW'S views are, to a considerable extent, couched in the same language as DARWIN'S. Dean HERBERT, a man of great knowledge and much practical skill and experience in hybridisation, declared that species were only permanent varieties, and he went further and stated that by variation and intercrossing of older species all our existing ones have been produced. NAUDIN, working with similar materials, and with the same object, came to similar conclusions. M. ALPHONSE DE CANDOLLE reminds us, in a brochure which he has had the goodness to send us, of yet another. DUCHESNE, whose history of Strawberries, dated in 1766, is known to all pomologists who take interest in the history of their art, found on sowing a number of seeds of the wild Strawberry that the greater part of the seedlings presented leaves with a single leaflet instead of three as usual. He sowed seed again from these one-leaved Strawberries with the same result, and he based upon these facts some remarks as to the filiation and genealogy of species and varieties. The genealogical arrangement, said he, is the only one indicated by Nature—the only one which is satisfactory to the mind; every other is arbitrary and void of ideas.

True, this was written after RAY and BERNARD DE JUSSEU had hinted at the natural system, after LINNÆUS had suggested that individual plants or groups of plants had relations one to the other, even as a country has relations with those which abut upon it in various directions. But although written after these forerunners of the natural system, it was published nearly thirty years before ANTOINE DE JUSSEU laid the foundations of the natural system as we now recognise it; and those who remember the very remarkable thirteenth chapter of the *Origin of Species*, wherein DARWIN lays down so clearly what is the real underlying basis of natural classification—namely, the genealogical descent of organisms, the offspring inheriting some of the characteristics of their predecessors, not, indeed, exactly reproducing them, but varying in some degree from them in obedience to circumstances—will feel that DUCHESNE had, indeed, grasped the same idea. Indeed, he even constructed a genealogical tree for the Strawberry, as CARRIÈRE long afterwards did for the Peach. It is a favourite occupation now-a-days for transcendental botanists to construct such trees, like the Greek trees of our school days. In too many cases, however, the basis of fact is too small for the superstructure of speculation, the known is in far too slight proportion to the unknown, still the principle is right; it is only a case of attempting to run before even walking is safe. In the case of horticultural products, such as the more modern races of Pelargoniums, Begonias, and the like, such "trees" may be constructed with little difficulty, because the history is known from the beginning. It should be the aim of the thoughtful horticulturist to construct such a document now, before the memory of these first beginnings gets lost in the multiplicity and confusion of new developments. It would not only be interesting to the man of science, but valuable to the raiser, as showing in what direction progressive improvement may most probably be found, and what circumstances tend to stagnation and retrogression.

— THE BAGSHOT RHODODENDRONS. — We understand the exhibition of Rhododendrons by Messrs. JOHN WALKER & SONS, of Bagshot, Surrey, will again be held in the gardens of Cadogan Place,

Sloane Street. The plants have already been arranged, and a very varied and grand display is expected. The exhibition will be on view from June 5 and throughout the month.

— PICEA POLITA. — We have on a former occasion given the history and description of this noble Japanese Spruce, together with an illustration. We advert to it again because in Messrs. VEITCH'S nurseries at Combe Wood a variety has shown itself in which the erect cones are purple in colour. In the specimen before us the leaves of the purple-coned form are shorter and stouter than in the other, but whether this is any more than an accidental coincidence we have no means of knowing. In any case it is a grand Spruce, and perfectly hardy.

— MR. ISAAC DELL. — MR. DELL'S many gardening friends will regret to hear that, owing to a reduction of the establishment, he is leaving Stoke Rochford, where for twenty-five years he has been gardener, and for the last twelve years forester as well, to CHRISTOPHER TURNOR, Esq. MR. DELL, who raised the well-known Beet which bears his name, was also the first to introduce carpet bedding and raised beds into that part of Lincolnshire, and of the quality of these our readers have some knowledge through the illustrations published in our columns early in 1879. He has credentials of the highest order, and with his great experience should have no difficulty in meeting with another appointment as gardener, bailiff, or forester.

— THE LONDON AGRICULTURAL SEED TRADE ASSOCIATION held their second annual dinner, in the Freemasons' Tavern, on the evening of the 22d inst., when WILLIAM NEUSDETEL, Esq., in the absence of the President, JOHN PICARD, Esq., took the chair, the Vice-Presidents being NATHANIEL SHERWOOD, Esq., of Messrs. HURST & SON, and DAVID SYME, Esq., of the Lawson Seed and Nursery Company, Edinburgh. The usual loyal and patriotic toasts having been drunk, the toast of the evening—that of "The Association"—was proposed in able terms by the Chairman, who spoke mainly upon the object, utility, and success of the same. During the evening a variety of toasts were proposed, comprising "The Agricultural Interests of the Country," by MR. SYME, and "The Visitors," by MR. SHERWOOD.

— THE BANK HOLIDAY. — On Monday the number of visitors to Kew Gardens amounted to the extraordinary total of 95,000. The Royal Horticultural Society's Garden at South Kensington was visited by 11,150 persons, who paid *z*d. each, and thus placed over £50 to the credit of the Society.

— ANTHURIUM ANDREANUM. — This plant, like the well-known *A. Scherzerianum*, evidently differs much in the character of the flowers, especially in the dimensions of the spathe, which in some plants attain so much greater size than in others as to make the large-flowered forms of much the most value. In one of MR. BULL'S houses, amongst a number of big-flowered forms is one, the largest we have seen. It is more than likely that in none of the examples that have bloomed have the flowers attained near the size they yet will do; in the case of *A. Scherzerianum* the strongest plants were six or eight years before they produced flowers that reached their full size. But even in its present condition *A. Andreanum* is most telling—the glossy, brilliant scarlet spathe set off with the white and yellow spadix, constitute it one of the most striking, as well as singular, of flowering plants.

— RHODODENDRON COUNTESS OF DEVON. — This is a charming variety for the American garden, and is admirably adapted for placing out singly as an isolated specimen. It is especially valuable because of its distinct colour, and it is rendered still more conspicuous if it is planted in view of some of the bright red colours which are so common and of so many shades among Rhododendrons. The colour of the Countess is lilac, with a tinge of pink and dark maroon spots.

— CRAIG-Y-NOS CASTLE: A DISCLAIMER. — Messrs. WILLIAM BARRON & SON, Elvaston, Borrowash, request us to state that they are neither related to, nor connected with, the firm employed by Madame PATTI to lay out the grounds at Craig-y-nos.

FIG. 115.—HOYA GLOBULOSA: FLOWERS CREAM COLOURED. (SEE P. 732.)



— GENEVA.—The Horticultural Society of this city will hold an exhibition from September 7 to 11 inclusive. Foreign exhibitors are invited to compete.

— Mr. JAMES JENK, from the nurseries of Messrs. DOWNIE & LAIRD, has taken on lease the nursery of the late Mr. JOHN REID, at Appley Bridge, near Wigan.

— DIOSMA FRAGRANS.—If it were but known how valuable many of our old-fashioned plants are and how useful some of them are for providing material to meet the requirements of the present day a great many more of them would be grown. The plant in question will succeed under very ordinary cultivation, and a few sprays of it are always acceptable among cut flowers. The flowers are insignificant, but fragrance is so much appreciated that it is always handy to know where to go for a few sprays to spice up a bouquet for the dinner-table or sitting-room.

— POTATO FREIGHTS.—The *Guernsey Advertiser* states that the South-Western and Great-Western Railway Companies have decided to reduce their Potato freights from 32s. to 25s. per ton, commencing from June 1.

— THE GHENT SCHOOL OF HORTICULTURE.—Some representatives of this Institution, of the Cercle d'Arboriculture, and other horticultural establishments of Ghent, propose to visit this country at the end of this month. A week is to be devoted to the inspection of representative establishments in all departments of horticulture near London. Under the auspices of a committee appointed by the Royal Horticultural Society a programme is in course of arrangement, which will, it is hoped, allow our visitors to see as much as can be done in the time, and afford English horticulturists some slight opportunity of reciprocating the warm hospitality always lavished upon them at their visits to Ghent. Communications on the subject should be addressed to Dr. MASTERS, Foreign Secretary to the Royal Horticultural Society, South Kensington.

— A DOUBLE WHITE LAPAGERIA.—In September last Mr. DUFFIELD, gardener to H. K. MAYOR, Esq., Bamford Lodge, Winchmore Hill, sent us a flower of a perfectly double *Lapageria rosea*, which we illustrated at p. 441, vol. xvi., and has now favoured us with a double flower of *L. alba*—a large handsome bloom, with a double row of segments, and which we hope shortly to portray.

— TROPÆOLUM MAJUS GRANDIFLORUM.—This is a true amateur's plant, and an undoubted acquisition in its class. Handsome little plants may be grown in a few months from the cuttings. Finch once after the cutting is well rooted, in order to get from three to four breaks. Put a stick to each growth, and you have a dainty little plant which will attract no end of admirers. The flowers are yellowish-orange, with dark spots shading to crimson; and by using slender twigs for supports, brought to the shape of a cone at the point, you make a very elegant little plant for an amateur's greenhouse, or for a sitting-room on a pinch.

— ECONOMICAL MELON GROWING.—In this busy and competitive age, when the most must be made of everything, and especially of glasshouses, one cannot help admiring the ingenuity of the craft and the various devices adopted by them in order to get the greatest quantity of produce from the smallest given space. A notable example may be mentioned in the system of Melon growing which is practised by Mr. HARPER, gr. to Sir LYDSTONE NEWMAN, Bart., Mambhead House, Kenton, Devon, where a splendid crop of Melons is growing in the Pine-stove without the loss of a foot of space to the latter. Melons are often grown at the lack of a Pine-pit, or Cucumbers grown in pots, plunged in the bed, and trained up pillars, are frequently seen, but Mr. HARPER's plan exceeds in ingenuity any of these schemes. The Melons are planted in a narrow border at one end of the Pine-pit, not more than a foot in width, and trained over the path. The trellis is formed of two long sticks running parallel with the end of the house, and to these smaller pieces are fastened obliquely, to which the Melon plants are trained. There is not a single Pine plant less in the pit because the Melons being planted there, and the space they occupy over-

head is, of course, no loss to the Pines whatever, while the gain as regards results is considerable. Where people are rather hampered for room this is an excellent and convenient way of obtaining an early supply of Melons, if it is not a plan worthy of general adoption.

— MUSHROOMS.—In the current issue of *Science for All*, Mr. W. G. SMITH has written an illustrated article on Mushrooms, giving full particulars of the different varieties of true and false pasture Mushrooms, their characters, qualities, points of structure, &c. As we are frequently asked to give information about Mushrooms, we advise such of our readers as are interested in the nature of these curious esculents to refer to Mr. SMITH's paper, where all that is known about them is given in an understandable form.

— BALSAMS FOR AMATEURS.—The display that may be made by cultivating a good collection of these lovely summer-flowering plants should commend them to the notice of amateurs, who above all others take a pride and interest in watching the growth and development of plants. Slow growing plants, of which there are many, do not give sufficient stimulus or encouragement to beginners in plant growing; nor are they always attainable. But plants that may be raised from seeds and grown 3 feet in diameter in as many months cannot be called expensive or bad to grow. An amateur having a three-light frame in which there is sufficient heat to excite the seeds into growth may grow plants to the highest degree of perfection. Put the plants first of all, as soon as they have made two leaves, into thumb-pots, and plunge them again in the bed until they have taken root afresh, which will be in the course of two or three days. The plants should be kept quite close to the glass, and immediately root-action appears to have recommenced give a little air both night and day—more, of course, through the day. At the next potting the plants should be kept low in the pots in order to get the base shoots about level with the top of the pot. This is really the only point in Balsam growing that requires skill and attention, for it is quite as easy afterwards to grow a plant a yard across as it is to grow it a foot. But perhaps medium-sized plants are most useful after all, and these are secured by flowering the plants in 48-sized pots. A good succession may be kept up for a season from a single packet of seeds, and any plants that do not promise to make handsome pot plants will not look amiss in a mixed bed in the flower garden.

— WHITE ARUMS AS AQUATICS.—It would be hard to name any other plant in cultivation that occupies a more prominent place in gardens, or that can be turned to such good account in so many ways that are at once both profitable and useful, as those free-growing Arums called Callas or Richardias. From early in November until after Easter they are in great demand for various purposes of decoration, but chiefly for the embellishment of conservatories and for house furnishing and church decoration; for the latter purpose they are *par excellence* the rage of the day. But the object of these remarks is to point out their utility as aquatics. In the Exeter nursery of Messrs. LUCOMBE, PINCE & CO., they have a finer effect in the Lily pond, where they have for their companion the beautiful Water Lily, *Nymphaea alba*. Groups of them put into the Lily pond three years ago have increased rapidly, proving satisfactorily that, common as the plant is, it may be made more common still as regards extending its cultivation. The pond is margined by rocks, among which a goodly variety of hardy Ferns are planted, but still the Arums, from the boldness and substance of their leaves, will attract attention when plants that are more costly remain unnoticed.

— GRAND FLOWER SHOW AT PARIS.—This show, which closed on May 30, proved one of the most successful ever held by the Société d'Horticulture de France, though, unlike last year, there was no special attraction. It took place in the Champs Elysées, between the Palais de l'Industrie and the River Seine in the Pavillon de la Ville de Paris, which stood in the centre of the International Exhibition of 1878. All round the building a nice garden was arranged, and a lofty tent for the plants. The arrangements of the garden, inside and outside, were in the hands of M. ANDRÉ. Of course, the most attractive part was the garden inside the pavilion, which had at the furthest end a

mount surrounded by M. CHANTIN's large Palms, from which a good view was obtained over every part. Mr. JIARRY J. VEITCH, of London, was named as President of the jury, which also included M. ED. PYNARET, of Ghent. On the judging day a banquet, presided over by M. LEON SAY, Minister of the Exchequer, was held in the rooms of the Society, Rue de Grenelle, Paris, at which several speeches were made, including one by our countryman, Mr. VEITCH. First among the more noteworthy objects of the exhibition were the large Palms of M. CHANTIN, who received the Grand Prix d'Honneur, and all of which were in good order and the best of health. Not far from this group was M. SAISON-LIERVAL, nurseryman, of Paris, who had a *Médaillé d'Honneur* for a good lot of Palms, stove plants, &c., amongst which we noticed *Anthurium Warocqueanum*, regale, crystallinum, and *Dracena Godeana*. In front of the Palm-mount was a small piece of water, surrounded by fine groups of *Rhododendrons*, *Azaleas*, &c., belonging to M. MOSER, of Versailles. This gentleman having last year gained the Grand Prix d'Honneur, did not on this occasion show for competition. MM. CROUX et FILS, Vallée d'Aulnay, near Sceaux, had a good lot of plants, for which they were awarded a Medal of Honour; they had staged them as an embankment against the wall, and their *Kalmia latifolia*, *myrtifolia*, *Rhododendrons*, *Azalea caucasica*, all well bloomed, looked very attractive. The same firm exhibited outside a fine group of *Acer Negundo* polymorphum, and others, Purple Beech, and *Weigela nana variegata*. One of the most attractive groups was that of MM. CHANTRIER FRÈRES, of Montfontaine, who received a Gold Medal for a grand lot of Crotons, their own seedlings, and stove plants. Their Crotons were perfect, as far as culture goes, amongst the best of them being *Baronne James de Rothschild*, *Bergmanni*—these two are most valuable for furnishing, lasting a considerable time indoors; *Chantrieri*, *Mortfontainensis*, very fine; *Baron Sellière*, *Tranfautii*, musaicus, very good; *Drouetii*, *latimaculatus*, a new variety, *Princesse Mathilde*, with large yellow leaves, spotted with green, very curious. Amongst the stove plants *Anthurium Andraeanum*, *Dracena Lindenii*, *Aralia Chabrieri*, very graceful; *Alcaocia Thibautiana*, and other good lots were rewarded by a Gold Medal to each one—to M. DUVAL, of Versailles, for a striking collection of well-flowered Gloxinias; and the other to M. BLEU, the well-known Caladium raiser, who showed some good plants, well coloured, also some good Begonias and a few Orchids. M. ALBERT TRAUFAUT, of Versailles, had a Gold Medal for a fine group of sundry stove plants, including *Dracenas*, *Bromelias*, &c., *Anthurium crystallinum*, *Dracena Godeana*, *Lindenii*, *Anthurium Andraeanum*, &c. M. ROY, 164, Avenue d'Italie, Paris, contributed a good variety of *Clematises*, well grown and well flowered. The Jardin du Luxembourg also exhibited, not for competition, a collection of *Bromelias*, and a few large pans of *Cypripediums*, well flowered. Two nurserymen only showed Orchids—MM. THIBAUT et KETELEER, of Sceaux, and M. LÜDDEMANN, of Paris, and each firm received a Gold Medal. The collection of M. LÜDDEMANN comprised the following:—*Oncidium concolor*, *Vanda tricolor*, *Cattleya Skinneri*, *C. Acklandiae*; *Masdevallia ignea*, *M. Harryana*; *Saccobolium curvifolium*, *Burlingtonia venusta*, *Trichopilia crispata*, *Anguloa Clowesii*, *Laelia purpurata*, *Cypripedium Hookeri*; *C. villosum*, &c. In the lot of MM. THIBAUT we noticed *Cattleya Mossie*, *C. Warneri*; *Oncidium concolor*, *Odontoglossum Roelzii*, *O. Pescatorei*, *O. cirrosum*, *O. prænites*, *O. vexillarium*; *Cypripedium Boxalli*, *C. Lawrenceanum*, *C. villosum*; *A. rides japonicum*, *Epidendrum vitellinum majus*, *Cymbidium Lowianum*, *Ada aurantiaca*, &c. The same firm showed also a nice lot of *Pelargoniums*, well flowered. Facing the entrance, MM. COUTURIER et ROBERT had a very fine group of seedling tuber Begonias, which were very good, and were awarded a Gold Medal. MM. LÉVEQUE et FILS had, not for competition, a fine bank of Roses, well flowered, and also cut Roses. M. POIRIER, of Versailles, took a Silver-gilt Medal for *Pelargoniums*. MM. L. DALÉ took a Medal of Honour; LANGE, Gold Medal; and SAVOYE, Gold Medal, for sundry groups of Palms, *Dracenas*, &c., especially plants most suitable for furnishing. We should also notice two very finely grown plants of the very graceful green *Dracena Boerhavi*, shown by M. CHEVET,

to whom was given a Silver Medal. In the tent separated from the large pavilion was a fine group of large and medium-sized specimen Roses grown in the English way by M. J. MARGOTTIN FILS, of Bourg-la-Reine. This was rewarded by a Medal of Honour. What appeared to us the best was a grand specimen of La France, well grown and covered with flowers. Amongst the other Roses we saw Captain Christy, Adam, Madame de St. Joseph, Caroline Kuster, Dr. Andry, Annie Laxton, Comtesse d'Oxford, Anna Alexieff, Madame Scipion Cochet; the same firm showed also standard Roses and forced pot Vines well fruited. M. MILLET had a Silver-gilt Medal for forced Cherries and Grapes of very fair quality. M. CONSTANT LEMOINE, of Angers, had a fine group of seedling Dracaenas, which took a Silver-gilt Medal: some of the varieties were very striking. The Asparagus growers of Argenteuil showed some monstrous Asparagus, also Strawberries. The show of horticultural implements was very complete. We believe this show will pay its expenses, which is seldom the case in France. We understand also that the Ville de Paris may in future be induced to lend this pavilion every year for the large show, which would be a great advantage to the Society.

— WHERE TO PLACE GARDEN SEATS. — It must have occurred to a great many people who have the opportunity of visiting private grounds that garden seats are not always found where they ought to be. It does not require the eye of an artist to select a proper situation for a garden seat, or seats, but it does require some little judgment, and an eye that is ready at detecting a pretty peep or a commanding view, to place garden seats where those who rest may fully enjoy whatever beauties the landscape affords. If you find a seat under a spreading tree placed there apparently for no better reason than that the tree has big branches to shade you from the sun, then that seat is not in its proper place. At a venture one might risk the opinion that there is not a garden in the country where there are not many beautiful views as there are seats, and still the said seats are found to be placed at random. A seat should, of course, be placed where there is partial shade, at least sufficient to insure a proper degree of personal comfort, but it should also be placed where the eye would be led to roam over the sweetest portion of the landscape, to catch a peep of the sea, or river, or lake, or be directed by well-defined boundaries through vistas of trees to some conspicuous object in the distance—a rising hill, a fertile valley, or descending to more commanding objects, a group or border of flowering shrubs, or even a handsome specimen of the mountain Ash, which is now in flower, and, though less fragrant than the Hawthorn, does not lack effect in a well chosen situation.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending May 29, issued by the Meteorological Office, London:—The weather has been generally rather cloudy and unsteady, with several thunderstorms and frequent showers. Towards the latter part of the period, however, the sky became much clearer. The temperature has been about equal to the mean in "England, S.W.," but elsewhere it was below the average, the excess varying from 1° in Ireland to 4° in "Scotland, E." The thermometer was highest at several stations in the west of England on the 23d, but over south-eastern England the maxima were registered on the 26th or 29th, and were as high as 73° at Hillington, Goldstone, and in London. The minima ranged from 37° in "Ireland, N.," to 46° in "England, E." The rainfall has been a little less than the mean in "Scotland, E.," but more in all other districts. Over central and south-western England, and in the south of Ireland, the excess was rather large. Bright sunshine shows a considerable decrease in duration from that reported last week, the percentages ranging from 37 in "England, S.W.," to 57 in "England, N.E.," and 60 in "Scotland, E." Depressions observed.—During the greater part of this period the barometer has been highest over France, while several shallow depressions have travelled in an easterly direction over our north-western coasts. The wind has consequently been generally moderate from the south-westward, but on the 27th a slight gale or strong breeze was experienced on all but our extreme south-east coasts. At the close of the period the area of high pressure had moved northwards, and an anti-cyclone had been formed over southern England, the Channel, and the north of France.

— GARDENING APPOINTMENTS.—Mr. JOHN MCKENZIE, Gardener, Riddlesworth Hall, Thetford, Norfolk, is engaged to succeed Mr. GROOM, who leaves Linton Park, Maidstone, in August.

LUSCOMBE CASTLE.

THIS picturesque and charmingly situated country seat (see p. 745) is the property of P. M. Hoare, Esq., and is situated about a mile and a half from Dawlish, admittedly the most pleasant sea-side resort on the south Devon coast. Dawlish lies between Exeter and Torquay, on the Great Western Railway line, which for several miles runs close by the beach through short tunnels in the rocks, where the iron horse is lost to view, and again appears dashing along by the brink of the sea—a pleasing sight to strangers unaccustomed to such a scene, and exhilarating to passengers, who quaff the pure air and are fanned by the genial breeze, which is seldom absent from this lovely coast. Dawlish, apart from local attractions, enjoys the reputation of possessing the most equable temperature upon the south Devon coast. Its natural position at once suggests the idea, lying as it does in a "cove" bounded by Langstone Cliff on the north, and the Parson and Clerk Rocks on the south—the town is so sheltered that anything like extreme variations of temperature are almost unknown. The town may be said to be divided by a clear running rivulet, by the margin of which is a public ground called "The Lawn," the luxuriance of which is always pleasing to visitors. The trees and shrubs are kept in good order, and as conveying an idea of the marvellous gentility of the climate, it may be mentioned that such plants as *Cytisus racemosus*, and *Chrysanthemum fruticosum*, not only live, but flower more or less all through the winter. Of the latter, bushes may now be seen over 4 feet across, and quite a sheet of bloom.

The parish church is passed on the way to Luscombe, and is about half a mile west of the town. There are six entrances to the demesne, and something like seven miles must be traversed in order to circumscribe the plantations. First of all let me notice the various attractions of the woods and plantations, which are wonderfully picturesque and romantic. A long walk takes the visitor to Summercombe, a favourite spot, where picnic parties are held, in or close by a rustic summer-house, and sportsmen enjoy their luncheon at shooting parties in winter. Whether you walk or drive to this beautiful spot, much pleasure and enjoyment will be afforded to those who seek to find it, in trees forming a canopy of foliage overhead, or wild flowers in great numbers, or native Ferns established by the brink of a trickling stream several hundreds of feet below the drive. Rhododendrons are now adorned in gay attire of various colours in the woods, and these will be succeeded by Foxgloves, and Nature has margined the pathway with a dense carpet of Ivies, which looks fresh and green all the year round. At present the ground is covered with wild Strawberries in flower, Primroses, Veronicas, and wild Hyacinths. At the back of the summer-house is a fine cider orchard, which runs in an opposite direction for nearly half-a-mile. But continuing a survey of the woods, the fish-pond is the next object that attracts the stranger, until an open space is reached called the "brakes," an extensive tract of moorland country stretching away towards the sea coast. And then it suddenly flashes across the mind of the visitor, that Devonshire is proverbially the most romantic and picturesque county in England, and that variety of scenery is its acknowledged characteristic—that hills and dales, mountains and moorland, woods and forests, are strangely mixed up, presenting a huge panorama to the eye of a stranger.

But there is not much time for meditation, and so I proceed hurriedly until a lodge is in view which is draped with creepers, and hardy Fuchsias are flowering upon a bank facing the door. The gate is opened, and lo! I am once more upon the parish road between Dawlish and Teignmouth. "There," said my guide, "is the terrace before you; you can please yourself, sir, but if you go a little way higher up you will have one of the best views of the country to be seen anywhere about here." And so I did, and was rewarded, as my guide told me I should, by a magnificent view of Little Haldon, a chain of hills having one central peak higher than the rest, and a valley of green pastureland and cornfields, bearing a marked contrast to the rugged slopes and narrow defiles of the surrounding hills. Several rivulets which water the Luscombe grounds have their source at the base of these hills, and empty themselves into the sea at Dawlish. But I must retrace my steps and notice the "terrace" (I strange

name), which is a lovely grass drive bordered by trees. The trees are principally Larch, and a variety of Pinus mixed, which have an exceedingly good effect. Laurels and other flowering shrubs are dropped in as a kind of groundwork to the higher trees, and pretty and cheerful they look. The trees are now making their young growth of pale yellow or light green, which harmonises or contrasts with the darker coloured foliage. And the drooping Larch, how noble it looks planted alternately with the Pines! From the terrace or drive narrow walks radiate to the right and left, by which the woods may be thoroughly explored, and their beauties fully examined and admired.

A slight *détour* to the right and a junction is effected with the walk, or rather drive, surrounding the pinetum, which is stocked with splendid specimens of the Conifer family, and is several acres in extent. The pinetum overlooks a portion of the park, and in the distance there is a view of Exmouth radiant in the sunlight, for there is not a cloud to be seen upon the azure-blue sky, and a gentle ripple is just noticeable upon the silvery ocean, which lends an additional charm to a matchless landscape. Wild flowers in plenty there are here, call them common who will, but the impression left upon the memory is not soon obliterated. Picture an elegant specimen of *Abies cephalonica* now arrayed in different hues, and literally encircled with a broad band of Blue Bells (wild Hyacinths), and pink *Silene* refreshed with the first dews of evening, and softened with passing shadows and gleams of light intercepted and broken up by specimens of vigorous growth, rare symmetry and beauty. Those *Hyacinths* and *Silenes* have a charming effect by the margins of woodland walks, but it is when they are present in natural looking groups that they become really fascinating.

The most remarkable specimens in the collection are examples of the Douglas Fir, the Hemlock Spruce (*Abies canadensis*), *Abies Morinda* (which droops gracefully), *A. Nordmanniana*, *Pinus insignis*, *Cryptomeria japonica*, *Cedrus atlantica*, &c. From the pinetum I must ask the reader to return with me to the point in the main drive or avenue from Dawlish where I left off to notice the general attractions of the woods and terraces, and other conspicuous and notable features. I had reached a point opposite to the parish church, where the valley breaks into three branches, and at the head of the central one lies Luscombe Castle. One or two rivulets—tributaries of the stream which flows through the centre of Dawlish—take a diagonal cut through the grounds, which are rendered cheerful and lively by their presence. The eye naturally follows the clear running streams, and the trees, too, grow more numerous and interesting. You approach a bridge which spans the parish road, and upon the right of which there is a narrow walk bordered by a charming row of *Picea orientalis*, with the light green tips of its drooping young growths in striking contrast to the dark green of the older foliage. Ascending the bridge, the drive is margined by two fine rows of *Pinus excelsa* and *Abies Morinda*, both of which make excellent and showy specimens for planting by the sides of avenues. Upon the right a pinetum in miniature running out to an acute angle at the junction of another entrance, is a remarkably handsome feature, and the plants, all of the Conifer tribe, have been selected apparently to produce a neutral tone of colour and variety of form. The park is now in view, and without wishing to make invidious comparisons, I may say that it is perhaps unequalled by anything of the same size even in this picturesque county, if in England. The first object that strikes one is a large clump of Beech on the face of a slope, enlivened by the presence of one or more variegated *Sycamores* and flowering Chestnuts; and at some distance off there are two massive rows of Beech running parallel with each other from the base to the summit of the same slope, forming a green drive or avenue, which is lost to view at the top of the hill. Then there is a valley furnished with isolated specimens of Oak and Hawthorns in full blow, which sent the air with their fragrance, and supply that distinct colour which is so delicate to the eye and acceptable in its season. The Oak leaves appear bronzed, the drooping Beech greenish-yellow, and in the distance the irregular margin of Luscombe woods form a deep background of lively green and grey, relieved by the dark leaves of the Copper Beech, sometimes crimson in a flood of sunlight.

But the great feature of the Park is the long sweeping valley, which terminates a short distance beyond

the Castle in a series of ornamental gardens, including a rosery. Close to the drive there is a row of *Pinus insignis*, probably the largest specimens in England; while the steep slopes upon the opposite side are clothed with fine examples of the Douglas Fir, some quaint looking old Mulberry trees, and one or two specimens of the true Service tree. Here again the lovely Hawthorns, white and pink planted in juxtaposition, have a charming effect, and there are also Quinces and other trees and shrubs scarcely less beautiful. The park is now more diversified—it is even romantic. About its centre, a steep declivity separates two large mounds fashioned like a dome, such as Nature makes without rule or pencil. These mounds ascend to a considerable height, and are dotted with Oaks, Cedars, and other trees of an ornamental character. The cricket ground is in the valley beneath, and the ivy-clad walls and towers of the Castle are in full view. The groups of Cedars at the back of the Castle, as represented in the engraving (fig. 116), are upon a steep slope at the entrance to the American garden, which shall be noticed presently. The Castle is exceedingly picturesque in its architectural character, and was built in the early part of this century by Charles Hoare, Esq., on the site of a former mansion—a private chapel and fine conservatory having been added by the late P. Hoare, Esq., the present proprietor's father. A view of this picturesque house is given in Britton's *Beautifuls of England and Wales*. The walls of the Castle upon the chapel side are clothed with *Ampelopsis Veitchii* and *hederacea*, red and white *Camellias*, *Jasmines*, *Magnolia grandiflora*, *Mirtles*, *Banksian* and *Tea Roses*, *Clematis*, and *Wistaria sinensis*. Fancy a view from the library window down the valley described, taking in the grey towers of the parish church, and a peep of the English Channel! And yet, although the Castle appears to lie in a gully, the sill of the library window is level with the sea.

Basket beds are dropped in promiscuously on the gravel between the old conservatory abutting upon the drawing-room, and the new one at the extreme end of the chapel. These beds are arched over with creepers, and their base draped either with *Hedera Roegneriana* or *Pernettyas*, both of which are very suitable for the purpose. The large specimen given in the illustration, is a unique example of *Cupressus Lambertiana* or *macrocarpa*. Beyond the new conservatory the geometrical flower garden and rosery is snugly enclosed between two slopes, covered with evergreen Oaks and other trees, such as are not to be found except where soil and climate are of the most favourable kind. The shrubs here attain unusual proportions, owing to the favoured nature of the situation and the geniality of the climate. They comprise large bushes of *Escallonia macrantha*, *Deutzia crenata* l.-pl., *Berberis Darwinii* and *D. japonica*, *Skimmia obtusa*, *Weigela rosea*, *Garrya elliptica*, which produces its catkins in immense quantities; and hybrid *Rhododendrons*, which make a brilliant show all through the spring months. Of larger specimens there are good examples of *Libocedrus decurrens*, select varieties of *Cupressus Lawsoniana*, and a superb plant of *Araucaria imbricata*, feathered so regularly, and in such rude health, as to entitle it to rank among the finest in the country. It is said to be the finest in England, but it is certainly not the tallest by many feet.

The American garden, as its title would indicate, is devoted exclusively to the cultivation of the choicer kinds of American plants. The natural formation of the ground made it an easy task for the landscape gardener to excel in laying it out. The boundary walks rises and falls and curves so gently, that one can hardly realise the exact shape of the garden. But the shows of *Gent Azaleas* and *Rhododendrons* do not so easily escape notice; nor the fine groves of *Magnolia grandiflora* and *conspicua*; nor the specimens of *Photinia serrulata*; nor the yellow *Berberis*, drooping over the greenward, where you may gather a posy of the wild flowers of Devonshire, and Ferns, too, to go along with them! The kitchen and fruit gardens, about 6 acres in extent, enjoy a southern aspect upon the slope of a hill, about half a mile from the Castle. The entrance to the garden is over a bridge which spans the river already noticed in these remarks. There is a cascade upon the north-west side, where the stream at times dashes over with great force, and the banks are about equally planted with *Tussilago fragrans* and the wild garlic (*Allium*), which, when in flower, is pretty at a distance; but do not come too near to smell it. Both these plants are semi-aquatic,

and planted, as they are here, in combination with banks of hardy Ferns, are very appropriate to the situation.

The garden is said to be very prolific, as may well be expected where soil and climate are of the most favourable character, and the situation all that can be desired. A.

HOME CORRESPONDENCE.

Acer velutinum (?).—In their catalogue for the spring of 1867 Messrs. "Vilmorin, Andreux & Co., of Paris, announced for sale:—"Erable à feuilles velues (Caucase): *Acer velutinum* (Boissier).—Grand arbre à corce plus ou moins lisse, à branches étalées, à feuilles palmati-quinquelobées et velues en dessous, même à la maturité du fruit. Fleurs en grappes corymbiformes, dressées; samares à coque renflée; ailes convergentes; loges très velues, tomentoses intérieurement. Cette belle espèce croit dans les forêts du Mont à l'altitude de 1500 mètres environ."

The plant I sent to Dr. Masters sprang from these seeds. All the hatches was similar, and remarkably glabrous. The late Dr. Karl Koch, when consulted about its identity, supposed it might be a variety of *A. insigne*. I could get no farther, as I never had the luck to flower it in my nursery. It is the hardiest of my eighty species and varieties of Maples, stood perfectly the two disastrous winters of 1879-80 and 1880-81, and being a very late and cautious grower has even never been nipped by the late frosts. [This is not our experience, Ed.] The seeds were collected by Mr. Balansa (I have reasons to believe in Lizaian, about Batoun), at the same time with *Phillyrea decora*, *Acer campestris caucasicum*, *Tilia caucasia*, &c., and *Acer letum*. The seeds of the last did not grow, and I did not regret it much, as Professor Karl Koch told me it was only another name for *Acer ciliatum* (although I only found this last wild except in Lower Daghestan, about Kula and Berberit, in a quite different country). In truth, the seeds looked very similar. Last week I saw in the Botanic Garden of the University of Leyden a Maple labelled *A. letum*, and very distinct from anything I know. Professor Suringar had never paid any particular attention to it, and could not tell me anything about it. As I sent several years ago living plants of my *A. velutinum* (?) to Mr. Lavallee, of Segrez, and Mr. Boissier, of Geneva, they might give their opinion about it by this time. *Jean van Tolson*. [Our specimen seems to be different from M. Boissier's *insigne*. Ed.]

Stephanotis.—Having seen in your last week's issue a notice of a *Stephanotis* characterised by six segments to the corolla, I enclose you one with seven, from a seedling which is flowering for the first time, and very freely. *Wm. Deebman, Titchfield, Hants.*

Stephanotis floribunda.—I noticed in your paper of last week (p. 682) Mr. Sutherland, reporting upon a floriferous example of this truly admirable climber, mentions the fact of a considerable portion of the flowers as having six segments to the corolla. I have to-day examined a very similar plant, growing at Trinity Grove, near Edinburgh (the property of John Milne, Esq.), in a fernery 30 feet long, the whole roof of which is covered with it, and *Passiflora racemosa* intermixed, every axil of the *Stephanotis* showing flowers in various stages of development even on the youngest shoots, each head with seven to eleven pips, the plant a picture of health, and the bloom worth a journey to see; but I failed, in the large number of flowers I carefully examined, to find a single one with more than five sepals, or five lobes to the corolla, the usual number of the *Asclepias* family, to which *Stephanotis* belongs. It would be interesting to know if this sporting is individual or otherwise. The *Passiflora racemosa*, with its long racemes of beautiful bright red flowers, Mr. Maclure, the gardener, assured me had been in flower winter and summer uninterruptedly for several years. *W. E. D.*

Results of the Gale in April.—A wish having been expressed for information as to the results of the great Gale of April, I would point out two shrubs of which the young shoots appear to have been entirely unharmed when exposed to its full force, namely, the Sea Buckthorn (*Hippophae*) and the common Box. The Oaks in West Sussex are still in a deplorable state, any attempt at recovery being checked by myriads of caterpillars, which in many places have descended from the branches, and are devouring the underwood. I am disposed to think that this plague may arise from the destruction of the tics during the late severe winters. *H. K.*

Genista præcox.—At p. 578, when speaking of the above-named beautiful and free-blooming ornament of the hardy shrubbery, you say that one of its synonyms is *odoratus*, which is, I believe, usually understood to mean fragrant or sweet-scented? This, I think,

must be an error on the part of the writer of your paragraph, as the one drawback possessed by this pretty shrub is the disagreeable and pungent odour which it exhales, which altogether prevents its employment for the decoration of vases with other cut flowers, and renders even the nearest approach to the plant, when in bloom, quite unpleasant to anyone with any sense of smell whatever. *H. E. G.* [The word *odoratus* is not confined to sweet-smelling objects—see Latin Dictionary. Ed.]

New Melons.—We have no wish to prolong the discussion on the relative merits or demerits of our Best of All Melon; each variety introduced has its votaries, and we give all credit to Mr. Carmichael and his friends for their opinions. This, however, to our mind, does not prove that Best of All is only of "fair" favour. We may quote the old adage that "What is one man's food is another man's poison," and hence opinions differ, and well it should be so. Put against the judgment of Mr. Carmichael and his friends we can place men of equally high standard of judgment in contradistinction, viz., the late S. Simpson, Esq. (a better judge of the real merits of a Melon never lived), Messrs. B. Findlay, R. S. Yates, J. Hunter, W. Baillie, E. H. Lettis, J. Kilsdale, W. Irvine, R. Gilbert, and dozens more if necessary. Mr. Carmichael finds fault with its not being "certificated," and we have never yet coveted the honour from the Royal Horticultural Society, and have yet to learn that an "uncertificated" fruit or vegetable is debarred from receiving the appreciation of a discriminating public. *Dickson, Brown & Tait, Manchester.*

Viola pedata and V. p. tricolor.—Several plants, obtained under these names from North America last autumn, have proved well worth the price paid for them and for the carriage, though I am told they are not likely to survive for another season. The plants are remarkably fine, being that of a small spheroidal bush, about 6 inches in diameter, covered with blue and yellow flowers, intermediate in size and form between *Violets* and *Fansies*. They were potted in November, and kept in a cold frame till March; then planted out in well-drained soil, and have been in flower all April and May, and are now going off. *C. Wolley Dod, Edge Hall, May 20.*

Wistaria sinensis.—There is a *Wistaria* in these gardens planted at the front of a vineery, which measures at 18 inches from the base 5 feet in circumference; at 10 feet, 3 feet 8 inches, and at 20 feet, 3 feet 7 inches. The plant travels 41 feet before it reaches the top of the back wall of a vineery, then branches two ways with several other branches on the top of the back wall of a Peach-house, 40 feet the other way on the top of the back wall of a vineery. Fifty-six feet from these branches there are thirty-five branches 16 feet long, each branch quite covering the sloped roof of a hot-bed, which is 16 feet from the back wall down to the eaves, and 50 feet long. It had another branch which was blown off four years since, which went 50 feet farther on, on the top of the back wall of a greenhouse. It has its hundreds of branches 2 to 3 feet long branching out of those mentioned above, and is now in full beauty, with thousands of drooping clusters of flowers. *A. George, Bilton Gardens, Devon.*

Drosera peltata.—Amongst many insectivorous plants in the Edinburgh Botanic Garden one of the prettiest is *Drosera peltata*, sent from Adelaide, and grown here last year in the heterophyllous bed. Mr. Lindsay, after a careful comparison of the plant with various Australian species in the herbarium, considers it to be *D. peltata*. The two strongest stems are several inches high (taller than the one stem last year), but they will probably much exceed this length, as the plant grows stronger. Some of the rosette leaves have already fallen off. Low down on the stem are three rather broad petioles, each surrounded by a small undevolved leaf, which with the magnifying-glass is shown to be surrounded with minute glands. Beneath the terminal flower-stem is a whorl of three leaves, and below this whorl are groups of two or three leaves, developed in succession in the same axil as the oldest leaf in each group. The broadly crescent-shaped leaf forms a cup covered on the upper surface with glands, the outer ones reflexed. The back of the leaf is smooth, having two well-marked veins from the stalk in the centre to the two upper corners of the crescent. The plant grows here dies down about August, and becomes a dormant bud. It seems strange that, although Mr. Darwin has shown the extreme interest belonging to the *Drosers*, there are so few exotic kinds, probably not more than six or eight, in cultivation. In Bentham and Hooker's *Genera Plantarum* (vol. i., p. 662) there are said to be a hundred species. *Drosers* are found over the whole world, except in the Pacific Islands. In Bentham's *Flores Australiensis* thirty-nine species are mentioned, as well as two species of

the allied genus *Ilybis*. Another allied genus, from Africa, *Koridula*, of which there are also two species, is described by Sir Joseph Hooker in the *Botanical Magazine* (vol. xxvii., tab. 6533). Both species are shrubs, and one of them is used as a "flycatcher" by the Doers in their rooms. It would not be difficult to send by post freshly gathered seed, or, perhaps better still, plants in their dormant state, wrapped up with damp moss in gutta-percha, if those interested in insectivorous plants would take the trouble to do so. Now that insectivorous plants are so well grown in the Edinburgh Botanic Garden, and in many other public and private collections, they would have every chance of being successfully introduced, and would surely be a most welcome addition to all such collections. *C. M. Owen.*

Seeding of *Primula rosea* and *Arnebia echinoides*.—Some time ago I stated in the *Gardeners' Chronicle* that the seed of *Primula rosea* is not enclosed in a capsule, but borne loose on the receptacle. This statement was rightly said by the Editor to require further explanation, which I am now able to give. I was guilty of careless and casual observation when I last gathered my seed of *P. rosea*.

advantage as I did a short time back in a churchyard, where it was growing close up against the white headstone of a grave, from which it arched out and stood bending over, as if dropping its exquisite pink blooms as love tokens for the departed. Although this *Dicentra* is not quite adapted for growing in open borders, it is of great value for forcing, as it is naturally early, is easily excited, and responds readily to heat, and when in flower it is one of the most telling and handsome things that can be had in a greenhouse, where it stands well and lasts a long time in perfection. To have good plants, with fine developed crowns, for taking up and potting, *Dicentra spectabilis* should be planted out in light rich sandy soil in some sheltered sunny spot, where they can be kept well supplied with water till the foliage shows symptoms of ripening, when a drier condition at the roots will be the most suitable. This planting out will be far better for them than keeping them in pots, as there, however liberally treated, they are too restricted to attain to the size and strength they do in the open. If wanted to force early it is advisable to take them up in the autumn, and alter potting to stand them in cold frames, where they can be drawn from and put into gentle heat, a few at a time, as

positive of his assertion by forwarding a copy of his firm's Potato list in which these Potatos, Adirondack and Queen of the Valley, are offered to customers in 1880-81. As I get no reply to a very courteous communication, I presume rightly that Mr. Kerr has no such proof to furnish, and say so in these columns. Then "An Ayrshire Grower" comes to Mr. Kerr's defence, and declares that he had seed of these two kinds from Kerr & Fotheringham early in 1881. He does not say that he saw them advertised by the firm, or that they offered these Potatos in the ordinary course of trade. His statement is to the effect that seeing these kinds recommended by a well-known Potato grower in the columns of the *Gardeners' Magazine*, early in 1881, he wrote to the firm in question asking if they could supply seed, and some of both sorts was duly sent. This is no proof whatever that the Potatos were offered in commerce. No one puts forth a single atom of proof to show that they were offered the public, although no one doubts but that Messrs. Kerr & Fotheringham had them, and supplied a very few persons with them! What is the fair assumption but this, that the firm had obtained small quantities of these kinds from America for their own planting, and being applied to by the

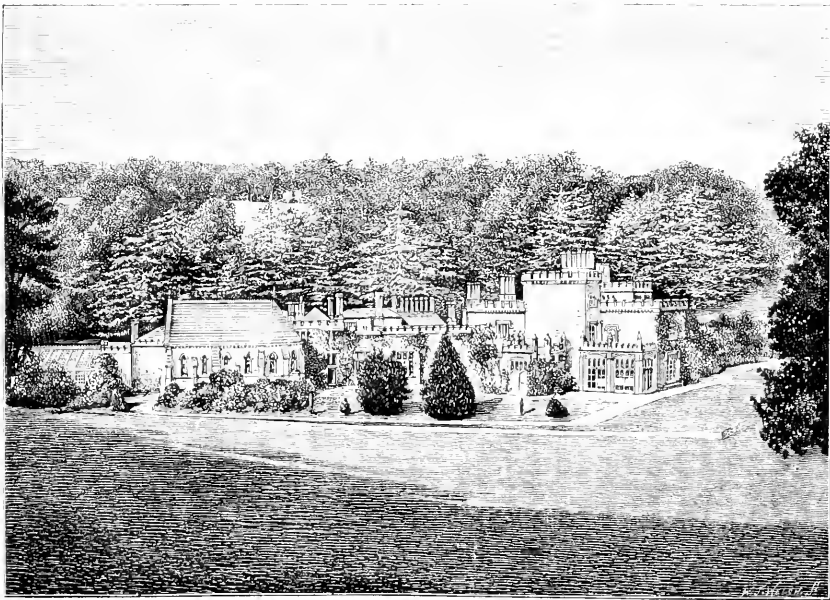


FIG. 116.—LUSCOMBE CASTLE, NEAR DAWLISH. (SEE P. 743.)

I now find that when the seed is ripe, the capsule splits into five segments, which bend back from the top, and lie upon the five sepals, so that they may easily be mistaken for them. The receptacle is large and prominent, and the seed continues to adhere to it until disturbed by wind and by touch. I enclose a specimen. I am glad to observe that one of my plants of *Arnebia echinoides*, which began to flower before the end of March on an exposed rocky, and which I luckily did not cut down to favour fresh flower-stalks, is producing a good crop of seed. The seeds are already about the size of those of a *Crocus*, and are swelling fast. I am afraid, however, that it will be difficult to collect them, as they are so loosely attached to the very open calyx. *C. Wolley Dod, Edge Hall, Malpas.*

***Dicentra (Dicytra) spectabilis*.**—In open borders this lovely spring-flowering plant generally gets cut and damaged so much either by wind or frost, or both, as to render it quite shabby, but under shelter against a sunny wall it is one of the most beautiful objects that are to be found, as there it escapes injury, and sends up its stems, with their elegantly divided leaves and gracefully drooping racemes of pendulous flowers, in the greatest perfection. Much as I have admired it, I think I never saw it show up to such

required. The way to effect an increase is by division, which should be done in the spring, just as they are starting, as then the eyes or crowns may be seen, and a severance made without injury or loss through decay of the parts. Plants that have been forced ought to be kept under glass in a frame where they can have plenty of air till the leaves harden, when they may be planted out to finish off in the ground, and if left for a year before being taken up again they become very large and flower profusely. *F. Sheppard.*

New Kinds of Potatos.—It will doubtless appear somewhat strange to ordinary readers of this paper that a matter which is simply one of fact, and therefore ought to be as easy of decision as any matter well could be, should yet evoke so much discussion. It will be remembered that I classed Adirondack and Queen of the Valley amongst the new kinds of Potatos put into commerce the first time in the season of 1881-82. Mr. Kerr, of the firm of Kerr & Fotheringham, Dumfries, a well-known Potato exhibitor and trader, takes exception to these two kinds being so placed, and states that his firm had them offered in commerce in the preceding season. He goes further, and invites me to communicate with him direct, and he will give me further information. I did so, asking that he shall furnish me with proof

"Ayrshire Grower," and perhaps some others, let these have small lots, and on the strength of that proceed to declare that this was offering in commerce. In ordinary trade we all understand that such offering means publication in a trade list which is widely circulated or advertised in some widely circulated newspaper. If Mr. Kerr's firm did issue such trade list in which these two Potatos were offered, or if they did advertise them even in the columns of the local Dumfries *Standard*, there ought to be no difficulty in sending either to me or to the Editor such proof, and if it were done there would be an end of the matter. As it is not done I have no other course open but to assume that the assertion that these Potatos were offered to the public prior to the past season is not correct. Instead of replying publicly to my recent strictures in these columns Mr. Kerr has now replied to me, sending what he thinks I must accept as proof conclusive—not the needed trade list, but a printed circular he has compiled showing his success as an exhibitor at various shows, and amongst others that at the Crystal Palace last autumn. Herein he states that he took the second prize in the class for three new varieties in commerce not offered before season 1880, with a collection which included Adirondack and Queen of the Valley; but as he has failed to show that these kinds at the time they were shown or in the

proper season had been offered to the public in this country, he does not prove that he took the prize with sorts that were not eligible to compete. In spite of the protest which indignantly enough comes alike from Mr. Kerr and the "Ayrshire Grower" against my suggestion as to what shall be held to be publication of offer in commerce, I feel now more than ever the need of adhering to it. *A. D.* [We have a letter from Mr. Kerr, dated May 30, in which he re-affirms his former statements, but does not give proof of the same by showing publication, in the usual trade channels, of his ability to have supplied tubs of either of the varieties in question, but only says that he has put them on a few pounds can hardly be called putting them into commerce. We can, however, see no good in continuing the discussion further. Ed.]

Lychnis vespertina flore-pleno.—Can any correspondent tell us how to make cuttings of this fine plant root? Cuttings taken in early spring remain green for several months; but I have never yet persuaded them to root, and am told the secret has not yet reached England, and that the plants are all imported. *C. Wolley Dod, Edge Hall.*

Reports of Societies.

Manchester Royal Botanical and Horticultural: May 26—June 2.—The grand national horticultural exhibition of this Society, which now in its full title embraces the northern counties, and which concluded yesterday, was one of the finest we have witnessed, even on the classic ground of increasing flower-shows, and which have now gone on successful and improving for sixteen consecutive years. The Manchester show is always rich in Orchids, and this year it may be called superlatively rich, notwithstanding that some well-known and prominent trade collections are absent. Stove and greenhouse plants, foliage plants, Palms, are all good—some of the Ferns, especially the 1st prize group of tender kinds, and consisting chiefly of *Gleichenia* and *Davallia*, are highly remarkable for their handsome growth and extraordinary freshness. The Clematis from Messrs. G. Jackman & Son of Woking, were, in our view, the most remarkable feature, the specimens being even better than those exhibited last week in the South. Groups arranged for effect were also an important feature, and occupied a considerable portion of the great annex tent. They were generally very well set up, the exhibitors being most of them awakening to the fact that "effect" is not to be obtained, even by the choicest plants, if they are crammed together in dense formal solid banks, and not broken up on the surface by graceful or attractive specimens. The alpine and herbaceous plants, always a feature here, deserve a word of commendation, since they contained many choice species and many well-grown specimens.

ORCHIDS.—In the leading class for fifteen plants, G. W. Hardy, Esq., Timperley (Mr. Hill, gr.), was very properly placed 1st. The collection was remarkably fine, and one of the best fifteen ever staged. There was a splendid mass of *Dendrobium Vardianum*, with about thirty well developed stems, each being covered with finely-coloured blossoms; near it stood *Odontoglossum vexillarium*, 4 feet across, the surface being literally all flower. The Dalkheite variety of *Vanda tricolor* bore two handsome spikes; then came *Masdevalla Mendelii*, 3 feet across, and *Masdevalla Harryana*, 2½ feet, both well-bloomed; of *Odontoglossum crispum* (Alexander) there was a remarkably fine variety, with flowers measuring 4 inches across, the sepals and petals flushed with rose and the lip spotted; *Dendrobium clavatum*, with rich yellow of soft coloured flowers, was magnificent; *Odontoglossum cicutum* near it was 3 feet across and bore about thirty panicles of its singular and handsome blossoms; *Anguloa Clowesii* bore about a score of its bright yellow cradle-shaped flowers; the rich-lipped *Cattleya Warreni* was there with eight of its handsome rose-tinted flowers; *Cypripedium niveum*, with thirty-six flowers; *Dendrobium densiflorum*, with over two dozen spikes; *Cattleya Mossie*, fully 3 feet across; and good examples of *Cypripedium Lawrenceanum* and of *Dendrobium Jamesianum*. R. B. Dodgson, Blackburn, who was 2d, arranged another wonderfully fine lot of plants, including *Masdevalla Veitchiana*, 3 feet through, on which we counted over eighty flowers; a grand *Cypripedium villosum*, 3½ feet across; *Calanthe veitchiana*, *Acridis crispum*, with three good flower-spikes; *Epidendrum venustum*, nearly 2 feet tall; plants, including *Masdevalla Harryana*, *Dendrobium densiflorum*, *Cattleya Mossie*, *Cypripedium barbatum superbum*, *Cattleya Warner*, *Vanda suavis*, with three spikes; *Lelia purpurata*, with twenty-one flowers, several of the spikes being four-flowered; *Dendrobium Australiense*, *Cypripedium javanicum biflorum*, and *Odontoglossum vexillarium*, 3 feet over. J. Broome, Esq., Didsbury (Mr. Weddell, gr.), was 3d, with

a very neat lot of smaller but well-bloomed plants, having *Vanda suavis* as a back centre supported by *Dendrobium Devonianum* and *Lelia purpurata*, *Dendrobium luniflorum*, *Aerides Fieldingii*, *Cattleya Mendelii*, *Lelia majalis*, and others.

In the class for nine plants Mr. Hardy was again 1st, with an exceedingly fine group containing as centre a 4 feet spike of *Odontoglossum vexillarium*, of high colour, backed by a fresh plant of *Anguloa Clowesii* with eighteen open flowers, and supported by a *Cattleya Mossie* 3 feet across, and C. Mendelii superba, nearly as large, with *Dendrobium Jamesianum* and *Tenisonia*, *Odontoglossum crispum*, and the rich orange colour *Ada aurantiaca*, the 2d prize fell to O. Schneider, Esq., Fallowfield (Mr. Holmes, gr.), who had a large *Oncidium*, 5 feet high, with seven panicles of flower; *Epidendrum vitellinum*, with twenty-four spikes of bloom; *Aerides Fieldingii*, with three spikes, small but good; and a pretty lasket plant of *Dendrobium Falconeri*. R. B. Dodgson, Esq., who was placed 3d, had a nice plant of *Oncidium Marshallianum*. The 1st prize for a group of six Orchids went to R. P. Percival, Esq., Southport (Mr. G. Beddoes, gr.); the group consisted of *Oncidium Clowesii*, with about twenty very finely bloomed; *Odontoglossum vexillarium*, equally large and fine; *Cypripedium Lawrenceanum*, with about twenty flowers, a charming plant, set off by its finely mottled leaves; a good *Cattleya Mendelii*, *Dendrobium thysitiforme*, and *Anguloa Clowesii*, with about twenty attractive flowers. The 2d prize fell to Morton Sparkes, Esq., Hurston (Mr. Sherwin, gr.), who showed *Cattleya Mossie* magnificent, with about thirty flowers; *Cypripedium caudatum roseum*, with ten finely developed blossoms; *Oncotoglossum Hallii*, with five panicles of bloom; *Dendrobium nobile*, *Odontoglossum vexillarium*, 3 feet across; and *Masdevalla Harryana*. The 3d prize group came from C. Walker, Esq., Milnthorpe (Mr. McGregor, gr.), who had good examples of *Masdevalla Harryana* and *Lindeni*; and a fine piece of a large-flowered variety of *Oncidium*, of unusually high colour. The 4th prize was provided for six *Cattleyas*, in which the 1st prize went to Mr. Hardy for moderate specimens of C. Mendelii (2), Warneri, Warneri superba, very fine; Mossie, and Mossie marmorata.

In reference to the nurserymen's classes, the absence of Mr. Williams' usual exhibition may be noted. The 1st prize in this class was awarded to Mr. James Norwood, for a fairly good collection containing *Oncidium Marshallianum*, macranthum, ampliatum, and concolor; a good pan of *Cypripedium concolor*, *Masdevalla Harryana*, with *Cattleyas*, *Lewalis*, *Odontoglossos*, &c. Mr. Cypher was 2d, and had a fine group of *Dendrobium phalaenopsis*, *Oncotoglossum*, &c. The prizes in the class for ten went to the same growers in the same order, Mr. James showing a pot of *Oncidium tolosa* with sixteen spikes of flower, and Mr. Cypher neat plants of *Cypripedium Hookeri* and concolor, and a *Cattleya citrina* with half a dozen good flowers.

NEW PLANTS.—For twelve new and rare plants Mr. B. S. Williams, Holloway, won the 1st place. His group consisted of *Draecena Lindenii*, a very fine thing, with narrow recurved leaves; *Leontodon*, a very fine plant; broad bands of yellow-green on each side the dark green centre; *Alocasia Cheloni*, *Kentia costata*, *Adiantum Williamsii*, 3 feet over, a very striking plant; the bold *Aralia spectabilis*, with long glossy pinnate-pinnatifid leaves; the dense-growing *Aralia Cheloni*, which will bear a very good deal of frost; *Croton Warrenii*, one of the best of the ringleted *Crotons*; *Alocasia Cheloni*, with bold dark green leaves and ivory veins; *Asplonia Rebecca*, *Anthurium Veitchii*, figured in our volume vi., 1876; and *Cycas undulata*. Messrs. Kerr and Liverpool were 2d, with *Ficus elastica variegata*, a very promising plant, with irregular marginal variegation of yellow-green; *Delabachea rupestris*, *Draecena Lindenii*, very finely coloured, and very handsome; *Croton Warrenii*, *Juncus zebrinus*, 4 feet high; *Adiantum Lathoni*, *Asplonia Rebecca*, *Lomaria obtusata*, a very pretty small-growing Fern; *Heliconia aureo-striata*, *Dicentra Beccari*, and *Anthurium undatum*. Equal 3d prizes were awarded to Mr. Cypher, Cheltenham, for a group containing the bold *Croton Kingianum*, with dark green and gold variegated leaves as large as the recurved leaves of *Draecena Lindenii*; these three fine varieties of *Anthurium Scherzerianum*, named Wardii, Hendersoni, and Cypheri; and to Messrs. W. & J. Birkenhead for a collection composed wholly of Ferns, and including the pretty glaucous-leaved, bipinnate, *Asplonia Rebecca*, and *Ficus elastica variegata*, with *Delabachea rupestris*, *Asplenium splendens* and *Asplenium*, *Yugonogramma hispida*, and the pretty *Polystichum acrostichoides grandiceps*, described at p. 492.

The only amateur's group of six came from R. B. Dodgson, Esq., and consisted of *Asparagus plumosus nanus*, *Cypripedium Lawrenceanum*, *Croton Warrenii*, *Aralia spectabilis*, *Delabachea rupestris*, and *Cycas undulata*.

First-class Certificates under this head were awarded to Mr. Williams, of Holloway, for *Adiantum Lathoni*, *Phalangium gentianissimum*, *Doodia aspera multifida*, *Asparagus plumosus nanus*, and the *Elvaston variety* of *Stephanotis floribunda*; to Messrs. Kerr, of Liverpool, for the *Ficus elastica variegata* already mentioned, *Adiantum Victoriae*, and *Leeca analabalis*; and to Messrs. G. Jackman & Son, Woking, for *Clematis alba magna*, which was shown with its broad sepalled flower fully 10 inches in diameter; and Mrs. Hope and Princess of Wales, two of the mauve-coloured series, also remarkable for their breadth of sepal, which fills up the outline of the flower to the very centre.

STOVE AND GREENHOUSE PLANTS IN FLOWER.—These are always a conspicuous feature at Manchester,

and with the Orchids made up bright and attractive patches of colour in the large conservatory. S. Schloss, Esq., Bowden (Mr. C. Paul, gr.), was a remarkably good 1st, with a very fine example of *Stephanotis floribunda*, *Anthurium Scherzerianum*, *Clerodendron Balfourianum*, *Erica Cavendishii*, *Erica Cavendishii*, and two fine *Azaleas*; 2d, John Rylands, Esq., Streteford (Mr. George Smith, gr.), who had good examples of *Bougainvillea glabra*, *Azalea Roi Leopoldi*, *Anthurium Scherzerianum*, *Alphelia macrantha purpurea*, &c. In the nurserymen's class for ten, and Roi des Doubles. In the amateurs' class smaller and less noticeable plants were shown, and the 1st prize was withheld.

AZALEAS.—These were in nothing like the form in which they have been wont to be shown in Manchester, the best group of eight plants coming from Messrs. E. Cole & Sons, whose leading plants were Stanley and Criterion, Marie and Roi d'Hollande. Mr. Cypher was 2d, having Jacksoni, a good crimson-flowered variety of *Erica Cavendishii*, and Roi des Doubles. In the amateurs' class smaller and less noticeable plants were shown, and the 1st prize was withheld.

ERICAS.—In the amateurs' class for six Mr. Smith was 1st, but the collection contained nothing worthy of special mention. In the nurserymen's class for the same number Mr. Cypher had good examples of *E. ventricosa magnifica*, *grandiflora*, and *coccinea minor*, *E. deplanata*, *E. Cavendishii*, and *E. affinis*; 2d, Messrs. W. G. Caldwell, Knutsford.

ROSES IN POTS.—The large plants from Slough and Chesham not being forthcoming on this occasion, the show of these was only of a moderate character. There was not a single entry in the nurseryman's class for twenty plants, and in that for amateurs Mr. John Heywood, The Grange, Streteford, and Mr. W. Brockham, The Nursery, were 1st and 2d. In the class for thirty Roses in pots the 1st prize was properly withheld, and a 2d prize awarded to Mr. John Hooley, Stockport. A special prize was awarded to Mr. John Heywood for a group of twenty-five plants.

CLEMATIS.—These were unquestionably the feature of the show. The plant-loving public of Manchester are accustomed to see grandly flowered and huge specimens of Orchids, but such a sight in the way of species of Clematis has never before been seen here or elsewhere. Messrs. G. Jackman & Son, of Woking, won renown by bringing all the way from Surrey and staging in such superb condition so grand a lot of plants, sheathed in luxuriant foliage, and covered with clusters of splendid proportions and fine tints of colour. All the prizes were of the languinous type, with the exception of the double white *Duchess of Edinburgh*, which belongs to the Florida section. The deepest coloured varieties were *Mauve Gem*, *William Kennet*, *Robert Hanbury*, *Blue Gem*, &c. Mrs. Hope was 1st, with *Princess of Wales* (very fine), and *Duchess of Norfolk*. The palest flowers were Mr. Moore, *Alba Magna* (very fine), and *languinous candida*. Messrs. R. Smith & Co., nurserymen, Worcester, were 2d, with a collection of the above in the amateurs' class. Mrs. Hope has taken the 1st prize, but they were so far behind them in point of development. The best varieties were *Sensation*, *Marie Lebevre*, *Lawsoniana*, *William Kennet*, *Lord Nevill*, *Otto Frobels* (fine form, and very good), *Madame Grange*, &c. In the amateurs' class for six Mr. J. Hooley, Woking, was the only exhibitor, and took 1st prize with some moderate plants.

PELAGONIUMS.—The best eight varieties of show Pelargoniums in the nurserymen's class came from Mr. C. Kynlance, Ormskirk, and very good they were, nice, well grown and flowered specimens, the varieties *Brigitine*, *Duchess of Edinburgh*, Mrs. Bradshaw, *Triomphe de St. Maude*, *Patroness*, *Prince Leopold*, and *Venus*; 2d, Messrs. T. Lazenby & Sons, York. In the amateur class for six varieties of Pelargoniums Mrs. Hope was 1st; and Mr. P. Gill, Wood Hayes Hall, 2d. Mr. Kynlance was the only exhibitor of eight Fancy Pelargoniums in the nurserymen's class, staging good sized well flowered examples, and taking the 1st prize. There was no entry in the amateurs' class for six plants. Zonal Pelargoniums were a bright and effective feature, the plants well grown and bloomed. Messrs. Rynlance and Lazenby & Sons were severally 1st and 2d with eight plants; and Messrs. Summer and Silkenstat with six plants. The varieties were generally well known sorts. The six varieties of Pelargoniums shown by Mr. Summer, were remarkably good, large, well grown and coloured, and were decidedly in advance of the nurserymen's plants. Mr. J. Kershaw, Cheltenham Hill, was a good 2d to Mr. Summer. Mr. Kynlance was again 1st in the nurserymen's class, and the York firm 2d.

PANSIES AND VIOLAS IN POTS.—These were largely shown, and made a very pretty and attractive display. They were made in plants in cups, but capital heads of bloom were furnished. In the amateurs' class Mr. Sargent had the best six show Pansies, Mr. G. Whitefield, Bowden, being 2d. Mr. Joseph Broome was 1st with six fancy Pansies, and Mr. Whitefield 2d. Mr. D. McCure, Heston, Mersey, had the best six Violas, Mr. J. Broome being 1st. Amongst the Pansies in the flower blue blotched with white on the margins, like Maggie, was very good. In the nurserymen's class for twenty show Pansies in 8-inch pots Mr. Henry Hooper was 2d, the 1st prize being withheld. With twenty fancy

Fansies Mr. Thomas Walkden, Sale, was a good rust, and Mr. Hooper, 2d, had the best twenty pots of *Violas*, Mr. John Hayward being 2d.

MISCELLANEOUS FLOWERING PLANTS.—These included Anaryllids, of which six being staged by Mr. George Hardy, of Timperley, who was the only exhibitor, a good twelve being staged by Mr. B. S. Williams, who was placed 1st, and was the only exhibitor. *Calceolarias* were prettily well represented, but with the exception of the 1st prize lot of ten plants from Mrs. Eastwood, Rhododendrons were not represented in the amateur class, but in the nurserymen's division Messrs. Fisher, Son & Sibray, of Sheffield, staged a very fine group of nearly seventy plants, which are referred to elsewhere. They were most deservedly awarded the 1st prize, and were one of the features of the show. Their were much better grown than we generally see then.

FINE-FOLIAGED PLANTS.—The groups of these were a leading feature, and being ranged in great part round the back stages in the conservatory, the flowering plants being in front. Mr. Geo. Smith staged a fine group of ten on behalf of Mr. John Rylands, having noble examples of *Friedlandia pacifica*, *Croton discolor*, *Alcascia Lovii*, *Variegata*, fine; *Arcyria*, *Calceolaria*, *Croton Weismanni*, &c. 2d, T. H. Birley, Esq., Manchester (Mr. E. Elkin, group), who had, as the most conspicuous object in the group, *Cibotium regale*, *C. Schiedeii*, *Latania borbonica*, *Cocos Weddelliana*, and *Phormium tenax* variegated. The nurserymen's class for eight plants Mr. Cypher was adjudged 1st, having well developed examples of *Latania borbonica*, *Thrinax elegantissima*, *Cycas revoluta*, *Cordylina indica*, *Kentia Fosteriana*, *Croton majesticus*, *C. discolor*, and *Dasylicapillum acrostichoides*, 2d, Messrs. E. Cole & Sons, who had *Kentia Fosteriana*, *Thrinax parvifolia*, *Thrinax elegans*, *Gleichenia Mendelii*, *Cycas revoluta*, &c. The best four Palms came from the Earl of Wilton, Heaton Park, and consisted of *Cocos Weddelliana*, *C. nucifera*, *Latania borbonica*, and *Kentia Fosteriana*. 2d, Mr. Geo. Hardy, who had good specimens of *Geonoma elegans*, *Thrinax majestica*, and *Cocos Weddelliana*. In the nurserymen's class for a pair of Palms, Messrs. E. Cole & Sons were the only exhibitors.

FERNS.—In the amateurs' class for eight stove or greenhouse varieties a truly splendid group came from Mr. S. Schloss, which did Mr. Paul, the gardener, very great credit. The group consisted of *Gleichenia rupestris*, *G. fabelata*, all in rare form, *Davallia tenuifolia*, *D. Mooreana*, and *Gonophlebium subarticulatum*. 2d, Mr. A. Birley. Pairs of *Ferns* were a useful feature, as they were made use of for dotting about the annex to impart effect to the groups. In the class for twelve hardy ferns, a very fine lot was staged by Mr. G. Henderson, Worsley, who had remarkable specimens of *Athyrium*, *L. f. plumosum*, *Osmunda regalis* var. *purpurascens*, *Lastrea f. m. grandiceps*, *O. regalis cristata*, &c. 2d, Mr. W. Brockbank, with a very good lot. In the class for six Filmy Ferns, Mr. Lettice Grove Hall, was 1st with *Todea pelucida*, *T. superba*, *T. radicans*, *Cheilanthes*, *Hymenophyllum densissimum* and *H. crispatum*. 2d, Mr. John Rylands, with a good 2d prize lot.

CROTONS.—In the nurserymen's division the groups of ten distinct forms were a leading feature. Messrs. R. P. Ker & Son, nurserymen, Liverpool, staged a grand lot, all with superbly coloured foliage, consisting of *Weismanni*, *Bergmanni*, *Warreni*, *interpunctus aureus*, *Variegata*, *Elkingtoni*, *Worsleyi*, *Worsleyi*, *Worsleyi*, *Worsleyi*, *Worsleyi*, *Worsleyi*, *Worsleyi*, and *D'Israeli*. 2d, Mr. J. Cypher, who had smaller but very nice plants of much the same sorts. In the amateurs' class for six Mr. Schloss was 1st, with fine examples of *angustifolius*, *D'Israeli*, *picatus*, *Queen Victoria*, *Weismanni*, and *majesticus*; 2d, Mr. R. B. Dodgson, with large but not well coloured plants.

DRACENAS.—The best group of twelve was staged by Messrs. R. P. Ker & Son, a very good lot indeed, the variety in the sort in *Dracaena* leaves being *Dracaena* were *Baptisia*, *picata*, *recurva*, *Gladstonei*, *anabilis*, *Lancei*, *alba marginata*, and *Regina*; 2d, Mr. Henry James, nurseryman, Nortonwood, with smaller and less finely marked plants. In the amateurs' class for six plants, Mr. B. Dodgson, Esq., staged some fine specimens of *Mooreana*, *Excelentia*, *Berkleyi*, *Baptisia*, *anabilis*; 2d, Mr. Joseph Broome, with smaller but nicely grown plants.

FITCHER PLANTS.—The best ten in the amateurs class was staged by Mr. Joseph Broome, some of them remarkably good specimens. The leading types were *Nepenthes Raflesiiana grandis*, *robusta*, and *Sarracenia flava*, *various*, *flava picta*, *Drummondii*, and *purpurea*. 2d, Mr. Joseph Hides, Chelmsford. The only exhibitors in the nurserymen's class for the same number was Mr. B. S. Williams, who had good examples of *Nepenthes intermedia*, *paradisii*, *Hookeriana*, *Dominiana*, *Courti*, *Sedeni*, and *rubra*.

GROUPS OF PLANTS FOR EFFECT.—These were a very fine feature in the annex, and were so grouped by Mr. Findlay that the effect as a part of the vista opened up from either end was most interesting. The best group of 30 feet by 15 feet came from Messrs. R. P. Ker & Son, a remarkably good lot of stuff arranged with much artistic taste. Messrs. E. Cole & Sons were 2d. In the amateurs' class the dimensions of the group were 25 by 12 feet, and here Mr. J. Rylands was 1st,

Mr. Thomas Agnew 2d, and Mr. S. Schloss 3d. A good deal of artistic skill was shown in the arrangement of all. Mr. Schloss's group contained a number of most prize-worthy plants.

ALPINE AND HERACACEOUS PLANTS.—These are always good at Manchester, in the amateurs' class for thirty plants, J. Broome, Esq., Didsbury (Mr. T. Entwistle, gr.), was 1st with a very good lot, including *Orchis maculata* seedling *Verbascum*, in very pleasing variety; *Lychnis Haageana*, *Cypripedium parviflorum*, *Onosma laurica*, *Fuchsia*, *Adiantum*, &c. 2d, Mr. W. Brockbank, with a good lot also, among which were some striking novelties, such as *Verbascum Malcolmei*, *Ranuncula pyrenica*, *Litosperrum prostratum*, *Campanula thyrsoidea*, *Orchis foliosa*, *Saviraga MacNabiana*, the *Edelweiss*, *Aconitum Napellus*, *Iberis gibraltra superba*, &c. In the nurserymen's class for groups of eight plants, Mr. W. Brownhill, Sale, was 1st with a fine lot, and Messrs. James Dickson and Sons, Chester, 2d. All these groups were of a very interesting and instructive character.

TABLE DECORATION.—Several tables, arranged for twelve persons, competed in this class. The best was set out by Mr. James Cypher, in his usual elegant style. Messrs. J. Williams, Holloway, 2d; and Messrs. Jones & Sons, Shrewsbury, 3d. All looked very fresh and nice, and they were a conspicuous feature of the show. The best three hand bouquets in the nurserymen's class came from Mr. James Mason, Manchester; Mr. J. Curtis, Birmingham; and Murray, being 2d. In the amateurs' class for two bouquets, Miss Johnson, Ascot, was 1st, and W. R. P. Gill, 2d.

MISCELLANEOUS GROUPS OF PLANTS, &c.—These comprised a collection of new and rare plants from Mr. B. S. Williams, Holloway, and the Liverpool Horticultural Company; hardy Rhododendrons from Mr. John Hayward; a group of Japanese Acers from Messrs. Standish & Co., Ascot; Rhododendrons from Messrs. J. W. G. and British Ferns from Messrs. T. W. G. & H. Stanfield, Sale. To all these was extra praise awarded. The Medal of the Society was awarded to Mr. S. Johnson, Ascot, for his ornamental flower vases.

FRUIT.—This was naturally enough somewhat restricted in quantity. The best eight dishes came from Mr. G. T. Miles, Wycombe Abbey, and consisted of Black Hamburg and Early Summer Frontignan Grapes, Lord Napier's Peaches, Grosse Mignonne Peaches, Melons, Figs, Strawberries, and Glass Cucumbers, 1st, Mr. J. H. Hutten Hall, Guisborough, with a very good lot; 2d, Lord Hill, Hawkstone. The best two bunches of black Grapes were splendid Hamburgs, from Mr. James Loudon, The Quinta Gardens, Chirk; Mr. Ackers, of Colington, being 2d in the same variety of bunch; 3d, Lord Hill, Hawkstone. The best white bunches of black Grapes were splendid Hamburgs, from Mr. James Loudon, The Quinta Gardens, Chirk; Mr. Ackers, of Colington, being 2d in the same variety of bunch; 3d, Mr. F. Leyland coming next with Foster's Seedling. The best two Pines came from Mr. T. R. Summer; the best single Pine from Mr. C. Bailey, Abergeynny; Mr. Summer being 2d. Of Strawberries in pots there were a great lot; Mr. Summer, and the best twelve, and Mr. J. Brown, Kenilworth, came 2d. Some good Mushrooms were shown by Mr. John T. Barber. A few Melons were staged, and to one of them a scarlet-fleshed variety, named Shelton Abbey Scarlet-flesh, sent by Mr. E. H. Ford, of the Shelton Abbey Estate, Ireland—a First-class Certificate of Merit was awarded.

TULIP SHOW.—On Saturday, the 27th ult., the annual exhibition of the Old National Tulip Society was held at the Botanical Gardens, Old Trafford, in connection with the great show. We were glad to notice a much neater arrangement of the flowers generally, and the use of bottles of almost every description, shape, and form, and the use of the dark glass, with a broad bottom and a thin neck, which, at the suggestion of Mr. Samuel Barlow, the President of the Society, have been obtained for the permanent use of exhibitors. The show lasts but one day, but it seems to have awakened a great amount of public interest. It was not nearly so large as usual, owing to excesses which have been mentioned by us; still there was a good representation of flowers on the whole, and some new exhibitors joined in the competition. The quality was fairly good, but the blooms had been subjected to a great change of temperature, the weather being so cold, and the plants got wet and the plants got wet to work, and when they began to throw up their flower-stalks it became very cold, which operated against a fine development of bloom. It has been a bad season for feathered flowers, as the petals were blighted, and the blightishes on these spoil the flowers more for exhibition purposes than in the case of the feathered blooms.

In the cup class for twelve blooms, Mr. Samuel Barlow, Stakehill House, was placed 1st, with a stand containing a few flowers of excellent quality, such as Heroine, feathered rose; Adonis, flamed byblumen; Sir Joseph Paxton, flamed bizarre; David Jackson, flamed byblumen; Dr. Hardy, flamed bizarre; Annie McGregor, flamed rose; and Talsiman, flamed byblumen—a good bloom in some respects, but too densely colored. 2d, Mr. D. Woolley, Stockport, with Madame St. Arnaud, feathered rose, very fine; Mabel, ditto; Sir J. Paxton, feathered bizarre; Sovereign, ditto; and Dr. Hardy, flamed bizarre. The other blooms were too small generally. Mr. H. Travis, Royton, and Mr. W. Sharpley, Wakefield, were 3d and 4th. In the class for six flowers, in which one feathered and one flamed flower of each division has to be shown, Mr. John Parry, Wakefield, was 1st, with Sir J. Paxton, feathered bizarre, very fine; Charles, feathered rose, flamed bizarre; and Dr. Hardy, flamed byblumen, as his best flowers. 2d, Mr. Samuel Barlow, with a magnificent Talsiman, flamed byblumen; Storer's No 4,

feathered bizarre; Mrs. Jackson, feathered byblumen, with a very rich black feathering on a pure white ground, &c.; 3d, Mrs. Masterpiece, feathered bizarre; Mabel, flamed rose, being good. In the class for four blooms Mr. H. Housley, Stockport, who was in good form, was 1st, with Royal Sovereign, feathered bizarre; Madame St. Arnaud, flamed rose; Heroine, feathered rose; Sir J. Paxton, flamed bizarre; Duchess of Sutherland, flamed bizarre; and Violet Admirable, feathered byblumen. 2d, Mr. E. H. Schofield, who staged a very fine Masterpiece, feathered bizarre. Mr. H. Housley had the best three feathered Tulips, staging Royal Sovereign, bizarre; Madame St. Arnaud, flamed rose; and Heroine, feathered rose. Thomas Parkinson coming next with Adonis, byblumen; Heroine, rose; and Royal Sovereign, bizarre. The best three flamed flowers were Trionphe Royale, rose; Sir J. Paxton, bizarre; and Princess Royal, byblumen. Mr. J. Thornton came 2d, with a very fine Sir J. Paxton; bizarre; Lady Constance, Gordon, rose; and Duchess of Sutherland, byblumen. 3d, Mr. H. Housley.

Passing over the classes for pairs, and also for single flowers, for which there were several classes, we come to the breeders, which are always most attractive because of the rich self-colours. The best six came from Mr. Barlow, breeders being always a strong point with this well-known grower. They were excellent flowers of Excelador and Sir J. Paxton, bizarre; Martin's 117 and seedling, byblumen; Lucretia and Lady Grosvenor, rose; Mrs. J. H. Housley, feathered rose; Sir J. Paxton, bizarre; Industry and Mabel, rose; Alice Gray and Surpass le Grand, byblumen. 3d, Mr. B. Simonite with five good seedlings, and Mr. Barlow, rose. Mr. B. Simonite had the best three, staging seedlings of good promise; Mr. Housley being 2d, and Mr. S. Barlow 3d.

In the three classes for single flowers, and also for a great many flowers were staged, and then it fell to the lot of the judges to select the premier breeder, that being Sir J. Paxton, shown by Mr. John Wood, a variety that almost invariably attains this position. The premier breeder of the feathered flower was awarded to Mr. Parkinson in his stand in the class for two Tulips, one feathered and one flamed; and the premier feathered flower, Royal Sovereign, shown by Mr. H. Housley in his stand of six blooms: a fine feathered bizarre named Earl Lilford, shown by Mr. B. Sharpley, ran Royal Sovereign very hard for this position.

Bath and West of England Society's Show at Cardiff.—The show of the Bath and West of England Agricultural Society was opened in Cardiff on Monday, the 26th inst., under the most favourable auspices. Cuthbert Parker, Esq., M.P., presided, by the permission of the Marquis of Bute, is one of the finest in the kingdom for the purpose, being close to the main thoroughfares of the town, and having other advantages not always available. The weather was all that could be desired, and the show was successful in many particulars. Horticultural buildings were sent by various firms. Mr. J. Crispin exhibited Hunt's patent automatic ventilation, and various forms of houses and frames were shown by Mr. W. Farham, Bath and London; Messrs. Light and Lacey, Birmingham; and Messrs. W. Richardson & Co., Darlington, and Wheeler, Nottingham. An attractive stand of garden pottery was exhibited by Mr. J. Matthews, Weston-super-Mare; and from Mr. C. D. Phillips, Newport. The mouthpiece, carried highly ornamental cast metal vases, painted a neat imitation of the original, and filled with plants. A local firm, Messrs. Cross Brothers, Cardiff, had rustic work in cork for summer-houses and *jardinieres*. A display of various mowing machines was also by this firm, and also Mr. W. G. Gardner, M.P. Mowers and reapers, Head & Jefferys, John Williams & Sons, Cardiff; Messrs. J. Crowley & Co., Sheffield. Extensive displays of seeds and roots were made by Messrs. Sutton, Reading; Webb & Sons, Stourbridge; and J. C. Wheeler & Sons, Gloucester; while the patronage of the public was solicited for bone and other manures by Mr. H. J. Proctor, Bristol; the Avon Manure Company, also from Bristol; Adams' Chemical Manure Company; and Messrs. W. & H. M. Goulding, Dublin and Cork.

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cut blooms of Tea Roses, Pansies, Pyrethrums, Carnations, tuberos Begonias, and Clematis; also nice batches of Gloxinias, tuberos Begonias, &c., in pots.

Exhibits contributing to the display in the horticultural part were sent in by Messrs. R. Smith & Co., Worcester, who had the rockwork; Messrs. W. & A. Wood had plants and cut blooms of Clematis; by Messrs. Kellway & Son, Langport, who showed attractive stands of Pyrethrums, Tuberos Begonias were exhibited by Messrs. J. Laing & Co., Forest Hill; by Messrs. H. Hooper, & Sons; Pelargoniums by Mr. W. Treseder, Cardiff, who also supplied the bedding plants used in the tent. Extensive exhibits were also sent in by many of the local nobility and gentry, amongst which may be mentioned a general collection of plants from Cardiff Castle (gr. by Mr. Pettigrew), W. C. Laird, Esq. (gr. by Mr. Woodward), had varied exhibits, very prominent being two immense plants of Adiantum farleyense, Palms and lofty Tree Ferns, were exhibited from Singleton, Swansea (gr. by Mr. Harris); Pelargoniums and pot Roses came from C. Stallybrass, Esq. (gr. by Mr. J. Parker). Large specimen stove plants from J. Howell, Esq. (gr. by Mr. J. Hennings), greatly assisted the effect of the arrangement; a grand plant of Anthurium Scherzerianum giganteum was finely bloomed, the individual spathe being grand in colour and size. A very good Enecephalartos was exhibited, but with a name appended, indeed, at noon on the 2nd, the very few cuttings were not up owing to some mistake about sending them on. Other exhibitors, as far as we could make out, were J. Fisher, Esq. (gr. by Mr. W. May), Colonel Tuberville (gr. by Mr. J. Hawkins), Colonel Page (gr. by Mr. T. Armitage), Lord Teignmouth (gr. by Mr. W. Treseder, Cardiff), R. Crosskill, C. Thomson, Esq. (gr. by Mr. Ryder), E. Fowler, Esq. (gr. by Mr. C. Parker).

Reading Horticultural, May 18.—This was one of the most successful exhibitions the Society has ever held, as the show tent was filled to overflowing, and the fruit and vegetables had to be staged in an annex; the quality generally was good, the weather fine in the extreme, and the attendance large.

As is usual at the spring show, stove and greenhouse plants were the chief feature. Mr. E. Tudgy, gr. to J. H. G. Williams, Esq., Henwick Grange, was 1st, with an excellent collection of twelve plants. Mr. W. Lees, gr. to Mrs. Marsland, The Wilderness, the champion among the leaf growers, had to take 2d place, with several very good plants. Mr. E. M. 2d, gr. to H. J. Simonds, Esq., Crossingham, being 3d. In the class for six varieties Mr. J. F. Mould, nurseryman, Pursey, was 1st; and Mr. Mortimer, gr. to Major Storer, Wareley Park, 2d. There was also an amateurs' class for four plants, in which Mr. Hope, gr. to the Hon. K. Boyle, Furley, was the exhibitor.

The six Roses in pots shown by Mr. C. Turner, Slough, were a real surprise to the Reading people; they were of medium size and finely grown and flowered. Mr. Mould was 2d. Mr. Pound, gr. to G. May, jun., Esq., Cavesham, was 1st with three Orchids, which were very nice examples. The nine show Pelargoniums shown by Mr. Ashby, gr. to W. Fauning, Esq., Whitechurch, fully maintained the reputation of this exhibitor as a successful grower; Mr. Mortimer being 2d. Mr. Burgess, Esq., Colonel Clayton, was the only exhibitor of six varieties of Pelargoniums, staging small but clean and neat specimens. Gloxinias were splendidly grown and flowered, quite large, healthy specimens of fine quality, much in advance of what is usually seen. Messrs. Mortimer and Hope were severally 1st and 2d. Calceolarias, represented by Mrs. Bezzant, gr. to J. Simonds, Esq., were specially good. Mr. Burgess being 1st, and Mr. Lockie, gr. to Lord O. Fitzgerald, Windsor, 2d. A new class, for a group of Rhododendrons, brought two excellent groups, both a little too much crowded. Mr. Turton, gr. to J. Hargreaves, Esq., Ewelme, was 1st, with six varieties, only a little in advance of Mr. Ashby, who was 2d. Groups of plants arranged for effect were in the usual stereotyped form: Mr. Lees was 1st, and Mr. Bennett 2d. In the smaller group Mr. Pound was 1st, and Mr. Summer 2d.

In the class for four plants Mr. Tudgy staged some capital examples, Mr. Bennett being 2d. In the class for six foliage plants Mr. Tudgy was also well ahead, Mr. Mortimer came 2d, and Mr. Bezzant, gr. to H. J. Simonds, Esq., Cavesham, 3d. In the class for four plants Mr. Hope was 1st, staging a very fine plant of *Phlox paniculata* in flower. Mr. Bennett was 2d, and was in excellent condition generally, the best six coming from Mr. Mortimer, beating Mr. Tudgy, who had to be content with the 2d place. Mr. Bennett had the best four, Mr. Hope being 2d. Better plants of *Saxifraga hypnifolia* could scarcely have been shown. They are well done in the Reading district. Mr. Mortimer was as usual 1st, followed closely by Mr. Hope, who was placed 2d.

Miscellaneous exhibits included some plants of Roses in pots from Mr. Turner, some fine blooms of *Marshall Niel* Rose from Mr. Franter, Assenden, and a charming wreath of white flowers from Mr. G. Phippen, nurseryman, Reading.

Cut flowers were represented by Roses, some fine blooms coming from Mr. Turner and Mr. Lees; by excellent Pansies, both show and fancy; and by cut blooms of stove and greenhouse plants. Mr. Phippen had the best bridal bouquet.

The fruit classes were fairly well filled for the time of year. In the class for two bunches of black Grapes Mr. Ashby was 1st, with good Black Hamburgs; Mr. Atkins, The Gardens, Lockinge, being 2d, with Madrescourt Court. In the class for two bunches of white Grapes, Mr. Atkins was 1st, with Foster's Seedling, in excellent form; Mr. Ashby taking 2d place, with Buckland Sweetwater. Strawberries were very good. Some nice Peaches were shown by Mr. Ashby; and Mr. Howe,

Brisbane Park, had a good dish of Figs. Mr. Atkins staged some new Melons, to one of which, named Lockinge Conqueror, a scarlet-fleshed sort, a First-class Certificate was awarded. In the vegetable classes there was a good competition. A sufficient distinction between Cauliflowers and Broccoli is not made by some exhibitors. Early Potatoes were very good, Porter's Excelsior and Ashleaf taking the highest honours. A capital representative collection of vegetables, set up by Mr. Lockie, won the 1st prize in the miscellaneous class. For the special prizes offered by Messrs. Sutton & Sons for the best brace of Cucumbers, Mr. Lockie was 1st, with a pretty pair of Model, a selection from Telegraph; Mr. Miles coming next, with Improved Telegraph; and Mr. Mortimer 3d, with Model, all very good indeed.

Florists' Flowers.

THE TULIP.—The early flowering Tulips are now being very extensively grown both in public and private gardens; and this year they have been brought into more than usual prominence as decorative subjects for the greenhouse and the flower garden, and well adapted they are for either purpose. It is very singular that the late flowering section are to be seen nowhere in the South of England. We have a very good bed of choice sorts now in flower, and considering that the weather has been anything but favourable, they form a striking feature in the garden, many of the flowers being of the largest size and in their best character. One very interesting part of the Tulip fancier's pleasures is the anticipation of the self-flowers breaking into flame or feather. Mr. Barlow, of Stakehill House, with his wonted liberality was good enough to send me numerous examples of his best breeders four years ago, and during the intervening years most of them have become rectified flowers. The matching process begins as soon as the plants are above the ground; a self that is a "breeder" has the foliage of a deep glaucous green. If the flower has broken into its flamed or feathered character, the foliage will show it by being also marked with an indistinct variegation, and this will be observed in its very earliest stages. Although our plants were late in appearing above ground this year they are now fully in flower, and in looking over the collection the following are the best and most striking:—

BIZARRÉS.—George Hayward (Lawrence), finest in the feathered state, but it is also flamed. Dr. Hardy (Storer) we have no feathered form of this, but it is beautifully flamed with red. Another red variety, much like it, is also fine, Everard (Bowler); Masterpiece (Slater), flamed, but most refined as a feather; the colour is almost black on a rich golden-yellow; Sir Joseph Paxton (Willison) is really superb as a flamed flower, the marking being very regular. We do not have it in the feathered state, but it is also seen feathered.

BYLREMENS.—In this section I have been much interested in two flowers Mr. Barlow sent, viz., Mrs. Jackson and David Jackson; the first-named is a rather small flower, but very pure white with black flame. When David Jackson flowered for the first time it was in the breeder state, and the darkest I ever saw; they are now all broken, with the base of the cup pure white, the flower being heavily flamed with black. Talsiman (hardy) is of the same type, and is also finely flamed with black on a white ground. Alexander Magnus is a large, finely formed, feathered Tulip. Duchess of Sutherland (Walker) still forms a conspicuous ornament in the bed. Friar Tuck (Slater) is our largest flower this year, and is fine in the flamed and feathered state.

ROSES.—These are, I think, the most pleasing of all the sections. The different shades of rose and scarlet in flame or feather on a pure white ground seldom fails to please even those who are not up in the points not trained to criticise the standard of excellence. Industry (Lea), for instance, has now preeminence as the best feathered rose in any class. It is best described as carmine-scarlet on a pure white ground. Heroine, although an old flower, is the best on our bed at the present; the white is so pure, and the deep rose flame is very regularly disposed, flowers very large. Annie McGregor is very pretty, and Sarah Healdy is now in its best flamed state. Lady Sefton, dwarf plant, and very pretty flower. We have also Pretty Jane, Mabel, and Charmer feathered and flamed; they are very similar in character, and of a rich deep rose on pure white ground. *F. Douglas*,



The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 31, 1882.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.			HYGROMETRIC DEVIATIONS FROM GLAIBER'S TABLE 6th EDITION.	WIND.	RAINFALL.		
	Mean Reading Reduced to 32° Fahr.	Difference from Average of 10 years.	Highest.	Lowest.	Range.					
May 25	In.	10.	60.5	58.0	62.5	2.0	4.0	83	S. S.E.	0.37
26	29.72	-0.05	63.0	61.0	66.2	3.0	14.0	74	S.	0.02
27	29.75	+0.02	60.0	51.5	58.7	4.5	3.8	60	S.S.W.	0.00
28	29.07	+0.20	61.0	50.5	59.4	4.5	3.1	61	S.W.	0.00
29	30.14	+0.31	61.0	50.1	60.4	4.6	3.5	60	S.W.	0.00
30	30.10	+0.31	61.0	53.0	63.3	4.4	4.7	61	N. E.	0.00
31	30.12	+0.33	60.0	48.0	62.5	4.5	4.6	68	N.E.	0.00
Mean	29.90	+0.12	59.8	50.6	57.5	4.1	4.8	67	S.W.	0.39

- May 25.—A dull rainy day till 3 P.M., alternately clear and cloudy at night.
- 26.—A fine day, alternately clear and cloudy. Fine night, slight rain.
- 27.—A very fine bright day, sun shining brightly. Fine cold night.
- 28.—Very fine day. Very fine clear night.
- 29.—A very fine bright warm day, sun shining brightly. Fine calm warm night.
- 30.—A very fine day till 2 P.M., then cloudy and dull till 3 P.M. Fine night.
- 31.—A very fine bright warm day, alternately clear and cloudy. Fine night.

LONDON: Atmospheric Pressure.—During the week ending May 27 the reading of the barometer at the level of the sea increased from 29.87 inches at the beginning of the week to 29.96 inches by midnight on the 21st, decreased to 29.52 inches by midnight on the 23d, increased to 29.55 inches by 9 A.M. on the 24th, decreased to 29.48 inches by 3 P.M. on the 24th, increased to 29.53 inches by midnight on the same day, decreased to 29.36 inches by 9 A.M. on the 25th, and was 30.29 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.76 inches, being 0.49 inch lower than last week, and 0.18 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 75° on the 22d. On the 23d the highest temperature was 56°. The mean of the seven high day temperatures was 59°.

The lowest temperature in the shade in the week was 48°, on the 21st and 22d; on the 23d the lowest temperature was 53°. The mean of the seven lowest temperatures was 50°.

The greatest range of temperature in one day was 27°, on the 22d; the smallest was 6°.

The mean of the seven daily ranges was 16°.

The mean temperatures were, on the 21st, 56°; on the 22d, 61°; on the 23d, 58°; on the 24th, 56°; on the 25th, 52°; on the 26th, 56°; on the 27th, 58°; 1/2 of these those of the 21st, 22d, 23d, 24th, 26th, and 27th were above their averages by 3°, 7°, 1°, 2°, 1°, 9°, and 3° respectively; and that of the 25th was below its average by 2°.

The mean temperature of the air for the week was 57°.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 147° on the 27th; the highest, on the 25th, was 77°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 40° on the 21st. The mean of the seven readings was 44°.

Rain.—Rain fell on six days to the amount of 0.54 inch, of which 0.37 inch fell on the 25th.

ENGLAND: Temperature.—During the week ending May 27 the highest temperatures were 75° at Cambridge, 75° at Blackheath, and 73° at Sunderland. The highest temperature at Plymouth was 65°; at Hull 66°, and at Bristol 67°.

The general mean was 69°.

The lowest temperatures in the week were 38° at Cambridge and Hull, and 40° at Leicester.

lowest temperature at Brighton was 50°, at Plymouth 49°, and at Blackheath 48°. The general mean was 43°.7.

The greatest ranges of temperature in the week were 37°.7 at Cambridge, 36°.4 at Nottingham, and 30°. at Leicester. The least ranges were 16°.8 at Plymouth, 19°.8 at Brighton, and 20° at Truro. The general mean was 26°.2.

The mean of the seven high day temperatures was highest at Cambridge, 71°, at Sunderland 67°.4, and at Blackheath and Nottingham 67°; and was lowest at Plymouth, 62°.5, at Truro 63°, and at Bolton 63°.5. The general mean was 65°.2.

The mean of the seven lowest night temperatures was highest at Truro, 52°. at Plymouth and Brighton 51°.7; and was lowest at Cambridge, 45°.1, at Sunderland 46°, and at Nottingham 46°.1. The general mean was 48°.2.

The mean daily range was greatest at Cambridge, 25°.9, at Sunderland 21°.4, and at Nottingham 20°.9; and was least at Plymouth, 16°.8, at Truro 11°, and at Brighton 13°.9. The general mean was 17°.

The mean temperature for the week was highest at Blackheath, 57°.3, at Brighton 57°, and at Cambridge 56°.4; and was lowest at Bolton, 52°.3, and at Wolverhampton and Hull 53°.5. The general mean was 55°.

Rain.—The largest falls were 2.42 inches at Truro, 2.05 inch at Wolverhampton, and 1.25 inch at Bristol. The least falls were .51 inch at Liverpool, 0.53 inch at Bradford, and 0.54 inch at Blackheath. The general mean fall was .692 inch. Rain fell on every day in the week at Truro and Wolverhampton, and on five or six days at other stations.

SCOTLAND: Temperature.—During the week ending May 27 the highest temperature was 68°, at Paisley; at Edinburgh the highest temperature was 61°. The general mean was 65°.3.

The lowest temperature in the week was 38°, at Leith; at Edinburgh the lowest temperature was 42°.5. The general mean was 49°.

The mean temperature for the week was highest at Paisley, 54°.4; and lowest at Aberdeen, 51°.5. The general mean was 53°.1.

Rain.—The largest fall was 2.10 inches at Leith; the smallest was 0.32 inch at Edinburgh. The general average fall was 0.84 inch.

JAMES GLAISHER, F.R.S.

PLANT PORTRAITS.

CALYCANTHUS FLORIDUS, *Arboretum Segesianum*, t. xxiv.—A variety of the American shrub known in English gardens as the Carolina Allspice, and said to be harder than the type.

CRATEGUS COCCINEA var. CORDATA, *Arboret. Segesianum*, t. 23.—A medium-sized tree with greyish bark, scamy spines, cordate oblong dentate sublobed leaves and large oblong obtuse edible scarlet fruit. North America.

CRATEGUS LEOUPELLOS, Mönch, *Arboret. Segesianum*, *Icon*, t. 22.—A medium-sized tree, with spineless grey bark, ovate acute leaves, tapering at the base, margin toothed; corymb many flowered, fruits oval, scarlet, about ½ inch long. Eastern States of North America.

FORSYTHIAS.—The gayest of gay flowering shrubs at this season are the Forsythias. *F. suspensa* and *F. viridissima* are the two most commonly seen; the first has slender branches and a straggling habit, but with larger, clearer yellow flowers than the second, which is of more bushy habit. Both are very free flowering, quite hardy, and should be included in every garden.

PIEROCARYA FRAXINIFOLIA, *Arboret. Segesianum*, t. xxi.—A Caucasian tree with unequally pinnate leaves, oblong lanceolate serrulate leaflets, longest near the base, male and female catkins elongate, the fruits about the size of a pea with large oblong wings.

PIEROCARYA SPACHIANA, *Arboretum Segesianum*, t. xx.—A tree of medium height, with the habit of a Walnut, with unequally pinnate leaves, the leaflets largest at the base of lanceolate serrate male and female catkins on the same tree, slender elongated fruits arranged along a long axis, each about the size of a small hazel-nut, sub-globose, woody, with a conical style and two membranous roundish wings.

PIEROCARYA STENOPIERA, *Arboretum Segesianum*, t. lxx.—A lofty Chinese tree, with unequally pinnate foliage, the pinnæ in six or seven pairs, oblong obtuse serrulate, those in the centre of each leaf longish, rachis of leaf winged, male catkins relatively short, female catkins long; fruit the size of a large pea, with two long membranous wings like the keys of a Maple.

Obituary.

We regret to learn from the *Kelso Chronicle* of the death, on May 25, aged sixty-two years, of Mr. GEORGE WEMYSS, gardener and estate superintendent to Sir G. H. Scott Douglas, Bart., at Springwood Park, Kelso, in whose service he had been for thirty years. The deceased, who was a native of Heiton, commenced his gardening career at Floors Castle, where he received a capital training under Mr. Craig Pillans. He was from his institution a prominent worker of the Kelso Horticultural Society, and was the founder, and as long as it lasted the moving spirit, of a useful club, whose object was to induce gardeners to meet together, and bring what of their produce they thought fit to show to their fellow-workers. His personal aid, and the benefit of his experience, were always at the disposal of horticultural societies, at which he was a frequent and valued judge. Many years ago he contributed extensively to horticultural periodicals, as also to journals on forestry and agriculture. An evidence of Mr. Wemyss' high professional qualifications is found in his appointment by the Kelso Analytical Association as their official tester of seeds—which is one of the objects which the Association was formed to undertake. Mr. Wemyss had a competent knowledge of meteorology, and was a careful observer and recorder.

—A Lisbon correspondent writes:—I have the sad duty to ask you to announce in the *Gardeners' Chronicle* the death, on the morning of May 24, of Mr. JAMES N. WILSON, of the firm of Wilson & Co., fruit merchants, Covent Garden, London. He has for many years successfully carried out the cultivation of fruits and vegetables on English principles in this country, and his loss is severely felt by his friends here, both English and Portuguese.

Answers to Correspondents.

CARNATION THE GOVERNOR: H. J. Cross & Steer. Your white Carnation, The Governor, has a good pod, and is a very good flower, but its value depends much upon the habit of the plant, of which we know nothing.

CUTTINGS LAWSONIANA: J. H. The best time to cut off the tops would be in the spring, just before the trees commence to make their season's growth.

DEER DROPPINGS: H. Ellridge. Deer-manure, liquid or solid, is only injurious to vegetation, like any other animal, when it is applied too liberally, or at a time when the plant cannot use it. In a well-diluted liquid form it is one of those safe and mild stimulants that any one can be entrusted to use, and with the certainty of doing good.

DIGITALIS: H. J. R., Florence.—Such information is never infrequent, and have often been figured in our columns. We take it that something checks the growth in length at the tip of the inflorescence; as a consequence, several flowers run one into the other, and ultimately form a large erect cup, as in your specimen. The change must, of course, take place when the inflorescence is in an embryonic condition.

ENIGMATIC PLANTS: B. Iris pumila makes an excellent edging, and the flowers in spring are very attractive. The common Thrift is also excellent, and in places where it is likely to succeed nothing is more beautiful than *Gentiana acialis*.

ERRATUM.—At p. 703, col. c, sixth line from the bottom, for "admitted" read "omitted".

FALSE ADVERTISEMENTS: W. Howd. Unless you state the exact circumstances of the case we cannot give you an answer.

GALVANISED WIRE: C. L. P. Painting the wires is an essential remedy.

MAKING-UP SPECIMENS: Dabbie. Some judges, if they found that the specimens had been made up even before the season's growth commenced, would object to them, but others would not. In the case of all plants that admit of subdivision the practice of making up specimens will be carried out by some exhibitors, and it will done if they are difficult to be dealt with by judges; for our own part, we strongly object to it, but we think the schedule should contain some statement as to the point to guide exhibitors and judges.

MARCHEL NIEL ROSE: R. K. P. Marchel Niel, either on its own roots or grafted, is a short-lived plant, almost invariably forming a large excrescence just above the union of the graft, or just above the surface of the ground in the case of those on their own roots, which brings about their gradual destruction. If examined your plant will probably be found similarly affected. To keep Marchel Niel going young plants must be put in from time to time.

MONSTERA DELICIOSA: H. Louth. Keep up as much heat as you have found to suit the plant up to this time, but keep the atmosphere a little drier. The whole flower-spike is turned into one succulent fruit,

beneath the thick rind of which, however, are a number of very minute needle-like crystals which prick the tongue. To avoid this the best plan is to take a quill, or a glass tube, thrust it beneath the rind, and then suck up the juice, which, if the fruit be thoroughly ripe, is of a delicious flavour.

NAMES OF PLANTS: H. F. Ross. Your *Dendrobium Parishii* is not *rhodopetaleum*, but a pallid variety only. Please send a bulb and a leaf, both old and dead ones of the Era. If you think it more convenient, let them go first to London. *H. G. Koch*, f. — *A. V. Z.* Probably the Fallum (Oak) a hybrid between the Turkey and Cork Oaks, but we cannot say for certain from such a small specimen. *F. W. R.* 1, *Reseda lutea*; 2, *Fabiana umbriata*; 3, *Asclepias curassavica*; 4, *Wegelea rosea*; 5, an evergreen Oak, like the *Quercus* of the Fallum or the Luteo, which we do not recognise from the specimen sent. — *R. C. Bell*, *Calycauthus floridus*, the Carolina Allspice. — *A. D.* 1, *Gemisa anglica*; 2, *Pedicularis silvatica*; 3, *Viola palustris*; 4, *Potamogeton natans*; 5, *Potamogeton prolapsus*; 6, *Potamogeton lucens*; 7, *Allium unguicula*. Next time please pay your letter. — *R. C. B.* A. *Antennaria dioica*, male; B. *A. dioica*, female. — *H. Moore*, *Olearia nuda*. — *H. King*, *Berberis Wallichiana*. — *A Constant Sub.* 1, *Nicotiana glauca*; 2, *Callistemon lanceolatus*. *T. F.* *Heuchera americana*, and *Salvia nemoralis* plants. — *J. G.* *Junonia confusum*; 2, *Streptocarpus Gardenii*; 3, *Junonia confusa* (syn. *Cynthera Pohlmanii*). — *S. G. L.* *Hura crepitans* (the Sand-box tree). — *C. E. F.* *Serapias pseudo-cordigera*. — *C. D.* *Al. Kirp.* Not the *Yucca Asplenium*, but a form of the common *Laurus thalictaria*.

PEAT MOSS: *Gambie*. The peatmoss best becomes when wet little better than sponge, and is quite useless for plant culture except as drainage. If used as bedding in the stables or piggeries it acts as an absorbent, and then becomes valuable as a manure for garden or lawn.

SEEDLING PANSETTES: *Domick & Laird*. The seedling plants favoured are remarkable for their great size and rich and well-varied colouring, and are mostly of good form also.

SMALL GREENHOUSES: *Knoxbullunder*. We would advise you, if you have no experience in plant growing, to commence with such things as greenhouse Ferns, which may be mixed with advantage with the finer British species. To these you may add greenhouse Palms, and any other choice plants in pots. Just as will stand a greenhouse temperature. Then by degrees you can try your hand on the summer cultivation of *Pelargonium*, *Fuchsia*, *Balsam*, *Musk*, and such like soft-wooded things, as your fancy may dictate. The best shading would be "Summer Cloud" put on now and washed off in the autumn.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editor," and not to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

COMMUNICATIONS RECEIVED.—F. R. K.—F. R. K.—H. J. R., Florence.—Prof. Beighton (two weeks). R. D.—G. C. M.—B. H. L.—A. de C.—W. H.—D.—T. B.—C. M.—E. S. W.—J. F.—W. S.—J.—S.—J.—D.—T. B.—W. K.—Henwick.

Markets.

COVENT GARDEN, June 1.

Business has been quieter, owing to the holidays. Spring Prices are distinctly in the air. The first of Michael's reaching us in inferior quantities. The first outdoor Strawberries are to hand this week from the West of England. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.
s. d. s. d.
Figs, per dozen . . . 8 0 0 Melons, each . . . 3 0 5 0
Gooseberry, green, . . . Peaches, per dozen . 12 0 20 0
Raspberries, . . . 4 0 4 5 Pine-apples, St. Michael's, each . . . 4 0 10 0
Grapes, per lb. . . 2 0 0 0 Strawberries, per lb. 2 0 6 0
Kent Cobs, p 100 lb . . . Lemons, per 100 . . . 5 0 7 0

VEGETABLES.—AVERAGE RETAIL PRICES.
s. d. s. d.
Artichokes, Globe, . . . 3 0 6 0
per doz. . . 3 0 6 0
Asparagus, English, . . . 1 0 0 0
normal, per bun. . . 5 0 0 0
per score . . . 1 6 0 0
Spinage, per bun. 1 0 0 0
Beans, French, Eng- . . . 1 0 2 0
lish grown, p 100 lb . 2 6 2 6
Beet, per doz. . . 1 0 0 0
Cabbages, per doz. . . 1 0 0 0
English grown, p 100 lb . 1 0 0 0
French, per bun. 1 0 0 0
Cauldflowers, Eng- . . . 1 0 0 0
lish, dozen . . . 3 0 6 0
Celery, per bundle . . . 1 0 0 0
Cucumbers, each . . . 6 0 1 0
Endive, per doz. . . 2 0 0 0

Potatoes, old Regents, 100 lb; Magnum, 10 lb to 9 lb; Victoria, 100 lb to 12 lb; Jersey Royal, 10 lb to 12 lb; do. round, 12 lb; Malta, 12 lb to 12 lb; Lisbon, 20 lb to 12 lb.

CUT FLOWERS—AVERAGE WHOLESALE PRICES.

Table with 3 columns: Flower name, Quantity, Price. Includes Anemone, Arabis, Azzalea, Calceolaria, Carnations, etc.

PLANTS IN POTS—AVERAGE WHOLESALE PRICES.

Table with 3 columns: Plant name, Quantity, Price. Includes Arealis, Arabis, Arbutus, Begonia, etc.

SEEDS.

LONDON: May 21.—Messrs. J. Shaw & Sons, of 371 Mark Lane, write that the seed market to-day presented quite a holiday character, and the business done was as nearly nil as possible.

CORN.

Monday being a Bank Holiday, there was no business done at Mark Lane.—On Wednesday but little English Wheat was on offer; good red qualities were steady.

CATTLE.

At Copenhagen Fields on Monday fair supplies in the best market met a rather irregular sale, from previous rates to occasionally rather less money.

HAY.

Tuesday's Whitechapel Market report states that prices were steady, with moderate supplies, but the trade was dull.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies continue good and the trade quiet.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE. 3 lb per bushel; 100 for 20; truck (close about 6 tons), 30s; 4 bushel bags, 4s each.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe.

COCOA-NUT FIBRE REFUSE, the best for all purposes (all fresh) is supplied to the Royal Horticultural Society and principal Nurseries in England.

COCOA-NUT FIBRE REFUSE, pure only, 4 bushel bag, 15s; 12 bags, 165s; 30 bags, 435s; sent to all parts.

LOAM, splendid Yellow Fibrous, 15s, 6d per ton. Good useful brownPEAT, 22s, 6d per ton.

FIRST-CLASS KENTISH PEAT FOR SALE.—Ten cubic yards, £4. 15 cubic yards, £6.

12-oz. Sample Packets, free by post, 12 stamps. FIBROUS PEAT FOR ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

Thomson's Vine and Plant Manure. Manufactured and Sold by THE LIVERPOOL HORTICULTURAL COMPANY.

All this Manure used to produce the splendid Grapes grown at the Twced Vineyard, Clovenfords.

Full particulars on application. The Trade supplied.

All Letters to be addressed to THE MANAGER, The Vineyard and Nursery, Garston, near Liverpool.

WEEDES, HOW TO DESTROY THEM. Use WILKIN'S celebrated WEEED KILLER, 4 gallons of which, sufficient to make 100 gallons when mixed with cold water.

ROLL TOBACCO PAPER CLOTH, and FIBRE for Fumigating.

The best and strongest it is possible to obtain. 7 lbs, 4s, 6d; 14 lbs, 7s, 6d; 28 lbs, 12s, 6d.

DARLINGTON BROS., Frederick Street, Chatham. Post-office Orders and Cheques, Harburgton Bk., Chatham.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1850, against Rod-sucker, Mildew, Thrush, Greyness, and other Blights.

AMERICAN BLIGHT ON APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the latter into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d and 1s each.

DENNY'S Unrivalled ROLL PAPER and CLOTH, as supplied to over 200 Nurseries, 14 lb, 9s; 28 lb, 15s; 56 lb, 27s; 70 lb, 3s.

ARCHANGEL and ST. PETERSBURG NETTING, SACKS, FIBRE BAGS and SACKS, NETTING and SHADING, &c.

MARQUEES and TENTS, SECOND-HAND GOVERNMENT TENTS, 12 feet 19 inch, complete, 35s, suitable for the Garden, Cricket Clubs, &c.

Raffia—Raffia—Raffia. C. E. OSMAN, 14, Windsor Street, Bishops-gate, London, E.C., has just received a consignment of fine quality. Price very moderate.

ARCHANGEL and PETERSBURG MAT MERCHANTS and IMPORTERS.—All the usual kinds of reduced rates. Sacks and Scaffolding and second-hand, of every description.

PROTECTION for Flowers, Fruit Trees, and Plants.—"HIFANS," 20 seeds in each box, 3s, 6d; 120 seeds, 6s, 6d.

Under the Patronage of the Queen. J. SMITH'S IMPERISHABLE STRATFORD LABELS.



The above Labels are made of a White Mat, with RAISED BLACK-FACED LETTERS.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.

TANNED NETTING, for protecting the above from Frost, Blight, Birds, &c. 2 yards wide, 2d per yard, or 100 yards 20s.

NEW TANNED NETTING, suited for any of the above purposes, also a Fence for Eggs, 2 1/2 yards wide, 1/2 per yard.

Protection for Fruit and Flowers. GARDEN NETTING, 2 yards wide, 1 1/2 d; 4 yards wide, 3d per yard.

TANNED NETTING, from 1/2 yard to 2 yards wide, 1 1/2 per square yard, subject to a liberal discount on large quantities.

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NURSERYMEN'S COVERED PLANT VAN (large size), in excellent condition, for Sale, cheap.

HOSE HOSE HOSE. PATENT RED-RUBBER GARDEN HOSE.

Stand's severe tests of Government Departments, thus proving superiority of quality. Lasts for times as long as ordinary India-rubber Hose.

A correspondent writes:—'I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever.'

MERRYWEATHER & SONS. Manufacturers, 63, Long Acre, London, W.C.

FLOWER SHOW,
SOUTH KENSINGTON,
MAY 23 to JULY 5, 1882.

TWO SILVER MEDALS,
ONE BRONZE MEDAL,
SPECIAL CERTIFICATE OF MERIT,
AND THE
ONLY GOLD MEDAL
WERE AWARDED TO
J. J. THOMAS & CO.

For the Excellence of their Various Exhibits,

- VI.—
AVIARIES, for the Lawn.
AVIARIES, for the Drawing Room.
BIRD CAGES, in Great Variety.
ARCHWAYS, FLOWER STANDS.
ROSE TEMPLES.
TENTS and AWNINGS.
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GARDEN SEATS, TABLES.
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LAWN MOWERS.
WATER BARROWS.
GARDEN ENGINES.
POULTRY FENCING.
ESPALIER FENCING.
GALVANISED WIRE NETTING.

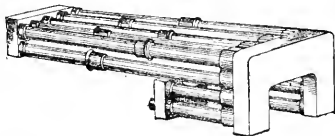
And a large assortment of Miscellaneous Horticultural Requisites.

Illustrated Catalogues on application.

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285 and 362, EDGWARE ROAD, LONDON, W

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Unequaled for Simplicity, Power, and Economy.
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As inferior imitations of this now well-known Boiler are being advertised and sold to the detriment of its reputation, C. P. K. & Co. beg to inform Gardeners and the Trade generally that Mr. ROCHFORD has assigned to them the sole and exclusive right for its Sale and Manufacture.

HOT WATER PIPES AND BOILERS

From our large and complete stock at wholesale prices.

CHARLES P. KINSELL & CO.,
IRONFOUNDERS, 24, BANKSIDE, LONDON, S. E.

THE NEW GARDEN HOSE, made upon the principle of the fire hose used by Captain James, C.B., Chief Officer of the Metropolitan Fire Brigade. It is much cheaper and far more durable than white rubber, or fabric hose. Private customers supplied at trade prices. Sample free. MERRYWEATHER AND SONS, 63, Long Acre, London, W.C. Works: Greenwich.



No Greenhouse Perfect without **TEBBS' UNIVERSAL FUMIGATOR**.—Will last for years, and is fast superseding all other apparatus or contrivance for the purpose. Price 3s. 6d.; large size, 7s. 6d. each; packing extra.

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SHANKS'S PATENT LAWN MOWERS.

The only Lawn Mower fitted with Double-edged Splate, which enables the Cutting Parts to Last Twice as long as in other Machines.

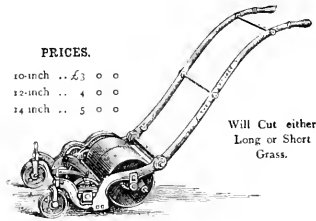
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PRICES.

To cut 10 inches wide	£3 10 0	To cut 19 inches wide	£8 0 0
To cut 12 inches wide	4 10 0	To cut 22 inches wide	8 10 0
To cut 14 inches wide	5 10 0	To cut 24 inches wide	9 0 0
To cut 16 inches wide	6 10 0		

"THE YANKEE" LAWN MOWER.

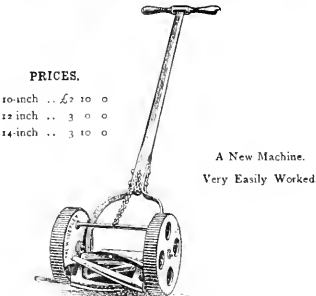


PRICES.

10-inch	£3 0 0
12-inch	4 0 0
14-inch	5 0 0

Will Cut either Long or Short Grass.

"THE WAVERLEY" LAWN MOWER.



PRICES.

10-inch	£2 10 0
12-inch	3 0 0
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A New Machine. Very Easily Worked.

ALEX. SHANKS & SON,
DENS IRONWORKS, ARROATH, FORFARSHIRE;
27, LEADENHALL STREET, LONDON, E.C.
Small Lawn Mowers, 6 in., 7 in., 8 in., 9 in., 10 in., 11 in., 12 in., 14 in., 16 in., 18 in., 20 in., 22 in., 24 in., 26 in., 28 in., 30 in., 32 in., 34 in., 36 in., 38 in., 40 in., 42 in., 44 in., 46 in., 48 in., 50 in., 52 in., 54 in., 56 in., 58 in., 60 in., 62 in., 64 in., 66 in., 68 in., 70 in., 72 in., 74 in., 76 in., 78 in., 80 in., 82 in., 84 in., 86 in., 88 in., 90 in., 92 in., 94 in., 96 in., 98 in., 100 in.
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LIFT AND FORCE PUMPS,

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HOT-WATER PIPES WITH INDIAN RUBBER JOINTS,

VALVES, GRATINGS, &c. &c.

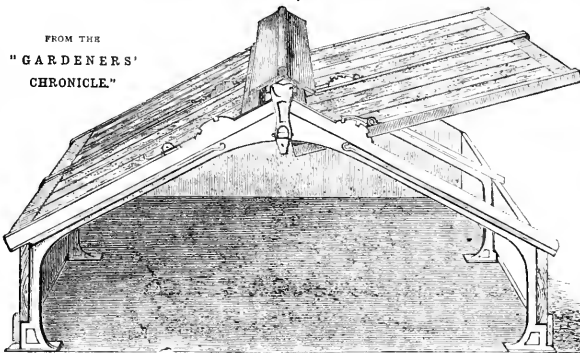
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THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edger Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Field*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have no doubt, become general." Price 50s.
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NEW IMPROVED FRAME, AWARDED Silver Medal by Royal Horticultural Society. See "*Gardener's Chronicle*," June 26.

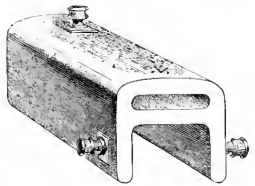
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Have the largest and most complete Stock in the Trade to choose from.



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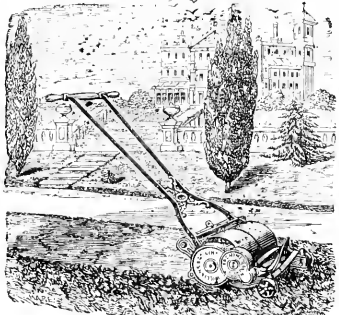
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Prices from Twenty-five Shillings. Delivered Carriage Free to all Railway Stations in Great Britain.

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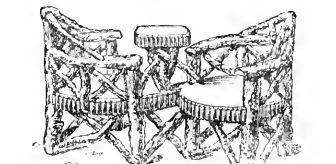
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This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the inventors, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale.

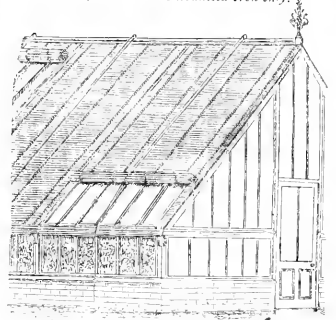
UNSOLICITED TESTIMONIAL. "Pierceland Park, June 21, 1876.—Sirs—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good varnish as the lot we had, which I candidly admit was the best we ever had.

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Prices, delivered to any station in England, also Dublin and Belfast. 2-light frame, 8 feet by 6 feet ... £ 11 0 0



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No. 2 size ... 8 ft. long ... 6 ft. wide ... £15 0 0 No. 3 size ... 12 ft. long ... 6 ft. wide ... £16 0 0 No. 4 size ... 16 ft. long ... 6 ft. wide ... £18 0 0

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SEE THE NEW AMERICAN LAWN MOWER, THE "PRESIDENT,"

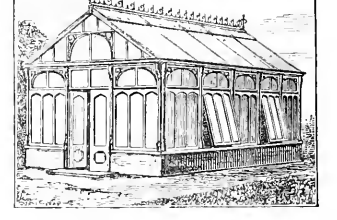
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Before you buy any other, it is the best in the World, and its sale exceeds any other. Unsurpassed for SIMPLICITY, DURABILITY, and LIGHTNESS of DRAGGAGE, when cutting long or short, wet or dry Grass.

Hand Sizes. 8-in. 10-in. 12-in. 14-in. 16-in. 18-in. The "PRESIDENT" £25. £35. £45. 105s. 126s. 147s. List of Pony and Horse Mowers on application.

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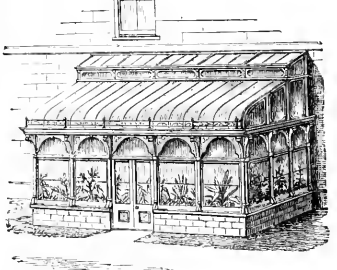


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Special DESIGNS and ESTIMATES given for Ornamental CONSERVATORIES, without charge, and for all Horticultural Work of all kinds.



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Horticultural and all kinds of Glass having so much advanced, we are compelled to withdraw our prices, but on receipt of application the prices will be forwarded, but will be only from day to day until the market is in a more settled state. We have some bargains in 21-ounce, from 9s. 7 to 14s. 10 and upwards; sizes sent if required. Propagating Glasses, Hand Frames, Cucumber and Horticultural Glass, genuine White Lead, best Lined Oil Putty, Paints, Oils, and Colours.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities of
BETHAM & SON,
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E. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

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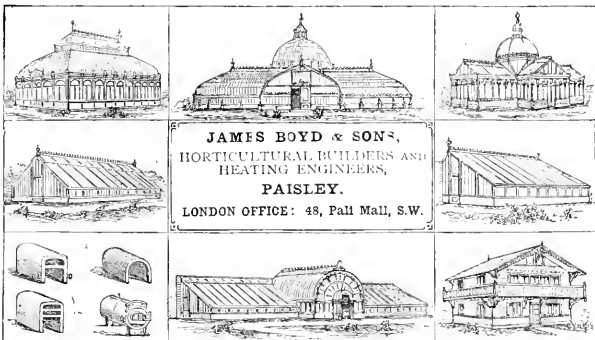
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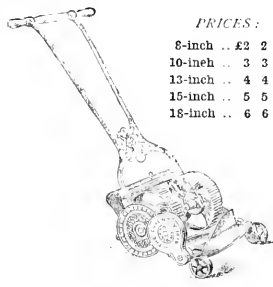
Awarded 1st Prize at the Sydney Exhibition, 1880. Awarded 1st Prize at the Melbourne Exhibition, 1881. Also awarded Silver Medal at the Royal Horticultural Society, June, 1881, for collection of Garden Implements, Tools, &c., &c.

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18-inch ..	6 6 0



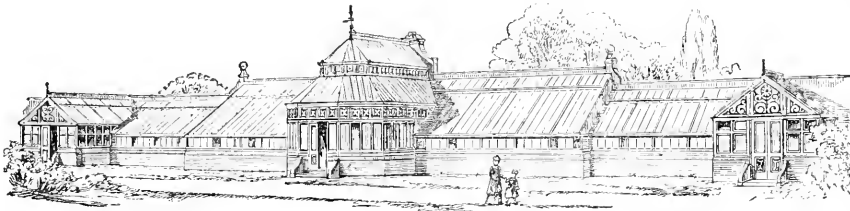
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Now ready, a new illustrated work on Hot-water Heating, by J. A. E. Rankin, F.R.S. Price 1s., post-free, 13 stamps.

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PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS, 47, Wellington Street, Strand, London, W.C.

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Advertisement for Rosher's Garden Edging Tiles, featuring illustrations of various tile patterns and descriptive text about their durability and use.

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SILVER SAND. A fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations.

DOULTON & CO., LAMBETH POTTERY, LONDON, S.E. VASES, PEDESTALS, FOUNTAINS, GARDEN EDGINGS, &c., IN IMPERISHABLE TERRA COTTA.

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Assurance against Accidents of all Kinds—Assurance against Railway Accidents—Assurance against Fatal Accidents at Sea—Assurance of Employers' Liability. RAILWAY PASSENGERS' ASSURANCE Company.

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WANTED, a thorough good WORKING GARDENER for Jersey. Must understand Grapes, Melons, Cucumbers, Flowers, and the general routine of gardening.

WANTED, a good SECOND GARDENER, who thoroughly understands Orchids, Greenhouse, and Hotheouses. A single man or married without a family preferred.

WANTED, a young man, as SECOND GARDENER. Must be slow and understand Greenhouse and Stove Plants. Character and good references essential.

HUGH LOW AND CO. are in want of a good PLANT GROWER who has had experience in Market Nurseries.

WANTED, a YOUNG MAN for the House. Must be a neat and quick hand at potting, and understand Stove and Greenhouse plants.

WANTED, a steady, industrious, energetic YOUNG MAN, who has a general knowledge of Flowering and Bedding Plants.

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WANTED, a thorough good WORKING GARDENER for Jersey. Must understand Grapes, Melons, Cucumbers, Flowers, and the general routine of gardening.

WANTED, a good SECOND GARDENER, who thoroughly understands Orchids, Greenhouse, and Hotheouses.

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WANTED, a steady, industrious, energetic YOUNG MAN, who has a general knowledge of Flowering and Bedding Plants.

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GARDENER (SECOND), where three or four are kept, or JOURNEYMAN in the Houses in a good establishment.—Age 24; good testimonials.—Address, A. H., 705, Ludlow Road, Shepherd's Bush, W.

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IMPROVER, in a good establishment.—Age 19; can be well recommended from present and previous places.—H. CROOKS, The Gardens, Clumber, Worksop.

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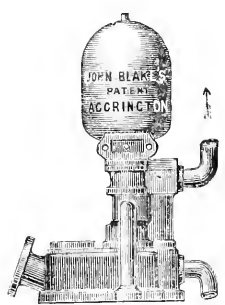
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TESTIMONIALS.

From J. SPENNER CLAY, Esq., Ford Manor, Lingfield, Surrey, August 9, 1880.

"In reply to your letter of inquiry, I am glad to be able to say that the two Hydraulic Rams which you fixed here are working satisfactorily, and that out of 13 gallons 3 quarts per minute, the maximum yield of the spring, they deliver to the top of my house, distant a full mile from the spring, 4 gallons a quart per minute, or 6222 gallons per twenty-four hours, being 120 gallons above the quantity you guaranteed."

From Captain TOWNSEND, Wincanton, February 10, 1877.

"In answer to your inquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long, at the rate of 80,000 gallons per day, although you only promised 50,000."

From the Rt. Hon. the Earl of ROMNEY, 56, Eaton Place, S.W., June 12, 1880.

"Sir,—In reply to your inquiry, I have pleasure in stating that the Hydraulic Ram which you erected for me at Craydon does its work remarkably well, and is a great success. I think the work is especially creditable to you on account of the very small fall of but 3 ft. with which you had to deal, and I shall always be glad to recommend you.—Yours faithfully,
ROMNEY.

From Captain GANDY, Castle Bank, Appleby, February 11, 1880.

"The Self-acting Hydraulic Ram you erected for me is an excellent example of strength and good workmanship. Whilst working with a 4 ft. 4 in. fall, it forces water 73 ft. high, and 80 far gives me every satisfaction. It will do its work in one day that the old Ram of another make could do in a week."

From V. F. BENNET-STANFORD, Esq., M. P., Pyl House, Tisbury, Wilts, August 20, 1880.

"I have no hesitation in saying your self-acting Hydraulic Ram, and apparatus for extinguishing fire, which you had down here, including about one mile of pipes, are very satisfactory. The Ram forces upwards of 6000 gallons per day to a service reservoir holding 25,000 gallons at an elevation of 200 feet, being 70 feet above the roof of the house, from which reservoir the water is distributed to the house, stables, home farm, and several cottages; and in case of fire, four jets can be thrown on the house from different points at a great force, and large volume. I consider your work has been done well and efficiently, and does you credit."

From the Rt. Hon. the Earl of GRANARD, Castle Forbes, March 1, 1880.

"The Hydraulic Ram erected for me at Castle Forbes has answered perfectly. Considering the very small fall attainable by the nature of the ground, it is a great success, and throws up water to a cistern on the top of the tower 56 ft. high. When Mr. Blake first proposed to put it up I doubted the possibility of its succeeding, owing to the nature of the ground; but I have been most agreeably undeceived."

From Sir ROBERT MENZIES, Bart., of Menzies, Rannoch Lodge, Rannoch, August 20, 1880.

"The Hydraulic Ram you fixed for me to supply water to Rannoch Lodge and Camerich, two houses three quarters of a mile apart, is a complete success. The extreme distance the water is carried is 1 mile, and though the elevations of the two houses are different, there is a regular supply of seven quarts per minute to each house, which has never ceased since the Ram was set a-going, about three months ago. Your Ram took the place of one previously tried on the same spot, which did not succeed, and was in fact a complete failure."

JOHN BLAKE, ENGINEER, ACCRINGTON, LANCASHIRE.

Editorial Communications should be addressed to "The Editors," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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GARDENERS' CHRONICLE.

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SATURDAY, JUNE 10, 1882.

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Now Ready, in cloth, 16s., **THE GARDENERS' CHRONICLE**, Volume XVI., JULY to DECEMBER, 1881. W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. **EVENING FETE, TUESDAY, June 13, from 8 to 12** Clock P.M. Grand ILLUMINATION and LOWER SHOW, &c. Bands of the 2d Life Guards and Royal Horse Guards. Tickets, 7s. 6d. each, to be obtained at the Office of the Society, by Vouchers from Fellows, up to and including June 13, and on the Evening of the Fete holders of Fellows' Orders will be admitted on payment at the gates of 10s. each person.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. **NOTICE.—COMMITTEES' MEETINGS,** Fruit and Floral at 11 A.M.; Scientific at 11 P.M. General Meeting for the Election of Fellows, &c., at 7 P.M. **PROMENADE, SHOW and Band of the Royal Horse Guards at 4 P.M., on TUESDAY NEXT, June 13.** Admission, 1s.

CRYSTAL PALACE GREAT ROSE SHOW, SATURDAY, July 1. Schedules on application to MANAGER, ENTRANCE CLOSE, Saturday, June 24.

CHISWICK, TUNBRIDGE HALL GREEN, and DISTRICT HORTICULTURAL SOCIETY. President—His Grace the Duke of Devonshire, K.G. **THE SECOND ANNUAL EXHIBITION OF FLOWERS, FRUITS, &c.,** will be held in the Royal Horticultural Gardens, Chiswick, on **THURSDAY, June 22.** The Band of the Duke of York's School will attend from 3 to 7, by kind permission of Lieut.-Col. H. Mackenzie. Admission, at 4 o'clock, 2s. 6d.; at 2 o'clock, 1s. and at 6 o'clock, 6d. Entries to be sent not later than June 17, to J. T. MUSGRAVE, Hon. Secretary, Sutton Court Road, Chiswick.

PALERGIUM SOCIETY. Instituted 1874, to promote the Cultivation and Improvement of the Pelergium. A Subscription of £1 1s. paid annually, constitutes membership, and members are alone privileged to compete for the Memorial Prizes and Medals which are presented. **THE ANNUAL EXHIBITION OF PALERGIUM** will be held, by permission of the Council of the Royal Horticultural Society, in the Gardens, South Kensington, on **TUESDAY, June 27.** **ENTRIES CLOSE, June 24.** Schedules, Forms of Entry, Regulations, and any other particulars may be obtained on application to the Honorary Secretary, MRS. SHIRLEY HIEBERD, 15, Brownson Park, London, N.W.

RICHMOND HORTICULTURAL SOCIETY. **THE EIGHTH ANNUAL EXHIBITION** of this Society will be held in the Old Deer Park, Richmond Green, on **THURSDAY, June 29.** Schedules may be obtained on application to GEORGE EYLES, Hon. Sec., Letcham Villa, Kew. 10—12 o'clock. Memorial Prizes and Medals will be competed for at this Show.

THE TUNBRIDGE WELLS HORTICULTURAL SOCIETY'S TWENTY-SIXTH ANNUAL GRAND FLOWER, FRUIT, and ROSE SHOW will be held on **FRIDAY, July 7,** in the Great Hall, High Street, and Calverley Grounds. Schedules and every information may be obtained on application to the Secretary, E. F. LIST, 25, Parade, Tunbridge Wells.

JAMES CARTER AND CO. beg to direct the attention of their Customers to the following liberal CASH PRIZES, to be competed for during the next few weeks:—For the Best Four DISHS of PEAS—One Dish (50 pods) Carters' Stratagem; One Dish (50 pods) Carters' Telephone; One Dish (50 pods) Culverwell's Telegraph; One Dish (50 pods) Carters' Prize of the Market.

CHISWICK HORTICULTURAL SOCIETY, JUNE 22.—For PEAS.—1st Prize, 63s.; 2d, 37s.; 3d, 20s.; 4th, 10s.

ROYAL HORTICULTURAL SOCIETY, JUNE 23.—For PEAS.—1st, 200s.; 2d, 60s.; 3d, 40s.; 4th, 20s.; 5th, 10s. 6d.

RICHMOND HORTICULTURAL SOCIETY, JUNE 23.—For PEAS.—1st, 40s.; 2d, 30s.; 3d, 20s.; 4th, 10s. 6d.

BAGSHOT HORTICULTURAL SOCIETY, JULY 4.—For PEAS.—1st, 43s.; 2d, 22s.; 3d, 10s.

TWICKENHAM HORTICULTURAL SOCIETY, JULY 7.—For PEAS.—1st, 20s.; 2d, 10s.; 3d, 5s.

OXFORDSHIRE HORTICULTURAL SOCIETY, AUGUST 2.—For PEAS and other VEGETABLES (this Collection to include three of the above Peas and three Dishes of other Vegetables).—1st, 63s.; 2d, 30s.; 3d, 15s.; 4th, 10s. 6d.

NOTICE.—The Competitions are confined to Gentlemen's Gardeners and Amateurs only. **IMPORTANT REGULATION.**—To prevent misunderstanding, special labels have been distributed with each packet of the above Peas, and all dishes will be disqualified that are exhibited without this special label being attached. **NOTE.**—The Peas exhibited must be grown from Seed supplied direct from Messrs. CARTER in 1882.

FURTHER PARTICULARS can be obtained from JAMES CARTER AND CO., or each respective Society's Schedules.

CARTERS, THE QUEEN'S SEEDSMEN, By Royal command to the Prince of Wales, 237 and 239, High Holborn, London, W.C.

Woodfield Nursery, Woodfield Road, Harrow Road, W. **H. BOLLER, F.R.H.S.,** begs to intimate to his numerous Patrons, that he has REMOVED from 73, South Row, Kensal New Town, to the ABOVE ADDRESS, and solicits a continuance of their kind patronage.—JUNE, 1882.

DAHLIAS and VERBENAS.—Plants may now be had from our celebrated Collections—probably the most complete in the Kingdom. They are strong, vigorous, and clean, such as are sure to succeed. CATALOGUE, with full descriptions and price, gratis on application. KEYNES and CO., Salisbury.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application. **LAPAGERIA RUBRA,** superb, 7s. 6d., 10s. 6d. and 12s. A few extra-sized specimens, size and prices on application. W. HOWARD, Southgate, N.

DAHLIAS.—Plants in pots, 300 sorts. PYRETHRUMS, in tiny varieties. CATALOGUES to be had free of KELWAY and SON, Langport, Somerset.

PRIMROSE, common Yellow.—Seed of this and all other PERENNIAL FLOWER SEEDS for PRESENT SOWING. Prices on application to WATKINS and SIMPSON, Seedsmen, 12, Exeter Street, Strand, London, W.C.

Hyacinths, Tulips, &c. **BUDDENBORG BROTHERS, BULB GROWERS,** House Bloomsward, Hillegem, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent, post-free, on application.

Floral Commission Agency. **NURSEYMEN and OTHERS** having choice CUT FLOWERS for DISPOSAL are requested to communicate with W. CALE, Floral and Fruit Commission Agent, 4, Tavistock Row, Covent Garden, W.C. Flowers of first quality only required, when senders may rely on best prices being obtained. Senders please to address.

WANTED, MARECHAL NIEL ROSES (good prices for fine blooms), and other CHOICE FLOWERS; also PEACHES, NECTARINES, FIGS, &c. WISE and RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, 500 CROWN IMPERIALS, mixed, and 20,000 DOUBLE DAFFODILS, delivered in July. Good sample and price to HOFWOOD and SONS, Nurseries, Hewlett Road, Cheltenham.

WANTED, large healthy PALMS, well established and clean, consisting of Beaucarnea, lutescens, Kentas, Kaphis, or any tolerably erect-growing and not too tender sorts; also Aspidistra lurida and Pandanus Veitchii, for stock. EXCHANGE for other PLANTS or CASH. W. HOWARD, Southgate, N.

SUTTONS' CALCEOLARIA. THE BEST. "Really grand in size, colour, and variety." Rev. T. J. W. Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' CINERARIA. THE BEST. "The best I have seen, both for variety of colour and size of flower." J. R. Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA. THE BEST. "The admiration of all who see them."—W. P. J. Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA. THE BEST. "The form, size, substance, and colour of the flowers are perfect."—W. H. Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' GLOXINIA. THE BEST. "The Gloxinias are really magnificent."—W. M. Price 2s. 6d. and 5s. per packet, post-free.

SUTTON AND SONS, THE OLD FENNER STREET, READING, BERKS.

H. BENNETT begs to state that he is not in a position to EXECUTE any FURTHER ORDERS from this date, till March, 1883, for his ROSES, Princess of Wales, Earl of Pembroke, Countess of Pembroke, Distinction, Lady Mary Fitzroy and Prince of Wales, Pedigree Rose, Nursery, Shepperton, Middlesex, June 5, 1882. **TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS** for Borders, Rock-work, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1d. stamp. Selection of 100 good show varieties for 5s. R. SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

DESCRIPTIVE LIST OF STOVE and GREENHOUSE PLANTS, comprising the best selection of CAMELLIAS, AZALEAS, ERICAS, EPACRIS, FERNS, &c., free for 1d. stamp. R. SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

Rhododendrons. **JOHN WATERER AND SONS,** of Bagshot, Surrey, beg to announce their EXHIBITION of the above is NOW ON VIEW DAILY at the Gardens of Cadogan Place, Sloane Street, S.W.

ARALIA SIEBOLDII, pots, 6 to 8 inches, 25s. per 100. **NERTEA DEPRESSA,** pots, fine trusses, 2 to 4 inches across; will give 20 profuse flowers; 12s. per 100. **GARLIE'S MITCHELL,** Nurseryman, Stratford.

BEDDING GERANIUMS, mixed varieties, strong, hardy plants, turned out of pots, 10s. per 100; 4s. per 1000; Prima Donna, new, fine white, 4s. per 100; Jacoby, 4s. per dozen. Cash with order only. W. AND J. BROWN, Stamford.

Valuable Imported Orchids.—Special List, No. 59. **THE NEW PLANT and BULB COMPANY** beg to inform their Friends that the above NEW LIST is just published, and will be sent post-free on application. Lion Walk, Colchester.

DOWNIE and LAIRD, Royal Winter Gardens, Edinburgh, beg to intimate that their splendid collection of FANSIES and VIOLAS are NOW in FULL FLOWER, and MAY BE SEEN ANY DAY (Sundays excepted) at their Pinkhill Nursery, near Edinburgh.

FOR SALE, SUNFLOWER PLANTS, extra selected, Double or Single, 2s. per dozen. A reduction on large quantities. Stamps with order. K. EATH, Crayford, S. E.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

NOTICE.—NOTICE.—Grand Exhibition of DAHLIAS at greatly reduced price. Strong Plants and best sorts only. CATALOGUES free.—C. R. PERKY, Cedar Nursery, Castle Bromwich, near Birmingham.

CUT ROSE BLOOMS and BUDS, of fine quality, 1s. 6d. and 2s. 6d. per 100. Package free. Cash with order. W. CAUDWELL, F.R.H.S., The Ivies, Wantage.

DOUBLE PRIMULA, 40s. per 100, for cash. Apply, J. WALLIS, East Grinstead Nursery, East Grinstead, Sussex.

To the Trade. **HOME-GROWN TURNIP SEEDS.** **H. AND F. SHARPE** invite the attention of the Trade to their fine selected stocks of SWEDD and other TURNIP SEEDS of 1881 growth. Special offers at low prices on application. Seed Growing Establishment, Wisbech. **MANGEL WURZEL SEED.**—Lowest quotations to the Trade for home-grown Seed. JOHN SHARPE, Eardney Manor, Lincoln.

SALES BY AUCTION.

Thursday Next, June 15. GREAT CATTLE YALE.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at the Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 15, at half-past 12 o'clock, precisely, an importation of

CATTLE SANDERIANA, grand masses of fine elegant and noble Cattle, a splendid consignment of CATTLE OF GIGAS and CATTLE OF A NEW CATTLE, provisionally named ROTHSCHILDIANA; many other CATTLE and LELIAS, MILONTIA MORELIANA and M. ROBINELLI, a grand lot of CHEVRES BRACKETENS, in perfect condition; together with many other OKCHIDS, including several enormous masses of Lelia anceps (darkest variety), L. albida major, Tonopas paniculata, Odontoglossum Alexandra, Lelia elegans, &c. On view morning of Sale, and Catalogues had.

Thursday Next.

13 Cases of ODONTOGLOSSUMS and other OKCHIDS, received direct.

MR. J. C. STEVENS will include in his SALE by AUCTION, on THURSDAY NEXT, June 15, 11 Cases of ODONTOGLOSSUMS, and 2 Cases of other OKCHIDS, in fine condition.

On view morning of Sale, and Catalogues had. Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Stoke Newington. N. EXPIRATION OF LEASE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Larkman to SELL by AUCTION, on the Premises, Brook's Grove Nursery, Stoke Newington, N., on THURSDAY, June 15, at 11 o'clock, the Freehold of six GREENHOUSES, with about 2000 feet long and PIPING AND FIVE BOILERS, several Ranges of PITs, SUMMER-HOUSE, and the Stock-in-trade, comprising about 15,000 BEDDING PLANTS in the usual variety, 1000 LYONMUS, &c. May be viewed. Catalogues had on the Premises, and the Auctioneers, 8, New Broad Street, E.C.

Magnificent Collection of British and Exotic Ferns

Belonging to Mr. J. STEWARDSON, of LANCASTER. MR. T. ARMITSTEAD will SELL by AUCTION, on the Premises, Borrowdale Road, Lancaster, on MONDAY and TUESDAY, June 12 and 13, each day earlier, on THURSDAY, June 15, a large collection, comprising upwards of 10,000 plants, including over 100 large SPECIMEN PLANTS in pots which have been Prize-takers at the Royal Show, 1878, and at local shows at various dates of years, J. S. having received upwards of fifty prizes, and obtaining for his collection a high reputation throughout the North of England. Waggon and active man with moderate cartage. For full particulars apply, by letter only, to J. H. HART & SON, 152, Houndsditch, E.

Catalogues may be had from the Auctioneer, 8, Cheapside, Lancaster, and will be forwarded post-free.

RETAIL SEED AND FLORISTS' BUSINESS FOR SALE.

FOR SALE, situated in one of the best positions in the City of London. This is an opportunity rarely to be met with for a young and active man with moderate capital. For full particulars apply, by letter only, to J. H. HART & SON, 152, Houndsditch, E.

NURSERY AND MARKET GARDEN.

Stock by Valuation. Any one with £200 to £400 would be liberally dealt with. J. A. P. Gardener's Chronicle Office, W.C.

Florists and Nurserymen - Splendid Opening.

TO BE LET, on a N.E. LEASE, cheap, a NURSERY, about 1/2 Acre, with 12000 feet of Glass, in capital working order. Well stocked. Good connection. Six miles from Covent Garden. M. CHAPMAN, Bedford Hill Nursery, Balham, S.W.

TO BE LET, as a Going Concern, on September 1, 1882, if desired, a compact NURSERY and small SEED BUSINESS, situated in the best position of Staffordshire, comprising about 2 Acres of well-selected Nursery Stock, also 3 Acres of old Farm Land, and a Dwelling House, a large stock of Hollies in variety, which will well serve, as does all other Nursery Stock, the Soil being deep Loam, and a never-failing supply of water on the ground. It has been established nearly sixty years, and declining health is the sole cause of disposing of it. For particulars address R. S., Robert Cooper, Esq., Seed Merchant, 90, Southwark Street, London, S. E.

TO BE LET, about 17 Acres of good MEADOW LAND, in first-rate condition, comprising Fields, and Garden, with excellent Fences, and well watered. There are Sheds and Cow-houses, and also Cottage containing three Bed Rooms, Sitting-room, Kitchen, Scullery, &c., in a high state of repair. To let on long lease, or to be purchased. Apply to J. H. HART & SON, 152, Houndsditch, E. or to J. H. HART & SON, 152, Houndsditch, E.

Florist and Seedsman's, with Fruit, &c. TO BE LET, a capital HOUSE, SHOP, and BUSINESS. Incoming low, long lease, good trade, main road, S.E. - Particulars of FLORENTI, 80, St. Paul's Churchyard, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN AND EXOTIC PLANTERS and VALBERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

DOUBLE PRIMULA - Strong plants,

ready for first shift, 50s. per 100 for cash; also well-rooted BOURBON PRIMULAS, 20s. per 100. ROBERTS BROS., Arnold, East Grinstead.

CHEVEIRA METALLICA - Good plants,

in 60's and 85's (6. 2s. and 3s. per dozen) at 6s. H. STROUD AND SONS, Green Lanes, Finsbury Park, N.

To the Trade

CENTAUREA CANDIDISSIMA - A few hundred nice stuff, in 60-sized pots, at 14s. per 100. WILLIAM M. CROWE, The Blyden Nursery, Upton, Essex.

MANSSION HOUSE, LONDON.

Grand Rose Show

WILL BE HELD AT THE MANSSION HOUSE,

ON FRIDAY, JUNE 30, 1882,

IN AID OF THE FUNDS OF THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN, WATERLOO BRIDGE ROAD,

AND THE Convalescent Home for Scarlet Fever Patients.

The Exhibition, which will be arranged by Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace, will consist of 10,000 ROSES from the gardens of the principal growers, arranged with Ferns and other accessories in an artistic manner, and of a Competition confined to Amateur Growers.

All Roses to be grown by Exhibitor, and exhibited in boxes to be shown as cut from the tree. Any buds and leaves may be left, but no loose leaves to be added. Added foliage will be disqualified.

All the exhibited Roses, unless reserved, will be sold at fixed prices, and delivered at the close of the Show, at 7 o'clock. All exhibitors to be ready for judging by 10.30, or they will not be eligible for competition.

Entries to be made on or before June 27, addressed to the Secretary, Mansion House.

- CLASS I. 24 ELOOMS, named, distinct - single.
- CLASS II. 12 ELOOMS, named, distinct - single.
- CLASS III. 12 HYBRID BLOOMS, named, distinct - three of each.
- CLASS IV. 6 HYBRID BLOOMS, named, distinct - single.
- CLASS V. 6 HYBRID BLOOMS, named, distinct - three of each.
- CLASS VI. 6 TEA or NOISETTE, named blooms, distinct - single.
- CLASS VII. 3 TEA or NOISETTE, named blooms, distinct - three of each.
- CLASS VIII. 6 BLOOMS of ONE ROSE, any description.
- CLASS IX. HAND BOUNDING OF ROSES and FOLIAGE, with or without Ferns, to 10 to 15 inches tall.
- CLASS X. BASKETS OF ROSES, various, 20 to 30 blooms.

There will be TWO PRIZES in each Class. SILVER MEDAL, 1st Prize. BRONZE MEDAL, 2d Prize. THE LADY MAYORESS will also be glad to receive for Sale - Bouquets or Bundles of Roses, Bouquets of Mixed Flowers, Button-hole Flowers, Baskets of Roses (large or small). Judges, Mr. G. PAUL and Mr. C. TURNER. Admission between the hours of 12 and 7 o'clock, 2s. 6d.

LUDLOW ROSE SHOW, JULY 6.

For Schedules, &c., apply to V. T. ORGILL, Hon. Sec.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

DUBLIN MEETING, 1882, July 25, and 29, 1882. A GRAND FLOWER SHOW will be held in connection with the above. TWO HUNDRED and FIFTY POUNDS in PRIZES for Professionals, Amateurs, and Cottagers. PRIZE LISTS may be had from J. S. HAYWOOD, Seed Merchant, 51, Broad Street, Worcester, the Hon. Sec. for the Horticultural Department. ENTRIES CLOSE June 20. N.B. - Those who wish to exhibit will please read in Classes 12 and 15 - Pelargoniums, Show or Fancy, instead of Show and Fancy.

SEEDLING POTATO EXHIBITION.

THE FIRST EXHIBITION OF SEEDLING POTATOS (Open to all England), in connection with the Northamptonshire Agricultural Society, will be held at Northampton, at THE RUSK-DAY and FRIDAY, September 21 and 22, under the Patronage of Lady Knightrley, Fawsley, Daventry; the Most Honourable Marquis of EXETER, Burghley, Stamford; ROBT. LOVER, Esq., M. P., Whitelebury, Towcester.

Particulars and Schedules of Prizes may be had on application to G. GLEBERT, Esq., Stamford; MR. COLE, Althorpe; Northampton; MR. MILLER, Esq., Towcester; MR. E. ROWE, 11, Sheep Street, Northampton; and the Secretary, Mr. W. FARR, Fawsley, Daventry.

DESIGNS Made and Works EXECUTED

In the Arrangement of TERRACES, CONSERVATORIES, FLOWER GARDENS, and HOUSE GARDENS, on uninteresting Lead Flats, &c., formed with substantial PULHAMITE KERB for the FLOWER BORDERS, JARDINIÈRE, &c., in TERRA-COTTA or ARTIFICIAL STONE of various colours.

BALUSTRADES, VASES, PEDESTALS, FIGURES, FOUNTAINS, CONSERVATORY and WINDOW BOXES in great variety, suitable for any style of House. Various Specimens of KERB or EDGING, PULHAMITE PERMANENT GRAVEL PAVING for GARDEN, TERRACE and other WALKS, and FLOORS, to be seen at the Horticultural Company's, Regent Street, W., at the Orchard, Philip Lane, Tottenham; and at our Brixton Depot there is the greatest variety of the above to be seen. DURABILITY GUARANTEED.

A Photographic Book of over 200 Illustrations, with Sizes and Prices, sent for Inspection on receipt of twelve stamps.

Address - PULHAM & SON, THE WORKS, Brockbourne. Established in 1837.

CABBAGE PLANTS - Freeman's Massive

Double-headed, 7 1/2 oz. per 1000, packing free. CAULIFLOWER, Veitch's Autumn Giant, 5s. per 1000 each. FREDERIAN, Seed Grower, Norwich.

Alternantheras - Alternantheras.

JOHN SOLOMON offers good strong plants of the following varieties, from stores: - Amnona, magnificens, versicolor, Gracilis, parviflora major aurea (new), COLEUS Verschaffelii, MESSBRYANTHEMUM cordifolium variegatum, 6s. per 100. Any of the above, established in 6-inch pots, 1s. 6d. per 100. Queen's Road Nursery, Walthamstow.

SEMPERVIRENS CALIFORNICA, strong plants, at 8s. per 100, or 70s. per 1000. Also a limited stock of PAMPAS GRASS, in pots, 9s. per dozen. J. FAWWELL, Nurseryman and Seedsman, Wimbore.

To the Trade. - Mrs. Pollock. - To the Trade. WOOD and INGRAM have still a few thousands of first-rate plants of "Mrs. Pollock" Golden Wonder, and "KRANUM" in 6-inch pots, which they offer at 22s. 6d. per 100; 200s. per 1000. Package extra. Also a large quantity of Miscellaneous BEDDING and other PLANTS, equally good as above.

The Nurseries, Huntington, and St. Neots.

Special Offer.

DAHLIAS! - DAHLIAS! - DAHLIAS! - Strong Plants, in pots, best varieties, 2s. 6d. per dozen, 16s. per 100.

PELAGONIUMS, in pots, best varieties, 9s. per dozen, 70s. per 100. AZALEA CALDWELLII, in pots, very strong, 6s. 9s., and W. G. CALDWELL AND SONS, The Nurseries, Kenilworth.

CAULIFLOWER, BRUSSELS SPROUT PLANTS.

VEITCH'S AUTUMN GIANT, 3s. 6d. per 1000. BRUSSELS SPROUTS, 3s. per 1000. Packages 6d. extra. Order of R. BATH, Crayford; or J. BATH, 34, Wellington Street, Covent Garden, W.C.

CALCEOLARIA "CLOTH OF GOLD"

(Rapley's) - Awarded First-class Certificates Royal Horticultural Society and Royal Botanic Society, New S.E. Price per packet, 3s. 6d. in 6-inch pots, which they offer at 22s. 6d. per 100; 200s. per 1000. JOHN LAING AND CO., Seedsman, Forest Hill, S.E.

To the Trade Only.

TEA ROSES, on own roots, extra strong, out of 2 1/2-inch plants, 4s. per 100, for cash. MAIRIS AND CO., Weston-in-Gordano, Bristol.

Cheap Plants for Carpet Bedding. S. BIDE can still offer KRESINE Lindenii, S. ALTERNANTHERA amabilis and parviflora, major aurea; AGERATUM Cuneifolium, Lady Jane, Countess of Star, and Duchess of Edinburgh; COLEUS Verschaffelii - all at 6s. per 100, with postage free.

S. BIDE, Alma Nursery, Farnham, Surrey.

Verbenas - Verbenas.

VERBENAS - Strong, healthy, well-rooted Cuttings, perfectly free from disease, of White, Purple, Scarlet, and other colors, 2s. per 100, 200s. per 1000 rooted Cuttings, in twelve most splendid varieties, First-class Flowers, for 8s. Terms cash.

EXECUTORS of the late H. BLANDFORD, The Dorset Nurseries, Blandford.

PRIMULAS, PRIMULAS, &c. - Fine young plants of the beautiful strains we have supplied for some years, 1s. 6d. per dozen, 10s. per 100; do. do. extra strong, 2s. per dozen, 13s. per 100; do. do. in 2 1/2-inch pots, 3s. per dozen, 30s. per 100. LINERARIAS, fine young plants, 1s. 6d. per dozen, 10s. per 100.

W.M. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Grape Vines for Present Planting.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard, Garden, Liverpool, has a large stock of strong, well ripened GRAPE VINES suitable for present planting, consisting of all the leading varieties; also a few strong Fruiting Canes. CATALOGUES free. The Trade supplied.

William Bulman's Stock

can still supply as under in established plants turned out for 6s. PELAGONIUMS Vesuvius, Jean Sibley, Madame Vaucher, White; Master Christine, Pink; Lucius, and others, at 8s. per 100; 75s. per 1000; Bronze MacMahon, Black Douglas, Carr, and others, 12s. per 100; Crystal Palace Gem, 10s. per 100; Happy Thought and Silver-edged, 10s. per 100; Mrs. Pollock and Lass of Gwynne, spring-struck, 12s. per 100. DAHLIAS, best Show and Fancy sorts, 15s. per 100. LOBELLIAS, in best sorts, 8s. per 100. Packing included. Terms cash. Consignments Not received.

CAULIFLOWER, BRUSSELS SPROUT

VEITCH'S AUTUMN GIANT, 3s. 6d. per 1000. BRUSSELS SPROUTS, 3s. per 1000. Packages 6d. per 1000 extra. Order of R. BATH, Crayford; or J. BATH, 34, Wellington Street, Covent Garden, W.C.

LIST OF BEDDING PLANTS (free on application), comprising Descriptions and Prices of

Established Plants of the most eligible varieties for the Terrace Parterre, the Tropical and Ordinary Flower Garden, the Mixed Bed, and of Greenhouses and Conservatories on the Lawn. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Mushroom Spawn

OSBORN AND SONS desire to call the attention of all Growers of Mushrooms to their celebrated Spawn, which with ordinary care and attention, produces most satisfactory results. Copies of testimonials will be found in the Seed CATALOGUE for 1882, which will be sent post-free to all applications. Price 5s. per bushel, package extra. Trade price upon application. The Fulham Nursery, London, S.W.

Dutch Bulbs and Flower Roots.

CULTIVATED and SOLD by H. J. LOMANS, Florist, Haarlem, Holland, with ordinary care and attention, produces most satisfactory results. Copies of testimonials will be found in the Seed CATALOGUE for 1882, which will be sent post-free to all applications. The Fulham Nursery, London, S.W.

BY H. J. LOMANS, Florist, Haarlem, Holland, with ordinary care and attention, produces most satisfactory results. Copies of testimonials will be found in the Seed CATALOGUE for 1882, which will be sent post-free to all applications.

Novelty.

GRAND NEW BEDDING PLANT. LOBELIA ANDREAE HOLMES. This splendid variety is now offered as the best Lobelia extant. It is possessed of a hardy growth, compact, cushion-like habit, and excessive floriferousness, combined with the intense deep blue coloring, makes the well-known variety "Ebor" remarkable, being, at the same time, a small, well-defined white eye, being lighter and of much even growth than that variety, and striking in its tenderness. Confidently recommended by its raiser, who is now distributing it, as superior to every kind cultivated. The following testimonial is from Mr. J. FIELDS, Head Gardener to the Yorkshire Philosophical Society: "The Museum Holmes I consider to be the forefront of the many really good Lobelias now before the public. It has the compact habit, very floriferous, and in colour not unlike Gentiana verna, one of our loveliest alpine gems, and must soon become a popular favourite." J. FIELDS.

Price 1s. each, 9s. per dozen, 60s. per 100. The usual discount to the Trade. GEORGE HOLMES, Florist, York. SPECIAL CHEAP OFFER. LOBELIA SPECIOSA and BLUE STONE, from cuttings, 2s. 6d. per 100; 20s. per 1000; 8s. per dozen. GERANIUMS, Scarlet and Rose, 7s. per 100; 1s. 6d. per sample dozen; Tricolor Italia Unita and Glen Eyre Begonia, 16s. per 100; 2s. 6d. per dozen. IRESINE, 6s. per 100; 1s. 2d. per dozen. HELIOTROPES, 6s. per 100; 1s. 2d. per dozen. GOLEDS, eighteen varieties, 12s. per 100; 2s. per dozen. CHRYSANTHEMUMS, best varieties, 4s. per 100; 1s. 1d. per dozen. FUCHSIAS, all the leading varieties, 6s. per 100; newer varieties, 8s. per 100; 1s. 2d. and 1s. 6d. per dozen. VEREENAS, Purple, White, Crimson, Pink, Red, and Scarlet, 6s. per 100; 50s. per 1000; 1s. 2d. per dozen. GOLDEN LEAFED PEUNIAS, 2s. 6d. per 100. Sample dozen post-free, other package free. Cash with all orders. T. FLETCHER and SON, Florists, &c., Chesterfield.

One Dozen of Each for 21s. GOOD VALUE FOR MONEY. Only the best grown, all true to name, and strong Plants. 12 choice splendid ZONAL GERANIUMS for 31s. 50 for 10s. 12 choice splendid BRONZE GERANIUMS for 3s. 6d., 50 for 12s. 12 choice splendid DAHLIAS, 6s., 100 for 20s. 12 choice splendid GOLDEN TRICOLORS for 3s. 6d. 12 choice named PHLOX for 3s. 6d. 12 choice Silver-gold FANCY FLOWERING GERANIUMS 12 choice named Single PEUNIAS, 2s. 6d. (10s. 2s.) See Descriptive CATALOGUE. Cash with order. Package free. They are honestly worth double the amount. The plants are ready for every district. CHARLES BURLEY, Brentwood, Nurseries.

To the Trade. FRESH PALM SEEDS. To arrive shortly, in fine condition, good Seeds as under. LATANIA BORBONICA, 5s. per ounce. THERINIA SPECIOSA, 15s. per ounce. ARECA LUTESCENS, 10s. per ounce. CARUYA URENS, 10s. per ounce. Also some fine Crown of THIAS, REVOLUTA. Immediate Orders are solicited. HOOPER AND CO., Covent Garden, London, W.C.

PANSIES.—The largest and finest Collection of Show and Fancy Pansies extant. Price, per dozen, 10s. or 1000, with Descriptive Priced CATALOGUE on application. JOHN FORBES, Nurseryman, Haverhill, N. H. TO BE DISPOSED OF, for want of room, CROTON YOUNGII, fine specimen, also CROTON MAJESTICUM, about 5 feet high, and well fruited. Would be glad to EXCHANGE for ORCHIDS. Apply, A. GIBSON, Gardener, Halstead Place, Sevenoaks, Kent.

Bulbs!—Bulbs!—Bulbs! TO SUFFY, TRAE. SEGERS and CO., Bull-Groffers, Lisse, near Haerlem, Holland, beg to announce that their Dutch Bulb Farms, especially HYACINTHS, look very promising. Their crops of TULIPS, which they have commenced having, are good samples. CATALOGUES may be had on application. No Auction Sales or Retail Trade supplied, till the Wholesale only. 257. Please observe name and address. F. W. COOPER can still supply, in excellent plants, in various quantities. Per 100—4. 12 PYRETHRUMS, Double, in eighteen varieties, 15 0 PHLOXES, Herbaceous, in twelve varieties, 10 0 GERANIUMS, Bedding, in separate pots, 12 0 GERANIUMS, Pot, in separate pots, 12 0 LOBELIA SPECIOSA, 11 0 COLEUS VERSCHAFFELTII, 14 0 ECHEVERIA SEDIDA LAUCA, fine plants, 16 0 Various other Bedding Plants at low rates. F. W. COOPER, Florist, The Walks, Huntingdon.

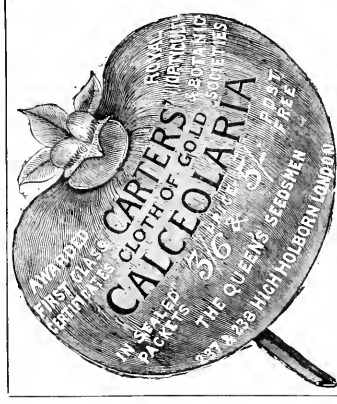
JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers to the Trade PALMS in store pots:—Arecia Baueri, 60s. per 100; Cecos Weddelliana, 70s. per 100; Caryota scoloflora, 42s. per 100; Coccoloba australis, 10s. per 100; 80s. per 100; Latania borbonica, 8s. per 100; 70s. per 100; Phoenix recinata, 8s. per 100; 70s. per 100; Phoenix tenuis, 10s. per 100; 80s. per 100; Psychopogon palmoides, 30s. per 100; 25s. per 100; Scaevola elegans, 12s. per 100; 400s. per 1000; Sabal Blackburniana, 8s. per 100; 60s. per 1000.

Exhibition Plants. W. G. CALDWELL AND SONS have the pleasure of exhibiting selected SPECIMEN PLANTS in many of which are well known at Liverpool, Manchester, and other large Shows, having taken many First Prizes. All are in excellent condition, and fit for competition this season:—ERICA CAENESIBHIL, 5 feet by 5 feet through, splendid specimen, well set with bloom. ERICA TRICOLOR SPECIOSA, 4 feet by 4 feet through, well set with bloom; many other varieties of Ericas in all sizes. ALLAMANDAS, APHELIXES, BOUGAINVILLEAS, CLEMATIS, CROTONS, CROCUS, CYCLOPS, GLEICHENIAS, LANANIAS, RONDELITAS, SEAFORTHIAS, STEPHANOTIS, SWAINSONIAS, VINCA, &c. Prices, names, and sizes on application. The Nurseries, Knutsford.

Pelargoniums, Dahlias, &c. J. A. S. HOLDER AND SON have still a few hundred strong PELARGONIUMS to offer, in small 6-pots, 25s. per 100; in 48-pots, strong and bushy, 50s. per 100. DAHLIAS, in about 40 varieties, 4s. per dozen, 25s. per 100, strong, hardy stuff, in large 6-pots. CALCICOLARIAS, Golden Gem, in 60-pots, 15s. per 100; strong, from pits, 7s. per 100. GERANIUMS, Flower of Spring, in 60-pots, 16s. per 100; from store pots, 12s. per 100. "Walham Seedling, in 60-pots, 16s. per 100; from store pots, 10s. per 100. Mixed, from store pots, 10s. per 100. LOBELIAS, Blue, Crystal Palace and Lustrous, in thumbs, 12s. per 100; from stores, 5s. per 100. AGERATUMS, Dwarf, in 60-pots, 12s. per 100; from stores, 6s. per 100. All packing free. Cash with order. Crown Nurseries, Reading.

P E L A R G O N I U M S EDWARD PERKINS. MADAME THIBAUT. These are two of the most showy and distinct Decorative Pelargoniums ever offered. Strong flowering plants, 3s. 6d., and 5s. each. Small plants, one of each free by post, 5s. Trade price on application. FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

Notice. THE AMERICAN PLANTS at Knap Hill are now in bloom, and may be seen daily, Sundays excepted. THE EXHIBITION of RHODODENDRONS and AZALEAS at the Botanical Gardens, Regent's Park, is also now on view daily. Orders of Admission may be obtained from Fellows of the Society, or from the Exhibitor, ANTHONY WATERER. THE RHODODENDRONS in Rotten Row are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.



For Present Planting. FREDERICK GEE can supply excellent Spring-sown Plants in any quantities (grown from his superior stocks), as follows, for cash with orders, viz.:

	According to Size Post and Package Free.	Free on Rails here.
Celery Plants (Wright's Grove Red and Giant White), or Cole's Super Red and White, splendid transplanted stuff. Do. do. not transplanted.	4d. and 6d., 1s. 6d. and 2s. 10s. and 15s.	10s. and 15s.
Cauliflower Plants, Early London, Walcheren, and Veitch's Giant, true.	4d. and 6d., 1s. 6d. and 2s. 10s. and 15s.	
Broccoli, Early Pezanosce, Kail's Protecting, Late Purple Sprouting, &c.	3d. and 4d., 1s. and 1s. 6d., 5s. & 7s. 6d.	
Cabbage, Early Emerald, Dutch, Large Drumhead, and Kohl Rabi, Brussels Heads, fine imported.	2d. and 3d., 9d. to 1s. 6d., 3s. and 4s.	
Savoy, Drumhead and Green Curled Lettuce Plants, All the Year Round, Frustrated and Giant White Cos.		

Special prices to large buyers, stating quantities required. Cash being determined out to be understood. Genuine Bedfordshire-grown Seeds and Plants for present Season of all kinds for the Garden or Farm, of best quality, at lowest prices. CATALOGUES on application to FREDERICK GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

NOTICE. SELLING OFF OF NURSERY STOCK. EWING & CO., EATON, near NORWICH.

Great Reduction in Price for Cash Payments, viz.: 15 per Cent. for Cash before delivery. 10 per Cent. for Cash within One Month of date of invoice. 5 per Cent. for Cash within Three Months of date of invoice. After Three Months no discount can be allowed.

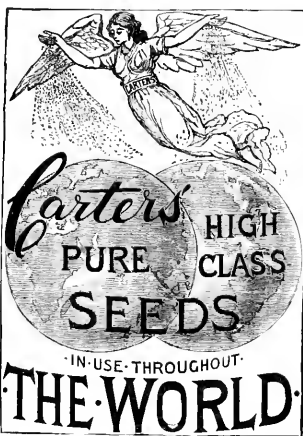
In addition to their immense Outdoor Stock of ROSES; FRUIT TREES, Bushes and SHRUBS; ORNAMENTAL TREES and SHRUBS, they have ready for immediate Sale a very extensive Stock of New and Scarce ROSES in Pots; Tea and Noisette ROSES in Pots; CLEMATISES of best Old and New Varieties, in Pots; Variegated and Choice Green-leaved IVIES, in Pots; AMPELOPSIS VEITCHII, and many other Hardy CLIMBING and CREEPING PLANTS, in Pots, &c. N. E. Cut Roses, &c., can be supplied at cheap rates, carefully packed for travelling long distances. A slight extra charge must in most cases be made for packing. Where cash in payment of goods is sent with the order, the amount for postage may be forwarded to stamps after dispatch of goods. N. E. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application. Primulas—Primulas. Thirtieth Year of Distribution. WILLIAMS' superb strain, 1s. 6d. per doz., 10s. per 100. CINCERARIAS same price. Package and carriage free. The above are quite equal to those I have sent out in previous years. Cash with order. JOHN STEVENS, The Nurseries, Coventry. Tuberosa Begonias. JOHN LAING AND CO.'S Gold Medal Collection is unrivalled. They are now in cultivation 100,000 Begonias, which will present to the public an unprecedented floral display this summer. Orders now booked for blooming plants middle of June. Prices, 12s. to 60s. per dozen. CATALOGUES on application. Address JOHN LAING AND CO., Forest Hill, S.E.

NEW ROSES of 1882, in pots.—Vendors' Selection, 30s. per dozen; Purchaser's, 36s. per dozen. The above comprise all the best English and French named Hybrid Perpetuals, Perpetual Polyantha, Tea, Hybrid Tea, and Perpetual Moss. Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

AZALEAS, with Buds, for September—Indian, hardy Mollis, hardy Ghent—6s., 1s. 6d., 2s. 6d. per 100 plant. CATALOGUES, with illustrations, may be had. JOSEPH NAPOLEON BAUMANN, Nurseries, Ghent, Belgium. SPECIAL OFFER TO CLEAR OUT.—Large buyers of VEREENAS, CALCICOLARIAS, HELIOTROPES, IRESINES, &c., should write for Special CATALOGUES (which will be found to be about half the usual price) to the EXECUTORS to the late H. ELANDFORD, The Dorset Nurseries, Blandford. CUT FLOWERS.—White CLOVES in any quantity, enormous bloom, harvest and best white known. Also plants and cuttings of the same. Bay while in flower. Sample Box 12 stamps. W. WEALE, Taplow, Bucks.

CHEAP BEDDING AND OTHER PLANTS. GERANIUMS, from single pots, Scarlet, Pink, &c., 2s. 6d. per dozen, 14s. per 100. HELIOTROPES, MESEMBRYANTHEMUMS, CALCICOLARIAS (Yellow), SALVIA, LANTANAS, LOBELIAS, AGERATUMS, PROPAGULAS, IRESINES, from single pots, 1s. 6d. and 2s. per dozen, 7s. and 10s. per 100. COUCUS, 12 beautiful distinct sorts, 2s. FUCHSIAS, 12 fine distinct varieties, 2s. 10s. in 100 varieties, for 10s. DAHLIAS, 12 fine named sorts, 2s. 6d.; 100 in 50 or 100 sorts, as preferred, 12s. 6d. PENSTEMONS, 12 beautiful sorts, 3s. BEGONIAS, 6 sorts, 12 fine and pretty kinds, 2s. 6d., 3s. 6d., 6s. 6d. CARNATIONS and PICOTEEs, 12 distinct sorts, 6s. CARPET BEDDING PLANTS, such as Sedums and Saxifrage, Dactylis, Golden Harpurum, Antennaria tomentosa, 2s. per dozen, 5s. per 100. BEDDING PANSIES and VIOLAS, in splendid variety, all colours, 1s. 6d. per dozen, 15s. per 100. SHOW and FANCY PANSIES, 12 beautiful kinds of either class, 2s. 6d.; 15s. per 100. DOUBLE PYRETHRUMS, 12 fine sorts, 6s. PENTSTEMONAS, 12 for 5s. PHLOXES, 12 beautiful varieties, 3s.; 100 in 100 sorts, 20s. PELARGONIUMS, 12 beautiful distinct varieties, 6s., 9s., 12s. WM. CLIBRAN AND SON, Oldfield Nursery, Aitricham.



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Gratis and Post-free.

THE QUEEN'S SEEDSMEN, (Seedsman by Royal Command to) H.R.H. THE PRINCE OF WALES
237 High Holborn, London, W.C.

NEW GOLDEN BEDDING PANSY, KING OF YELLOWS—the largest, freest, and brightest of all golden-yellow Pansies: strong plants, 15 each, 4s. per dozen.
PANSY THOS. GRANGER, rich glowing Crimson, 5s. per dozen.
PANSY SUNBURST, fine Red, 16s. per 100, 3s. per dozen. Fine collection of all leading sorts.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

SPECIAL OFFER OF ORCHIDS

The following beautiful and rare Orchids are offered at low prices, and will be found to be nice-sized, healthy plants; they have not yet been flowered, and probably contain many rare varieties in value quite out of proportion to prices at which they are quoted. They are sent by the importer to make room for fresh importations constantly arriving.

Acridas affine	Each—s. d.	Dendrobium chrysotoxum	1 6
Fielding 7s. 6d. & 10 6	Freemiana	5 0	
Lidias 5s. and 7 6	heteroterpum	5 0	
Japonicum 3 6	Wardianum	5 0	
maculatum 5 0	Grammatophyllum Ellis	10 6	
Angrecum citratum 5s. & 7 6	Lælia albida and incrops	5 0	
Calanthe Schiedii 5s. and 7 6	autumnalis	5 0	
sylvatica 5 0	Dayana	5 0	
Ventchii 3 6	majalis	5 0	
vestita 3 6	Masdevalla amabilis 5s. & 7 6	0	
Cattleya Acklandiae 5 0	Hareyana 5s. and 7 6	0	
amethystina 5 0	igra 3s. 6d. and 5 0	0	
aurea 5 0	tovensis	5 0	
curua 5 0	Wagneriana	10 0	
dolosa 5s. 7s. 6d. & 12 0	Maxillaria grandiflora	5 0	
gigas 10s. and 15 0	Mormodes pardalinum	5 0	
Loddianum 5 0	Odotoglossum Alevan	5 0	
margineata 5 0	dire 3s. 6d. and 5 0	0	
Mossie 3s. 6d. and 5 0	biconensis	3 6	
Tranc 5s. and 10 6	citrosium	5 0	
Cypris aurea 5 0	madrese 7s. 6d. & 10 0	0	
levis 5 0	Phalenopsis	5 0	
Catayse coriata 5 0	vesicularum 5s. and 7 6	0	
cristata 3s. 6d. and 5 0	Oncid. orthochrysum	5 0	
Cymbidium eburneum 5s. & 7 6	pratretium	5 0	
Synplocum barbatum 3 6	Phalenopsis amabilis	5 0	
Hookeri 3s. 6d. & 5 0	7s. 6d., 10s. 6d., and 15 0	0	
Lawrenceana 10 6	Schilleriana, ditto, ditto	0	
mevum 3s. 6d. and 5 0	Pleione laganaria 3s. 6d. & 5 0	0	
venustum 3 6	maculata 3s. 6d. and 5 0	0	
Epidendrum vitellinum 3 6	Saccolabium Blomei	3 6	
Dendrobium bigibbum 7 6	Vanda tricolor 7s. 6d. and 10 6	0	
chrysanthum 3 6	coriacea 7s. 6d. and 10 6	0	
craspedolepis 3s. 6d. & 10 6	Zylocarpum Mackayi	5 0	
formosum giganteum, fine impetated plants 5s. 6d. and 7 6			

All orders and letters to be addressed to 10, Cullum Street, London, E.C., and not to Nurseries, Twickenham, Middlesex. P.O.O. payable to W. GORDON, Mark Lane.

NEW DOUBLE CINERARIAS. R. H. VERTEGANS

Is now Booking Orders (delivery in the autumn) for his unrivalled Collection of 12 superb and distinct varieties: the set of 12 for 30s.; Single Plant, 3s. 6d. Descriptive LIST on application. Seed (saved from the above) 3s. 6d. and 5s. per packet. If sown now, will flower in December.

LAPAGERIA ALBA.

This splendid Cool Greenhouse Climber—pure wax-like Flowers, and a profuse bloomer—Plants well-established in pots, from 10s. 6d. to 63s. each.

Price per Dozen to the Trade on application.

CHAD VALLEY NURSERIES, EDGBASTON, BIRMINGHAM.

Thursday Next, June 15.

GREAT CATTLEYA SALE.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 15, at half-past 12 o'Clock precisely, an Importation of

CATTLEYA SANDERIANA,

grand masses of this gigantic and noble CATTLEYA; a splendid consignment of CATTLEYA GIGAS and TRIANE, a NEW CATTLEYA, provisionally named ROTHSCHILDIANA; many other CATTLEYAS, and LÆLIA MILTONIA, MORELIANA, and REGNELII; a grand lot of CHYSIS BRACTESCENS, in perfect condition; together with many other ORCHIDS, including several enormous masses of LÆLIA ANCEPS, darkest variety; LÆLIA ALBIDA MAJOR, IONOPSIS PANICULATA, ODONTOGLOSSUM ALEXANDRÆ, LÆLIA ELEGANS, &c.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CALCEOLARIA "CLOTH OF GOLD."



LET WHATEVER MAY BE ASSERTED, we last season bought the actual plant of the above exhibited by Mr. Ranley, and certified by the Royal Horticultural and other Societies, also about two dozen young plants. Of these we have some now in bloom. We also purchased other choice kinds of him, so that our collection should be the most perfect, and from all of which we are picking a splendid lot of really good hybridized seed, and offering the same in 2s. 6d. packets with our other superb varieties. It is therefore obvious that we, and we only, can offer NEW SEED of the true certified plant the only Calceolaria of that name awarded a First-class Certificate, and in August we hope to offer some thousands of plants from self-sown seed of it, and all our unrivalled kinds, at 2s. per dozen, 12s. per 100. Our 100-foot home, specially allotted to their culture all the year round, has been for the last six weeks unquestionably one of the finest sights and the most complete collection ever seen of this family.

H. CANNELL & SONS,



Special Offer of Bedding Plants, &c., THOMAS PERKINS & SONS, 34, DRAPERY, NORTHAMPTON.

GERANIUMS, Flower of Spring, Madame	s. d.	Per 100.	s. d.
AGERATUM, Bijou, and Vestuvius	2 0	12 0	0
DAHLIAS, Longell's Dwarf	1 6	8 0	0
DAHLIAS, Show kinds	2 6	16 0	0
CINERARIA, Seedlings, unnamed	2 0	12 0	0
LOBELIA, Blue	1 0	8 0	0
FUCHSIA, in 6-pots	2 0	12 0	0
ECHEVERIA, SCACUNDA GLAUCOA	1 6	10 6	0
VEGETABLE MARROW PLANTS	1 0	8 0	0
TOMATO PLANTS	0 6	4 0	0

All strong and well established. CATALOGUES ON APPLICATION.

CLEMATIS.—The finest varieties for Climbing and Bedding, from 12s. to 24s. per dozen. Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

VARIEGATED GERANIUMS, May Queen and Lady Plymouth—good plants, in 49s and 60s. Price on application. H. HOYCE, Clapham Road Nursery, Stockwell, S.W.

GRASS SEEDS FOR LAWNS.

Of the finest close-growing Evergreen kinds, 1s. per lb. Special preparations for all purposes, soils, and situations. Advice gratis.

Unsolicited Testimonials:—"Knowing how difficult it is to obtain pure stocks of grass seeds, even when price is a secondary consideration, I wrote to say the supply I obtained from you for our new terrace lawns has given the greatest satisfaction."
"Please send me three bushels of the very best Lawn Grass Seeds, suitable for an exceedingly hot upland soil."
"The seed I have had of you has been the only kind which has been able to resist the influence of the sun and drought upon my turf, gravelly soil."

FARM SEEDS

Of all kinds, which have given unequalled satisfaction. See Illustrated and Descriptive LIST free on application.

UNSURPASSED FLOWER and VEGETABLE SEEDS. LIST Free by Post.

RICHARD SMITH & CO.,

SEED MERCHANTS and NURSERYMEN, WORCESTER. (ESTABLISHED 1804.)

COCOA-NUT FIBRE REFUSE, the best that is made (all free on to rail) as supplied to the Royal Horticultural Society and principal Nurserymen in England. In 4-bushel bags, 12s.; 15 bags, 12s.; 30 bags, 21s. (1 bag included); truckload, 23s. cash. Remittance to accompany all orders. J. STEVENS & CO., Greyhound Yard, and 139, High Street, Battersea, S.W.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE. 3d. per bushel: 100 for 20s. 1 truck (loose, about 1 tons), 25s.; 2 bushels, 1 bag of each. LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 2 sacks, 4d. each. BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 1 sack, 4d. each. COARSE SILVER SAND, 1s. 6d. per bushel; 15s. per half ton, 26s. per ton; in 2 bushel bags, 4d. each. YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel. SPHAGNUM MOSS, 8s. 6d. per sack. Manures, Garden Slugs, Virginia Corch, Tobacco Cloth, Russia Mats, &c. Write for FREE LIST. H. G. SMYTH, 17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCAO-NUT FIBRE REFUSE, best and pure only, 4 bushel bag, 1s.; 15 bags, 10s.; 30 bags, 18s.; sent to all parts. Trunks 7/1s. free to rail. A. FOULON, 32, St. Mary Axe, London, E.C.

COCAO-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful all seasons. Unavailable for Potting, Plunging, Forcing, Ferneries, Straw-benches, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 12s. 6d.; 20 Sacks, 20s. 6d. (all Sacks included); Truck-load, free on rail, 25s. Limited quantities of P. M. Special Quality, granulated, in sacks only, 1s. 6d. each (full cask medals), valuable for potting and use in conservatory. Terms cash with order.—To obtain the genuine article, buy direct from the Manufacturers, CHUBB, ROUND AND CO., Farnborough, West Ferry Road, Millwall, London, E.

LOAM, splendid Yellow Fibrous, 15s. 6d. per ton. Good useful peat BEAT, 22s. 6d. per ton, free to Bricklayers Arms, S. E. R. Truckloads only, or 3 tons of each one truck.—FOULON, 32, St. Mary Axe, E.C.

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SOLUBLE FIR TREE OIL INSECTICIDE.

Bottles, 1s. 6d., 2s. 6d., 4s. 6d., and 7s. 6d.; Gallons, 12s. 6d.; Casks, 11s. per gallon. It destroys all insect pests on plants and fruit trees, whether at the roots or on the foliage. It destroys all parasites and fungoids which infest animals and human beings. It is free from poison, very clean and pleasant in the using. It is the cheapest insecticide ever produced.

Testimonial. Wiltshire Gardens, February 15, 1882. Mr. HUGHES.—Sir,—Please send me at once 1 gallon Fir Tree Oil, I have again tried the above, and believe it to be what has been said of it. My previous disappointment with it was on account of its not being stirred sufficiently.—Yours, &c., JAS. TISSINGTON.

From all Seedsmen and Chemists. Manufactured by E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

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Use SMITH'S celebrated WEED KILLER, 4 gallons of which, sufficient to make 100 gallons when mixed with cold water, sent in a sample, carriage paid, price 7s. 6d. Thoroughly destructive to all vegetable growth. Manufactured only by MARK SMITH, Chemist, Louth, Lincolnshire.

Thomson's Vine and Plant Manure.

Manufactured and Sold by THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), LIMITED.

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All our articles contain the pure Essence of Tobacco only. Used in Royal Nurseries, the Gardens of the Nobility, and by leading Men of the Profession, &c.

MANUFACTURERS, DARLINGTON BROS., Frederick Street, Chatham. Post-office Orders and Cheques, Darlington Bros., Chatham. Old Tobacco Rope, VERY STRONG, for Fumigating, &c., 50 lb., 12s. 6d.; 1 cwt., 22s.

SILVER SAND, 7s. 6d. to 11s. 6d. per ton; SPHAGNUM, 8s. to 15s. per cubic yard; LOAM, 10s. to 10s. per cubic yard; ROCKWORK STONE, 7s. per ton; by Truck-load, WILLIAM SHORT, Horticultural Depot, Red Hill, Surrey.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blights, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 10 oz. as a winter dressing for Vines and Fruit Trees. Has obtained many preparations intended to supersede it. In Boxes, 12s., 3s., and 10s. 6d.

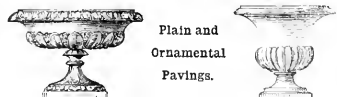
American Blight on Apple Trees CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the latter into the infected part.

GISHURSTINE keeps feet dry, softens hard feet, preserves leather, takes a polish. In boxes, 6d. and 15s. each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen & Oilmen.

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DOULTON & CO., LAMBETH POTTERY, LONDON, S.E.

VASES, PEDESTALS, FOUNTAINS, GARDEN EDGING, &c., IN IMPERISHABLE TERRA COTTA.



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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOLEY'S PATENT BEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES,

for Conservatories, Halls, Corridors, Balconies, &c., from 25 per square yard upwards. Patterns Sheet of Plain or more elaborate Designs, with Prices, sent for selection. WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Kitchens, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c. F. ROSHER AND CO., Brick and Tile Merchants. See Address above.

SILVER SAND,

A fine or coarse grain, as desired. Price, by post, per Ton truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

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ARCHANGEL and PETERSBURG MAT MERCHANTS and IMPORTERS.

All the usual kinds at reduced rates. Sacks and Seed Bags, new and second-hand of every description. Rabbit Fencing, Netting and Lutes, Tarpaulins, Rick-covers, Horse-cloths, Ropes, Lines, and Tarpaulins. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wernwood Street, London, E.C.

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25 yds in each 8s., 35s. 6d., 42s. 6d., 12s. 6d. per bushel, 9s. in 25 yds, 20s. 6d., 42s. 6d., and 6d. per yd.; 5s. in 4ds., 42s. 6d., 52s. 6d., and 7d. per yd.; 7s. in 6d., 7d., 8d., 9d., 10s. 6d., and 12s. per 30 YARDS, 4 yds. length cut. J. BLACKBURN AND SONS, Russian Mat Warehouse, Wernwood Street, London, E.C.

FLOWER SHOW,

SOUTH KENSINGTON, MAY 23 to JULY 5, 1882.

TWO SILVER MEDALS, ONE BRONZE MEDAL, SPECIAL CERTIFICATE OF MERIT, AND THE ONLY GOLD MEDAL

J. J. THOMAS & CO.

For the Excellence of their Various Exhibits

- AVIARIES, for the Lawn. AVIARIES, for the Drawing Room. BIRD CAGES, in Great Variety. ARCHWAYS, FLOWER STANDS. ROSE TEMPLES. TENTS and AWLINGS. GARDEN BORDERING. FLOWER BASKETS. GARDEN SEATS, TABLES. VASES, SUSPENDING BASKETS. LAWN MOWERS. WATER BARROWS. GARDEN ENGINES. POULTRY FENCING. ESPALIER FENCING. GALVANISED WIRE NETTING.

And a large assortment of Miscellaneous Horticultural Requisites.

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C. E. OSMAN, 14, Windsor Street, Bishopsgate, London, E.C., has just received a consignment of fine quality. Prices very moderate. ALL HORTICULTURAL SUNDRIES at low prices.

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JOHN MATTHEWS, THE ROYAL POTTERY,

WELSH-SHEPHERD-MARE, Manufacturer of TERRACOTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS, of superior quality, from 1 to 30 inches diameter, stand the frost, and seldom turn green. ORCHID, PEEN, and STRIKING FANS, RHUPARI and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6d. Book of Designs, 1s.

HORTICULTURAL SHEET GLASS,

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

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BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities of

BETHAM & SON, 9, LOWER THAMES STREET, LONDON, E.C.

B. & S. have always a large stock of London of 25-in. by 12-in., 20-in. by 14-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

T. MILLINGTON & CO.,

43, Commercial Street, E. PLATE, SHEET, CROWN GLASS.

Horticultural and all kinds of Glass having so much advanced, we are compelled to withdraw our prices, but on receipt of application the prices will be furnished, but will be only from day to day until the market is in a more settled state. We have some bargains in 21-ounce, from 6/6 to 1/4 to 1/8 and upwards; sizes sent in returned. Frosted-glass, Hand Frames, Cucumber and Horticultural, genuine White Lead, best Lined Oil Putty, Paint, Oils, and Colours.

NEW BOMAREA.

Flowers Orange and Yellow, with Red Spots.

"BOMAREA FRONDEA."

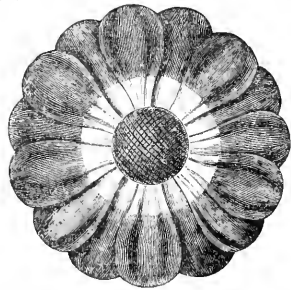
SHUTTLEWORTH, CARDER & CO.

Have great pleasure in offering the above beautiful new cool conservatory climber for the first time. Good established plants, 21s., 42s., and 63s. each. For description see *Gardeners' Chronicle*, May 20, 1882, p. 668, by Dr. Masters.

SHUTTLEWORTH, CARDER & CO.,
101, PARK ROAD, CLAPHAM, S.W.

DANIELS'
CHOICE STRAINS OF
FLORISTS' FLOWER SEEDS,
For Present Sowing, Post-free.

NOTE In the Raising of Florists' Flowers from Seed, the first essential point is to secure carefully Hybridized Seed, saved from the finest flowers of the finest kinds, the choicest of strains in raising some really good varieties being trawly greater from a few plants from seed of the choicest quality than from a large quantity raised from seed of an inferior description.



AURICULA, Daniels' Prize Alpine	Per packet.—s. d.
CARNATION and PICOTEE, from stage flowers very choice	.. 0 6 and 5 0
Do. do. do. yellow varieties	.. 2 6
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GLOXINIA HYBRIDA, magnificent	.. 1 6 and 2 6
FRIMULA, Daniels' choicest Red	.. 1 6 and 2 6
Do. do. do. White	.. 1 6 and 2 6
Do. do. do. Mixed	.. 1 6, 2 6 and 5 0
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Do. do. superb Double, Mixed	.. 2 6 and 5 0
PANSY, Daniels' Show and Fancy	.. 1 0
Do. do. superb Blotched, magnificent	.. 2 6
Do. do. improved striped	.. 1 0
POLYANTHUS, true gold-faced	.. 1 0
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CRANSTON'S NURSERY and SEED CO.'S
SPRING CATALOGUE

(Free on application) contains a list of all the

NEW FRENCH and ENGLISH ROSES,
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In great variety, now ready for planting out;

STANDARD TEA-SCENTED and NOISSETTE ROSES,
Established in Pots:

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For Greenhouse Culture:

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Of all the Leading Varieties:

CLEMATIS, DAHLIAS, &c.

KING'S ACRE, near Hereford.—May, 1882

Ferns a Speciality.

EXOTIC and BRITISH FERNS,

In great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our **SPECIAL LIST of CHEAP FERNS,** which will be forwarded free on application.

W AND J. BIRKENHEAD, Fern Nurseries, Sale, near Manchester.



PRIVATE EXHIBITION OF ORCHIDS.

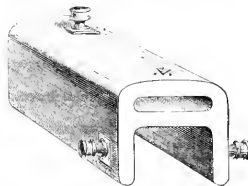
Mr. WILLIAM BULL'S Exhibition of Odontoglossums and other choice Orchids is creating so much astonishment and interest that it will be OPENED throughout this month to Patrons of the Establishment, and to those having received invitations. Several magnificent new kinds are in blossom.

Establishment for New and Rare Plants,
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THE THAMES BANK IRON COMPANY

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Have the largest and most complete Stock in the Trade to choose from.



CAST IRON FLUED SADDLE BOILER.

We are now in a position to offer this extraordinary Boiler, made in Cast Iron, 3 feet long, and will shortly be able to supply larger sizes. This Boiler will be found to be more durable in Cast Iron than in Wrought Iron.

HOT-WATER BOILERS, PIPES, and CONNECTIONS, and all CASTINGS for Horticultural Purposes.

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Hot-water and Hot-air Apparatus erected Complete, or the Materials supplied.



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B. S. WILLIAMS

Has much pleasure in announcing that he has determined to make a grand show of his flowering ORCHIDS at home. The Exhibition will include, in addition to the usual stock of young Flowering Plants, all the grand specimens that he has been in the habit of including in his Collections, which have obtained the leading prizes for many years both at home and abroad.

Patrons of Horticulture are especially invited to inspect this Exhibition.

The Exhibition will contain large and small specimens of ODONTOGLOSSUMS, CATTLEYAS, LELIAS, ONCIDIUMS, CYPRIPEDIUMS, MASDEVALLIAS, VANDAS, AERIDES, SACCOLABIUMS, and other rare and showy ORCHIDS.

AN EARLY INSPECTION IS RESPECTFULLY INVITED.
NO CARDS TO VIEW REQUIRED.

A hearty welcome will be given to all who honour us with a visit.

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Carriage Route from the West End is through Albany Street, Regent's Park, Park Street, Camden Town, Kentish Town, and Junction Road.

The North Metropolitan Tramway Cars, in addition to the Street Tramways Company's Cars, arrive at and start from the Nurseries, for the City and West End, every few minutes.

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NOTICE.

MR. WILLIAM BARRON,
the experienced and well known Land-
scape Gardener and Horticultural Builder, of
Sketty, Swansea, wishes it to be clearly understood
that his Establishment, of more than 100 acres,

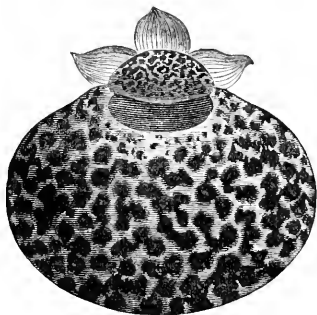
CONTINUES IN SOUTH WALES,

where it has been for more than 30 years. He
has no branch Nursery at a place called "Borrow-
ash," nor is he "related to nor connected with"
any other Firm.

Mr. WILLIAM BARRON Designed and
Built the magnificent Conservatories, Winter
Gardens, Vineries, Forcing Houses, &c., Kitchen
Gardens, Terraces, &c., for MADAME
ADELINA PATTI, at Craig-y-nos Castle, and
continues to carry out the necessary work.

Dated June 6, 1882.

WEBBS'
SUPERB STRAINS OF
FLORISTS'
FLOWER SEEDS.



WEBBS' SUPERB CALCEOLARIA,
1s. 6d. and 2s. 6d. per packet, post-free.

	Per Packet.—s. d.	s. d.
Webbs' Superb Calceolaria ..	1 6	2 6
Webbs' Perfection Cyclamen ..	1 6	2 6
Webbs' Superb Cineraria ..	1 6	2 6
Webbs' Exquisite Primula ..		
" Finest Fringed Red ..	1 6	2 6
" Finest Fringed White ..		
" Mixed Colours ..		
Webbs' Gold-laced Polyanthus ..	0 6	1 0
Webbs' Wallflower "Canary Bird" ..		1 6
Webbs' Brompton Stocks, Mixed Colours ..		0 6
Webbs' Picotee, Mixed Colours ..		1 6
Webbs' Carnation ..	1 6	2 6
Webbs' Excelsior Gloxinia ..	1 6	2 6
Webbs' Defiance Auricula ..	1 0	2 6
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All Flower Seeds Post Free.

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THE QUEEN'S SEEDSMEN,
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BEST DESIGN.
BEST QUALITY.
BEST WORKMANSHIP.



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THE
Gardeners' Chronicle.

SATURDAY, JUNE 10, 1882.

THE MARIANNE NORTH GAL-
LERY AT KEW.

FROM the present time the beautiful and
instructive series of oil paintings of plants
and their homes, made by Miss Marianne
North, in many different and distant parts of
the world, will be accessible to the public at all
times when the Royal Gardens at Kew are
publicly open. There are in this unique col-
lection no less than 627 oil paintings of plants,
and landscapes in which plants form a prominent
part. An excellent catalogue has been compiled
by Mr. W. B. Hemsley, and of this admirable
little handbook it would be almost impossible
to speak too highly. It has 131 pages
and will be sold for sixpence; it not only con-
tains all that Miss North knows about the sub-
jects and places painted, but it gives the popular
and botanical names of nearly every bloom and
fruit portrayed in the pictures. Sir Joseph
Hooker has also aided in the preparation of
this little work; Prof. Oliver, Mr. J. G.
Baker, Mr. J. R. Jackson, have also helped
in its preparation; and Mr. F. Du Cane God-
man, F.R.S., Mr. O. Salvin, F.R.S., and the
Rev. — Cambridge, have assisted in naming
the numerous birds, butterflies, spiders, &c.,
which find a place in some of the pictures.
Under the letter A only in the index there
are no fewer than 103 entries of plant names,
so that it is no exaggeration to say that a
visit to this collection of pictures, aided by
Mr. Hemsley's catalogue, gives the visitor an
opportunity of acquiring a good idea of the
natural vegetation of the greater part of the
world. Such an adjunct to a botanic garden is
unique, and in the highest degree valuable, for
it must be remembered that botanical drawings
seldom or never give life-like representations of
plant life, habit, and natural surroundings: it is
often impossible and generally unnecessary to
do this in purely scientific work. It is impos-
sible for any person who has not travelled
in the tropics to form any idea of what
tropical fruits like, botanical drawings
and sections give a poor idea, and photo-
graphs and miscellany samples in bottles of
spirit a still worse one, but here in this noble
collection of oil-colour sketches the innumerable
fruits of foreign countries are presented in such
large numbers and dashed off with such bold
and truthful drawing and colouring that the
fruits themselves seem to be before the visitor
in a living way. The arachnids, snakes, and
snails were seen near the objects represented
they have been invariably painted, and when
butterflies and birds have fluttered about flowers
they have been painted with equal truth with
the flowers themselves, so that not only have
botanists been easily able to name nearly all
the plants represented, but zoologists have been
able to name the birds and other animals, and
entomologists to do the same for the insects.
Some of the plants represented (like the mag-
nificent Nephentes Northiana, figured from Miss
North's drawing in our number for Dec. 3 last)
are new both to horticulturists and botanists. Mr.

Baker has quite recently described a handsome new Crinum, under the name of *C. Northianum*, in these pages; and it is quite evident, on an examination of other of the paintings, that there are several handsome and remarkable plants here represented that are at present unknown both in gardens and herbaria.

All the pictures are in oils, and taken from Nature in the homes of the plants; they are painted upon prepared paper, and affixed to canvas on reaching England. Little or no "medium" was (as we are informed by Miss North) used with the colours; but the tints were used just as they were pressed out of the metal tubes, no turpentine was used for cleaning the brushes, these were merely wiped or squeezed clean with a piece of rag. The pictures were, of course, executed under great difficulties, and often with insufficient or imperfect materials; sometimes the prepared paper ran so short that pictures had to be painted on both sides. Being in oils they had commonly to be packed up whilst still wet, and in this condition transported from place to place, so that our readers will see the works were produced under circumstances of no ordinary difficulty. No attempt is made at over-refinement in any of the works; high finish and minute details would have been impossible under the conditions, and no such details were requisite; they can be got, if wanted, from botanical and entomological books. The pictures have not even been varnished. They are the skillful, dashing works of a true artist, which completely succeed in showing us Nature as she is. A large collection of Miss North's pictures was exhibited at South Kensington a few years ago, but the present pictures are more numerous, as the Australian and New Zealand sketches are of quite recent date.

The pictures are arranged geographically, in the following order:—Teneriffe, Brazil, Jamaica, United States, California, Ceylon, India (with a series of sacred plants of the Hindus), Singapore, Borneo, Java, Japan, New Zealand, and Australia. In the pictures a great number of timber trees are portrayed, and the whole dodo of the room is made up of polished specimens of the woods derived from the trees sketched above. As far as possible each example of wood is named. The catalogue has also been cut up, framed and glazed in pages, and hung under the pictures, so that every person who desires to see and learn may do so if he pleases without the expenditure of a penny.

The pictures being all painted by the same hand, and in the same style, any criticism in detail is unnecessary; we may say of them, one and all, that they are well done, and thoroughly answer the purpose the artist undoubtedly set herself when she essayed to paint so many pictures of plant life in so many parts of the world. We mention a few of the pictures which especially attracted our attention as they lay in the room, and the list will be found at a distance an idea of the range of subjects: 2, Tobacco; 3, Olives; 5, the Cochinal garden of Teneriffe; 6, 10, 12, and 37, Dragon trees; 17, *Pomegranate*; 26, Harvesting Sugar-cane; 28, Orchids growing on water-worn boulders; 31, Brazilian Orchid, *Sophronites*—remarkable contrast of the fiery crimson blooms against the contrast of the green leaves and black-grey tree-trunk; 33, *Orchis canariensis*; 34, Houseleek and canary-birds, Teneriffe, the canaries the same colour as the Houseleek blooms; 40, Sugar-loaf Mountain, with inverted stork feeding on Trumpet tree; 41, Sago-yielding Cycads; 42, Fruits and vegetables of Brazil; 43, Granite boulders and Cuscuta; 44, House-builder caterpillar; 51, Flowers and fruit of *Maricopa's* Passion-flower; 52, Botanic Garden, Teneriffe; 55, Indata Palm; 56, Hemantibus, coral snake and spider; the correct drawing of the coiled snake and spider; the power of the artist. 60, Red and white Indian Water Lilies; 61, *Datura arifera* and humming-birds; 62, Palm trees and boulders, Rio; 64, Landscape at Morro Velho, Brazil, with a colony of butterflies, the habit of the latter being remarkably life-

like; 74, *Poinsettia pulcherrima*, apparently the "double," recently introduced into our nurseries; such an inflorescence as here painted is seldom seen in our gardens. 78, Foliage and fruit of Mamme Apple; 80, Screw Pines, Botanic Gardens, Brazil; 90, Wild meadow flowers, Brazil; 93, Old gold works, Brazil; 95, Brazilian flowers; 99, Side avenue of Royal Palms, with a man carrying a leaf, about 15 feet long, on his head; 102, Flowers of a Brazilian forest tree; 103, Peaches and humming birds; 105, Papaw trees; 111, Foliage and flowers of *Chorisia* and double-crested humming-birds; 112 and 114, Flowers of Coral tree and king of the flycatchers; 115, Castor-oil plant; 116, a Brazilian Orchid—*Lelia parparata*; 118, Flowers, foliage, and fruit of the Sour-sop; 120, Brazilian flowers; 121, Foliage, flowers, and fruit of American Cotton; 122, Flowers and fruit of Bougainvillea and humming-birds; 126, Flowers, foliage, and fruit of a Passion-flower; 128, Flowers, foliage, and fruit of *Eugenia*, and sulphur butterflies; 131, Dr. Lindl's garden, Lagoa Santa, Brazil; 132, Flowers and foliage of *Malva*; 133, Foliage, flower, and fruit of *Natrecium*; 138, *Passiflora* and humming-birds; 150, *Natrecium* and *Passiflora*; 151, Foliage and fruit of the Akee; 153, *Bilbergia zebrina*; 154, Tree frogs among dead leaves—brown frogs and brown leaves of same colour; 156, Orchid—*Epistephium*, and large snail, gigantic land mollusc; 158, Bermuda Mount, Jamaica, with a Calabash tree covered with epiphytes; 162, Valley of Bamboos, Jamaica; 167, Foliage, flowers, and fruit of Coffee; 168, the Calaveras grove of Wellington; 169, Foliage and fruit of the Loquat; 182, Foliage, flowers, and fruit of *Lignum-vite*; 183, *Euphorbia splendens* and *Thunbergia alata*; 186, Study of Screw Pine: view of the Fern walk, Jamaica; 198, Castor and Pollux in Calaveras grove; 203, the Mariposa grove of big trees.

We have now enumerated less than one-third of the subjects we had specially marked for notice. Subjects of a similar nature with the foregoing occur in equal numbers to the end of the series, but space (at least, in our present number) forbids us going further. Every picture in the room is well worthy of notice, for every subject has been painted with some special motive kept carefully in view. Some of the *Nepenthes* are remarkable, and specially so that in 377; the inside of the pitcher is a whitish metallic green, marked towards the top (inside) with two darker green "eyes," similar with the "eyes" one sees on some larvae and on the wings of certain butterflies and moths; this plant has not been named by Mr. Hensley, and it seems well worthy, from its manifest distinctness, of special note. Other unnamed *Nepenthes* occur on 391: there appears to be one (if not two) very distinct species in this picture. In 586 some blooms of remarkable black and yellow colour are shown in the flowers of the Flame tree—*Nyctusia floribunda*. 556 is a notable picture of Sandal-wood with Mistletoe, the foliage of host and parasite so much alike as to be hardly distinguishable. 607 shows a *Teleopa* with an inflorescence equally fine with the plant recently illustrated in this journal. Gardeners will notice 515, Gardener's cottage in the Buitenzorg Botanic Garden, Java—an "airy hall" not suitable to Britain.

In the middle of the room, and mounted on a metallic table, is a large map of the world, illustrative of the distribution of vegetation. This is a most elaborate and highly-finished water-colour drawing, by Mr. Trelawney Saunders, without meridian lettering, by means of faint but distinct colours it shows the forests and cultivated grounds, the bush or scrub, prairies, steppes, deserts, swammy plains, glaciers, peck-ice, fields of seaweed, &c., of the earth. Miss North's original idea was to have a similar but larger map painted upon the ceiling, and it is to be hoped that this excellent idea will some day be carried out. Round the architraves of the doors, and in the panels, are numerous other plants painted on black or gold grounds by Miss North, these represent Tea, Coffee, Grapes, Hops, &c.

The building, of which we repeat our former illustration, although a large one, measuring 50 feet by 25 feet, designed by Mr. James Ferguson, F.R.S., is really much too small for the pictures to be properly seen—in a room two or even three times the size of the present one is required. We were not quite pleased with the big and heavy classic ornament upon the cornice, and we think the shiny black frames are too strong in colour. When a new issue of the catalogue is published, it will be well to alter 180, where it is stated that the trees of Ceylon are shown embedded in "stalactites;" we think, from the appearance of the picture, that this

word should be "stalagmite." In 207 is an excellent view of Niagara Falls from Pearl Island, with mist and double rainbows; the prismatic tints on these rainbows are repeated. We have not made a speciality of rainbows, but we think the prismatic tints in twin rainbows are reversed in order, and never repeated in the same sequence. If so, a touch of Miss North's admirable and prolific brush will set this right in a moment.

In the preface to the catalogue Sir Joseph Hooker tells us that the collection of pictures, the gallery itself, and even the catalogue, is a "free gift to the Royal gardens on the part of the accomplished lady, artist and traveller whose name the gallery bears;" and he justly says "that it is not possible to overrate its interest and instructiveness in connection with the contents of the gardens, plant-houses, and museums at Kew." Attached to the gallery is a studio, with conveniences for drawing and painting, and the house-keeper has a duplicate key, so that artists who may wish to paint at Kew can have plants removed to this studio and there paint them in quiet. Every person interested in horticulture, botany, and art will join with Sir Joseph Hooker in feeling "grateful" to Miss North "for her fortune as a traveller, her talent and industry as an artist, and her liberality and public spirit."

New Garden Plants.

ANGULOA DUBIA, *n. sp.*, s. *hjb.* (?)

This is a very curious plant. At first sight the flower reminds one of a lemon-coloured *Angoula uniflora*, covered on the inside of the sepals and petals with numerous minute purple spots. The shape of the flower is like that peculiar one of the species mentioned. The lip is very distinct. It is much compressed, with angular lateral lobes, and a very small triangular reflexed anterior lobe, with very few short hairs. There is no vestige of that intrusion on the inferior base that is so conspicuous in *Angoula uniflora*. It is white, with purple blotches inside at the base of each side. The lacinae and bidentate callus is ascending and naked, much like a sack. The rostellum of the column is very short. It is not proboosoid, as in *Angoula uniflora*, and there is no running descending line on each side of it, as in *Angoula Clowesii* and *Kuekeri*. Its odour is very powerful.

This plant may be a natural hybrid between *Angoula uniflora* and *A. Clowesii*. It is highly desirable that it should be well watched in future, to ascertain if it is constant, or whether it changes its features. It would, however, appear to be highly improbable that several deviations had taken place at one time. It was imported with other Orchids from the United States of Colombia, and is said to be like *Angoula Clowesii* in growth. Mr. B. S. Williams is the possessor of this great curiosity. If the *Angoula media* of Mr. Bowring were placed by its side it would make a fine assemblage. *H. G. Rehb. f.*

ONCHIDIUM UNICORNE (*Lindl.*) var. LETUM.

Mr. B. S. Williams found amidst numerous plants of the genuine variety a plant with an unusually broad pandurite lip, white, blotched with numerous purple-mauve spots; a horn of the same colour, having some teeth on the lower side. The callus is fine orange. It is charming for an orchidist. *H. G. Rehb. f.*

DENDROBIUM HUGHII, *n. sp.*

Before I had a plant, Mr. Hugh Low kindly sent me a herbarium specimen. I thought from the flower the plant might stand close to *Dendrobium revolutum*; the stems, however, are much thinner, and the grassy, linear-canaliculate leaves separate it widely. The flower has a fine Vanoid substance, just as in the above-named species. The thin chin is very much developed; one may call it conico-cylindrical by combination

* *Angoula dubia*.—Perigonii sepalis tepalisque exacte Angoulae uniflorae; lacinae compressa lacinae lateralis subultra; lacinae medianae triangulari reflexa minus subultra; carina laminaeformi ascendente apice bidentata; cum sinu obtuso; columna rostellato deflexo brevissimo; lacinae dubiae decurrentibus juxta rostellum subultra.—*H. G. Rehb. f.*
+ *Dendrobium (Dendrobium) Hughii*, *n. sp.*—Callus viridius tenuibus; Eius linear-canaliculatus; Dorsum setarum (nunc geminis tenuibus) illis Dendrobii revoluti aequalibus ejusdemque tibus; mento parvulo extusioriorum ovarium pedicellatum non aquante; sepalis ligulatis acutis; tepalibus oblongo rhombicis obtusangulis; lacinae basi cuneata subhembeo, dimidio inferiori angustiori medio contracto et angulato, dimidio antice subultraformi obtuso acuto; lamellis marginis exterioribus medio obtusangulis in paginam incumbentibus extrorsis; columna superne amplata, apice utriusque pone anteriam angulata—Singapore. Hugh Low nepos. *H. G. Rehb. f.*

of two opposite qualities. It reaches half the length of the stalked ovary. Sepals ligulate, acute. Tepals nearly rhomboid, obtusangular. The lip may be described as rhomboid, but suddenly constricted in the middle, and the superior part narrower, emarginate in the middle. These are two curious; free outside, reclinated each side on mid-line of the lip from the base nearly to the top. The column is much wider at the top near the stigmatic hollow, and has on each side the anther a triangular horn. The flower is of the finest and purest white. There is a light sulphur wart on the disc of the lip, an orange blotch under each horn at the summit of the column, and a mauve spot behind.

This new species was discovered near Singapore by Mr. Hugh Low, the son of Mr. Stuart Low, who was

ings. It may prove a novel plant, inasmuch as it produces as many as ten open flowers at once, which must make a very curious effect. It was discovered thirty years ago by Herrmann Wagener; it never came alive to Europe, as far as I know of, till now, when it is at last in Mr. F. Sander's hands. *H. G. Rehb. f.*

THE EXETER NURSERY.

THAT one of the finest nursery establishments in England should have taken root, and developed into a business of more than average magnitude, within the fief of the ancient city of Exeter, will not surprise any one who is acquainted with the geology and general climate of South Devon. The nursery was

remarkable tree is this:—It was discovered among a batch of seedlings, raised by Mr. Lucombe about the year 1773, from acorns saved from a tree of the Wainscot species, and as the plant developed peculiar qualities distinct from any other it was christened the "Lucombe Oak." Thousands of plants were raised from this tree which have been distributed in the adjoining counties, and all of which are said to have succeeded remarkably well. The tree retains its leaves through the winter, and the wood is said to be harder and of better quality than any other variety.

The glass erections are extensive, indeed there is a little town of glass, which begins almost at the entrance gates and extends in all directions over a considerable area. The first house upon the right was a few weeks ago filled with Tea Roses in pots, of such

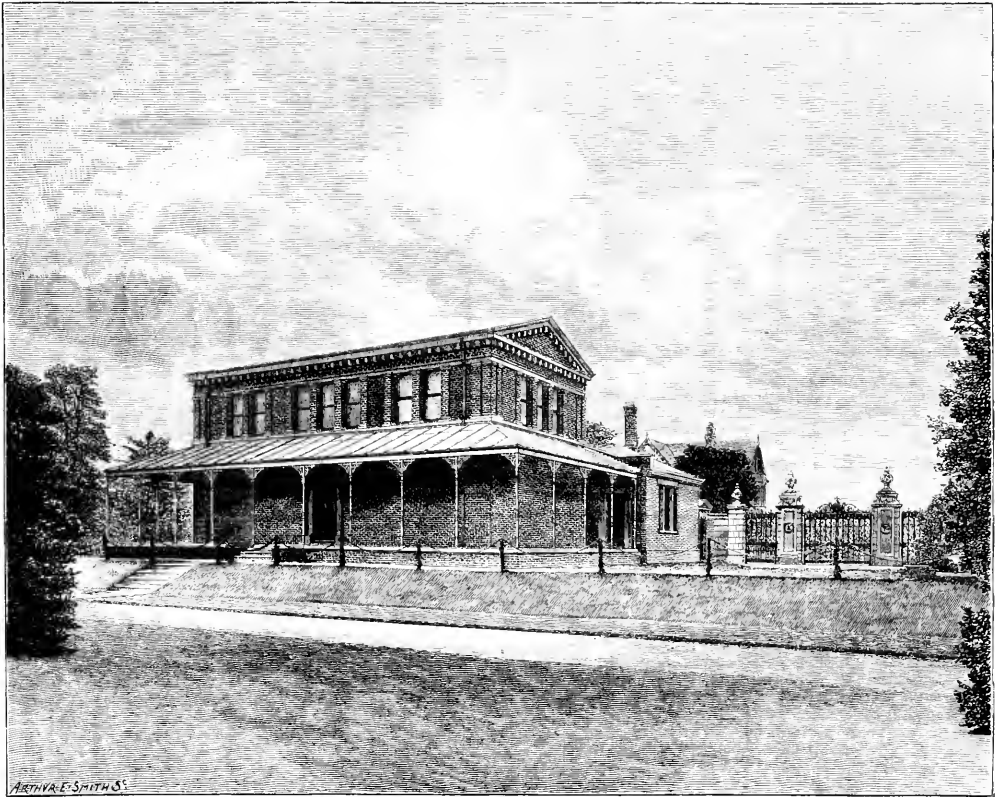


FIG. 117.—THE "MARIANNE NORTH" GALLERY IN THE ROYAL GARDENS, KEW. (SEE P. 763.)

lately collecting in the Malayan Archipelago. May this modest discovery be the beginning of a series of lucky catches, and may this friendly dedication be accepted with as much pleasure as it is made with satisfaction. *H. G. Rehb. f.*

MASDEVALLIA VROSTACHYA, n. sp.*

This is in the way of the grand *Masdevallia Schlimii*, but the flowers are more numerous, on longer stalks, smaller and more abruptly caudate. Their colour is a dark cinnamon, and there are small orange mark-

* *Masdevallia vrostachya*, n. sp. — Pedunculo trigono; racemo plurifloro synamtho; bracteis cupulatis brevissimis hyalinis; pedunculis ovarisque longissime exsertis; Bract. cupula brevissima, mento rotundato; sepalis triangulis liberis brevissimis latiusculis; cavis elongatis; tepalis ligulatis acutis unineervis; labello elongato laciniis lateralibus humilissimis semioblongis antice angulatis; laecnia antica ligulata obovata apiculata apice infra ancipiti trinevis. *H. G. Rehb. f.*

ounded as far back as the year 1720, since which time it has enjoyed the highest reputation as one of the foremost establishments of its kind. The business is still conducted with the same energy as heretofore by Dr. Woodman, under the familiar title of Lucombe, Pince & Co.—a title than which there is none more widely known or respected throughout the whole nursery trade. The late Mr. Pince (the present proprietor's uncle) was so well known as a horticulturist of eminence, that further introductory reference is rendered needless. The entrance to the headquarters of the nursery is off the Alphington road, which is not more than five minutes' walk from St. Thomas' Station. The first object of notice is the seed warehouse upon the left, and the Lucombe Oak (*Quercus cerris* Lucombeana), which is not only a handsome and interesting tree, but also an historical one, upon the right. Succinctly the history of this

kinds as *Niphetos*, *Devoniensis*, and *Maréchal Niel*; and a large span-roofed structure upon the opposite side of the walk contained a very fine collection of *Azaleas* in specimens and half specimens, and of smaller sizes for the convenience of those who choose to begin with plants in a younger state. There is, however, this much to be said in favour of this excellent and well grown collection, that all the plants, both young and old, are in the most perfect state of health, and in the case of hard-wooded plants, which are slow growers, it is no small advantage to many to be able to avoid the slow and tedious process of growing specimens from tiny little plants, which is a work of years.

From the *Azalea*-house a brilliant display was observed a short distance off, in a light airy structure, which turned out to be Messrs. Lucombe, Pince & Co.'s celebrated strain of *Cineraria*, called *Wonder of the West*. The collection was good throughout, many of

the varieties being of large size and substance, especially some of the "deep blue" varieties, which are free growers and are admirably adapted for grouping in conservatories, or indeed for any other decorative purpose. Some of the flowers measured 3 inches across. The entrance to the Palm-house was festooned with Clematis montana grandiflora, which seems amenable to any kind of treatment or training. The structure is embellished in the inside with creepers, loosely trained, of Ipomoea Learii, Passiflora racemosa, and Bigonia Pandora. The specimens comprise most of those kinds that are rare and useful among Palms, and the different varieties are carefully disposed to the best advantage. In this house Palms may be said not only to be grown, but also exhibited, so carefully and skillfully are the different forms of leaves brought into contact with each other, and so good is the effect. There are also flowering specimen plants and Tree Ferns arranged with the Palms.

The show-house, which is entered from the Palm-house, is a division of the same structure, and was gay with choice flowering plants of Bougainvillea glabra, Clerodendron Thomsoni, Tree Ferns, Callas, which formed a massive background; Cytisus, Hydrangeas, Azalea mollis, Lachenalias, and finely-flowered samples of Hymenocallis macrostephana. The Camellia-house is an immense structure, 200 feet long and 24 feet wide, having large bushes of the very best varieties in cultivation planted out in a bed in the centre, and the walls draped with free-growing kinds, which have a grand effect all through the winter and spring months. The old and now scarce variety reticulata is a fine plant, having healthy foliage in greater profusion than is usually met with in this variety. The flowering extends over a period of several months, and the effect produced by so many large specimens in flower of different colours may be more easily imagined than described. Some of the largest plants in existence anywhere of *Luculia grattissima* are trained as wall creepers at one end of the Camellia-house, and they, too, are remarkable examples of plant growing. From the Camellia-house a number of smaller houses are reached; one, an Azalea-house, filled with large white Azaleas for coming into flower at Christmas, then a house full of Pelargoniums, and a propagating house. The general collection of stove plants (for it is important to distinguish between the general collection and the "show" collection) will be found in a house over 200 feet long in three divisions, and consist of *Stephanotis floribunda*, *Bougainvillea glabra*, *Aspidistras*, *Ficus*, *Ardisia crenulata*, *Medinillas*, *Bougainvillea spectabilis*, a ready grown specimen for exhibition, stove bulbs in thousands, *Gardenias*, young Palms, *Phyllanthus atropurpureus*, *Hibiscus flavus plenus*, *Franciscana calycina major*, and representatives, of one size or other, of almost everything that is worth growing in a plant stove.

What is particularly gratifying to the practical cultivator is the opportunity he finds in this nursery of inspecting the different classes of plants by themselves. If he be an Orchid grower, there is the collection arranged to his hand, and not only arranged in separate divisions, but in their respective species. The Heath grower will find his favourites occupying a long airy structure by themselves, and the Croton or foliage man will find giants of his pets in quarters which are exactly suited to them. But to return to the Orchids, the plants recently in flower were *Dendrobium pulchellum*, *D. Paxtoni*, *Oncidium carthaginiense*, *O. spheacelatum*, *Odontoglossum Pescatorei*, *Stanhopeas* in baskets, *Epidendrum microchilum*, and the general collection consists of *Calanthes* (grand bulbs) *Veitchii* and *nivalis*, *Cypripediums*, *Dendrobiums* and *Oncidium*s. *Cattleyas*, *Lycastes*, *Saccolabiums*, *Aerides*, and *Phalaenopsis*, are also largely grown, some of the latter being very promising plants, grown in baskets or on blocks. In one of the Orchid divisions I noticed a dainty little group of *Bertolonia Van Houttei*, than which there is no more pretty or interesting class of plants to be grown in a case in the plant stove. These plants are certainly not fit for everyday use, but any one who grows plants for the love of them will find themselves rewarded by cultivating a few of them.

The Heath-house is 150 feet long, with a centre stage well raised, and side stages and path all round. The clean flag paths and excellent order maintained throughout the houses is nowhere more conspicuous than in this Heath-house, where the different specimens are neatly trained and arranged in order that every plant may enjoy the full benefit of air and light—conditions which it is unnecessary to state are indis-

pensable in the cultivation of Heaths. The flowering plants are about equally distributed over the entire house, and these consist of *Erica profusa*, *E. Cavendishiana*, *E. aristata major*, and *E. Devoniana*. As objects of cultivation the *Aphelexis* are a prominent feature, as also the violet-coloured *Diosma* and *Adenandra fragrans*, a plant bearing *Vinea-like* flowers which tend to enliven and brighten up a collection of hard-wooded plants. *Darwinias*, *Acanthias*, *Lapagerias*, *Kennedia rubicunda*, *Chorozemas*, *Tremandra verticillata*, and *Phenocoma prolifera Barnesii* are all grown in considerable numbers, and in sizes suitable for any purpose either for forming a collection for private use or exhibition, or both combined. No one having any knowledge at all of plants can pass through this collection without being impressed with the fact that the loss to private gardens of such substantial plants to make room for a few gaudy subjects is an error which sooner or later the horticultural public will be sure to recognise. It is a poor garden indeed where one house of some size or other cannot be spared to accommodate a small collection with the meagre shelter that they require for six months or so in the year. But I must revert to my text, and proceed to notice the stock of show and decorative Pelargoniums (trained), without exception the most exemplary collection that I have come across anywhere. There are about 1000 plants in this house, and here again the utility of having abundant glass accommodation is strikingly exemplified in the dwarf, I had almost said elegant, symmetry of the plants. The structure was specially built for Pelargoniums, and each row of plants is not more than a foot from the glass, hence the reason of their dwarf sturdy growth.

Next to the Pelargonium-house are several Rose-houses, about 130 feet long each, and in which the Roses are either planted out or grown in pots for supplying cut flowers in winter. One house is filled entirely with *Niphetos* and *Général Jacqueminot*, the second is stocked with *Gloire de Dijon*, *Niphetos*, *Maréchal Niel* and *Devoniensis*, planted out and trained to wires; and the same structure was crammed from end to end with *Callas* in flower, so that two good paying crops are taken from the same house at one and the same time. *Niphetos* is *par excellence* the Rose of the day for producing winter flowers that bring nearly any price that is asked for them. The next house to be noticed is the "old stove" a familiar title, and one indicating that a more modern structure has supplanted it in the place of honour which it once held. And yet these old houses are very often notable places, or rather they give shelter to notable plants. It would perhaps be a convenience to many plant growers to have an "old house" for some of their best things, because people, as a rule, do not expect to find good things in such places. At all events, the "old stove" to which I am referring is not less interesting when you get inside than some of those fashionable-looking buildings which are known by another appellation. If fine Orchids and a collection of Ferns and other miscellaneous plants are anything to look at it goes some way towards proving that good plants may be grown in houses void of external embellishment. The fernery is remarkable for its stock of choice Ferns, many of them fine trained specimens. Reference is particularly made to the stock of *Gleichenias*, in all the well-known varieties of the species, of which there is a very superior collection in the rudest of health. In the same house there is a plant of *Pritchardia pacifica*, said to be the finest in the country; and some extra fine plants of *Phœnicophorum sechellarum*. *Davallias*, *Gymnogrammas*, and *Nephrolepis* of sorts are also noticeable either in point of training or cultivation, many of them for both.

(To be continued.)

FLOWERS IN SEASON.

A FLOERIFEROUS WEIGELA.—How curious it is that a floriferous shrub does not appear to attract anything like the same amount of attention that a fertile Vine or Peach tree, or even a prolific black Currant does. The reason is obvious in one respect. We have made it a point to eulogise and proclaim anything remarkable in fruit growing, because the bulk of employers and the population of the country generally are more interested in obtaining a good supply of fruits than of flowers, the latter of which can be more readily dispensed with than the former. But it probably does not occur to every one that what makes the fruit tree prolific also makes the shrub free-flowering. Good drainage, a favourable situation, and well matured wood, are conditions which

are absolutely necessary in producing fertility in fruit trees, and the same conditions will cause flowering shrubs to bear three times as many flowers as they usually do. The plant to which especial reference is now made is an aged one, and stands upon the brink of a slope, where, no doubt, the ample natural drainage of the situation, and the fact of its being well exposed to air and sunshine, causes the wood to be more than ordinarily well ripened. The soil, too, must be exhausted, as is evidenced by the smallness of the wood, which also assists in producing that perfection of maturity which plants growing under the shade of other trees, and in richer soils, never attain. A single shoot 2 feet in length upon this shrub has fourteen sprays of flowers upon it, forming as perfect a natural wreath as ever was made by the hands of a florist. The flowers are borne in a double row the whole length of the shoot, every set of two sprays being the same distance apart.

COTONEASTER EUNIFOLIA.—This is a useful plant for covering walls or creeping over rockwork, and is now bright with its tiny white blossoms, myriad in number. It is pretty alone, pretty anywhere, but the effect is improved by dotting a few (not many) hardy Ferns amongst it. The green points of the young fronds have an especial charm, peeping out from among the little white blossoms, and the ugliest of walls covered in this way will be pretty at any season of the year. Of Ferns small plants of *Polypodium vulgare* or *Scopolopendrium* will answer the purpose.

DOUBLE WALLFLOWERS.—Although several severe winters have proved sadly destructive to these old garden favourites enough has been saved to keep stocks in existence, and as the past winter have been of a generous mood many plants in fine bloom have here and there been seen. Like all double flowers that of the Wallflower has to bear comparison with its single congeners, and in this particular case the comparison is not favourable to the double kinds. Single forms are all so beautiful, so sweet and so easily raised from seed, that they will never be elbowed out of popular favour by any double forms. But these latter are not without their charms; they, too, are sweet, and do not indifferently compare with double Stocks, Rockets, Cloves, and similar flowers. They are perennial, and once planted remain to bloom for several years if in sheltered positions. They furnish always acceptable cut flowers, and, not least, may be freely propagated by every gardener by means of cuttings. It is chiefly to the lack of this latter act that we owe the present scarcity of the double kinds. Cuttings should be put in now, using the robust spring growth for the purpose, or in the autumn, when cuttings made from the season's harder wood will stand through the winter and root freely early in the spring. The coarse growing German double forms raised freely enough from seed do not come into the ranks of true perennial doubles, and this latter tribe does not constitute a large section. The old deep red or black kind seems to be missing in many localities, still it may exist somewhere. The dark mottled red is abundant, and so also is a very striking reddish-buff form that is most free. The old double yellow, the pretty dwarf kind, known as Harpur-Crewe's Double, and the Whin-flowered buff yellow, are all distinctive, and of the best to be found in cultivation.

CAMPANULA MACROSTYLA.—This is a singular and distinct annual Campanula, that is much admired wherever it is seen, but it is unquestionably somewhat difficult to grow. The flowers are large, of a pale ground colour maculated with lilac-purple, and the sharpened points of the flowers are distinctly tipped with purple. A curious horn-like style stands out from the centre of the flowers. One who has been successful in raising and blooming this Campanula recommends that the seed should be sown in January, and the plants be grown on freely and not allowed to sustain a check from the cold till hardened off and planted out in June. Mr. Barron flowers it nicely on the rockwork at Chiswick.

BERBERIS FORTUNEI.—This is a very striking plant at this season of the year for a shrubby bed or border, and has a fine effect planted in conjunction with *Deutzias* or light-coloured *Rhododendrons*. It bears large clusters of berries, which, as they approach maturity, are covered with a dense bloom, which are even more attractive than its rich

beautifully cut leaves. At Haldon House, the charming seat of Lord Haldon, near Exeter, it is planted as a background to a group of herbaceous plants, in which position it is highly effective, and if not so bright as some of the herbaceous plants it is certainly not a less interesting object.

RHODODENDRON GRANDE.

This noble species, illustrated in our supplementary sheet, was discovered originally by Griffith in Bhotan, re-discovered by Sir J. Hooker, in a different form, in Sikkim (*R. argenteum*), and a further form was, later on, discovered by Booth in Bhotan (*R. longifolium*). The writer of this note has reason to believe that many forms of the species are to be found in the eastern Himalayas.

Wight tells us that Griffith "briefly characterises this species in the single word 'magnifique,' which idea I have attempted to convey in the specific name." That the name is no misnomer, will probably be admitted by all who saw the flowers and the grand foliage lately at the Royal Horticultural or the Linnean Society. The five-and-twenty to thirty large ivory-white florets, with deep purple spots at the base, and the brilliant red stigmas, slightly, and when fresh only slightly, nodding on their stalks, formed a fitting centre to the splendid, leaves, deep green above, and snowy white below. But those who have grown the plant can add to the above the glories of the rising leaf-shoot, the rich and varying bronze and green tints, the crimson scales, and the profusion of silvery down; nor must it be omitted that the flowers are deliciously scented, and last very much longer than most Rhododendrons.

The plant from which the flowers were taken was about 8 feet high and had sixteen trusses of bloom; it was grown in a cold greenhouse, for the species is not quite hardy. This journal remarked that the blossoms far surpassed those portrayed in Sir J. Hooker's plate of *R. argenteum* (the plate in the *Botanical Magazine* is wholly inadequate), but it will be interesting to quote Sir Joseph's words, as follows:—"The great *R. argenteum* grows as a tree 40 feet high, with magnificent leaves 12 to 15 inches long, deep green, wrinkled above, and silvery below, while the flowers are as large as those of *R. Dalhousie* and grow more in a cluster. I know nothing of the kind that exceeds in beauty the flowering branch of *R. argenteum*, with its wide-spreading foliage and glorious mass of flowers." (*Him. Journ.*, i., p. 126.)

The parts of the flower are usually in eights, but this is not uniform in the species, about which, it must be confessed, some confusion exists. The writer of this note is engaged in enquiries and observations at home and in India, which he hopes will throw light on the subject. *J. H. Mangles, Valewood, Haslemere.*

CONSERVATORIES AND HOT-HOUSES.

I HAVE just had a talk with a builder of conservatories and hothouses. Knowing him to be a perfect master of his trade and to take a pride in the work he turns out, and having confidence in his judgment, I ventured, with the view of drawing him out, upon the observation that many of the glasshouses one encounters now-a-days are made of bad materials, are ill put together, and present a flimsy and tawdry appearance. "You are quite right," he frankly answered; "and the fact is pain and grief to every horticultural engineer who cares a fig for his profession." "But what," I asked, "is the reason of all this 'jerry' building in a department where one would least expect to find it—is it only natural to think that a man who has taste and spirit enough to go in for a conservatory, will have common sense enough to go in for a good one?" "The ruin of good work in our business, as in that of the building trade generally," replied my friend, "is the contract system. Under that system the demand is nearly always for cheapness, and the thought of quality and style scarcely ever suggests itself. The lowest tender is almost invariably accepted, although in ninety-nine cases out of a hundred a good sound tradesman will tell you, and tell you truthfully, that it is impossible—absolutely impossible—for the materials to be provided and the work done for the stipulated sum." "The contracts are, nevertheless, carried out," I suggested. "They are carried out in a fashion," was

the answer. "Let an architect or surveyor who is at once vigilant and above suspicion be employed, and the contractor will be tired of his job long before he has finished it. Every day that the architect insists upon a proper execution of the specification, the builder will lose money, and he will only be too glad to move off to fresh woods and pastures new." It seemed to me that it was not easy to depart very widely from a written specification, at all events in horticultural buildings. I was assured, however, that in the absence of really competent oversight, nothing could be easier. "You may be cheated," said my informant, "both in the material and in the way it is put together. There is a great difference, for instance—though the man who orders a conservatory to be built is generally ignorant of the fact—between using sound red deal, which contains a proper proportion of turpentine, and using the inferior kinds of deal known as white woods, which contain no turpentine, or next to none. These latter woods in a very short time become rotten by exposure to the atmosphere. Door furniture, again, can be got from Birmingham at fourpence-halfpenny a set! It will make a brave show for a few days, and after that the opening or shutting of a door will be a vexation of the spirit and a weakness of the flesh. Why, indeed, with the shrinking of wood, and the failure of latches and door knobs, the whole edifice shakes as if it was built on a bog, and there is literally no pleasure in it. If you open a door or a window, you are in grave doubt whether you can ever shut them again, and if you shut them you sigh to think of the manoeuvring that may be wanted to open them.

Then there is the question of glass. The compilers of unremunerative tenders—unremunerative, that is, if they are not deceptive—generally use foreign glass, which is a trifle cheaper than English if bought in certain sizes already cut. It has the defect, from the manganese used in its manufacture, of turning purple after being exposed to the rays of the sun for a while, whereas English glass always remains clear and colourless. As to the work, it can be scamped from the egg to the Apples. You can give the go-by to honest joinery altogether. Examine a cheap house. I defy you to find a mortice and tenon. All the joints are sham joints, nailed with iron nails! I need not tell you that such work as this entails considerable expenses in repairs, nor that bad work can never be turned into good work, whatever is done with it. On the subject of glazing I will give you a hint that may be useful to you. None of the patent joints are air-tight, and no composition has yet been discovered that has the stability and durability of putty. My advice upon this point is—stand upon the old ways. The only system of glazing without putty is the old English system of lead glazing, which is not applicable to horticultural buildings, though it is coming up again in other buildings, as a matter of decoration, in connection with the Queen Anne revival. Again, in regard to painting, the best white lead should be used in a good job, but in a cheap job the probability is, that whitening will be substituted for the white lead or mixed with it, the consequence being that after an exposure of two or three months to the weather you can rub off with your fingers in the form of powder." "Then the sum and substance of your advice to a man about to build a conservatory," I said, "would be—'Don't build it by contract?'" "Decidedly," replied my friend; "I don't say come to me or send all your friends to me, but go at all events to some tradesman in whose skill and honesty you have faith, tell him what you want, show him that you are not so unwise as to expect a good article at a low price, and you may depend upon it that in the end you will fare better than your neighbour who takes the lowest of five-and-twenty tenders." *T. T.*

MECONOPSIS NEPALENSIS.

OF all the plants in my garden this spring I do not know that any has afforded me more interest than this. First, I have had the pleasure of anticipation, and this process, I must say, was rather prolonged, for it was in the rainy season of 1879 that I procured the plant—then a tiny babe—through the kindness of a friend. Since that time I have watched its golden-haired rosette of leaves as they increased in size; each year I have looked forward to see its elegant spire of flowers, but each year I was disappointed. I found compensation, however, in observing the singular manner in which the leaves raised themselves erect around the central bud or spread themselves flat on the ground, and I said to myself, if I were not tied to the desk in the big city order, I would endeavour to find out what this movement meant and how it was done; but other things more urgently needed attention than the rise and fall of Poppy leaves, Last

autumn my waiting was rewarded: that uplifting and downfalling may have been one phase of the extra life-power called into play to form the flower. Be this as it may there were the tiny flower-buds nesting in the centre of the leaves, and early this spring it was evident that a start was to be made. Sure enough gradually arose a stately shaft clothed with tawny hairs, and spreading abroad its oblong boldly cut leaves. In the axils of the uppermost of these two or three hairy globes were visible, the central always the larger. Presently, as growth went on, the globe lengthened into an oblong shape, the two sepals were pushed off from below by the gentle insistence of the pale primrose petals within, and the broad, bell-shaped, pendulous flower was unveiled in all its elegance. One after the other they opened from the top of the stalk downwards till the whole stalk reminded one of a peal of bells hung one above another. Within the delicate petals were the numerous orange anthers, and in the centre a bristly pistil, with a stout column for a style, tipped with a lilac stigma, the colour of which formed an exquisite contrast with the yellow of the petals. Being somewhat of a Paul Pry in the matter of flowers, I must needs make use of a powerful pocket-lens to look at the tawny hairs, and the result is, that I strongly advise every one else to do the same. On the leaf there is a dense undergrowth of tiny stars, from among which, like so many saplings, spring long bristly hairs, very finely toothed. How pretty are the crystal globes of water which form on this hairy surface after a shower; how perfect the protection against a wetting. On the flower-stalk the hairs are more closely packed, and so branched and notched at the edges as to form a jagged, comb-like fringe. The sepals are covered with similar hairs, while the pistil and young fruit is covered with a perfect *cheval-de-frise*, intended, I presume, to keep off intruders and hungry insects from parts of the flower where their presence, with ill-regulated appetites, heedless of the necessity for forming and scattering seed, is not desirable. On the other hand, the large lemon-yellow petals are doubtless so many invitations to insects to walk in and partake of the food prepared for them. At the same time the principle of reciprocity comes into play, and the insects, having feasted for their own convenience, are made to forward the interests of the plant by acting as go-betweens in the process of setting its seed. I observe that the anthers of any particular flower are as a rule open, and that the pollen is ripe before the stigma of that same flower is ready for setting, hence it is clear that the pollen must by some agency be conveyed to another flower where the stigma is in proper order. I watch the whole process day by day as the successive flowers open. The insects come in abundance—flies, bees, butterflies, they all come; and the result is, that I believe every flower on my plant is set. Obliging insects! how ungrateful we mortals are. And now I notice another thing, the flower bells were all pendulous, as bells are wont to be; now as the bristly capsule commences to ripen, the pendulous position is exchanged for the erect, and my plant is a mass of uplifted capsules, the stalks resembling the branches of a candelabrum, the capsules recalling the lamps, and the whole of such a form that its outline is an almost exact reproduction of that of the leaf. The leaf, as spread flat on the page as I write, is long and narrow. It is at its broadest about midway between the centre and the tip, and at its narrowest at the base—in fact the form is that of a much elongated egg, high shouldered at the broad end, tapering very gradually to a point at the narrow end. I sketch this outline as nearly as I can and hold it side by side with the plant in its present state, and I find that but for my clumsy manipulation the outline of the leaf and that of the plant would correspond almost exactly. But Paul Fry-like again, I want to know what force has turned those hooked flower-stalks into stiff erect ones, thus overcoming that tendency to fall which the ever-increasing weight of the ripening capsule must surely induce. Can it be that growth is quicker and more potent in one direction than another. If so, it might be expected that the less rapidly growing part would drag on those growing more rapidly and cause the whole to straighten. Further, if we suppose that active growth is especially exerted in a spiral direction around the stalk—that stalk being fixed at the lower end—a straightening process would evidently ensue, and the erect posture would thus be the result of a compromise between the forces of growth exerted in succession,

now on this side now on that. Besides, in all probability, if Mr. Francis Darwin were to affix his tell-tale filament to the stalk, he would be able to show us how the whole stalk gyrated in correspondence with all these inner movements. But whether all this be true or not, certainly no more elegant, no more *distinct* plant than this *Mecopis* has met my eyes this spring. The elegance is, to my fancy, not merely that of shapely features, but enhanced—by intelligence, I was going to say—at any rate, by the varied expressions of active life which add so vastly to the interest with which one looks at flowers when that expression is not obliterated by the procedures of the florist. *Jack Towel.*

BROOMFIELD, CHELMSFORD.

MR. ROBERT WARNER'S collection of Orchids is well known to all growers of this class of plants, and Mr. Warner, one of our oldest cultivators, has also shown us how to grow Orchids to perfection. For many years past this collection has been celebrated for its grand lot of Cattleyas, especially of the C. Mossie section, of which there were usually some hundreds of blooms out at one time. This was the case for a number of years, and we may say the same of the *Phalenopsis*. At one time the roof of the East India-house was one mass of bloom, and contained such kinds as P. Schilleriana, P. amabilis, P. grandiflora, and the rare P. Portei. There were many fine varieties, and the plants were so well grown that they produced blossoms of a size and richness of colour that one seldom sees now. The plants were grown in a large house, suspended from the roof; their foliage was broad and of great substance, they had plenty of ventilation, which makes them vigorous, and they are able to stand being taken about, and the flowers remain in perfection a long time without their leaves shrivelling.

We may here mention that air must only be admitted in the house on warm days. Mr. Warner is always most particular as to cold draughts, and the plants were never allowed to be soaking with water, as one often sees them. In their native country they may have heavy rains and dew at night, and, as Mr. Warner states, when looking at his plants he likes to follow Nature as closely as possible. In their native country they are found growing on branches and stems of trees, where, of course, they get the full benefit of the air and light, and yet are shaded from the burning sun. In our glasshouses they require a good supply of moisture, but the atmosphere must not be overcharged with it; let the house dry itself during the day, which is an imitation of day-time in their native habitats, where their foliage then gets dry, and at night the heavy moisture supplies their requirements.

The Vandas are another great feature in this establishment, and are kept up with spirit; they are grown in a house where they obtain plenty of light, and we have never seen Vandas grow or flower more freely. On our visit these were finely in bloom, and they are to be numbered amongst Mr. Warner's successes. The reason why he blooms them so freely is that he gives them very thin shading, which plan is followed up in all his Orchid-houses. There were some fine plants of *Vanda suavis*, with many spikes of blossom, and also the rare and fine form of *Vanda tricolor* Warneri, the best of the tricolor section, some of the specimens producing four spikes on each; also *V. tricolor insignis*, and in the same house was a fine form of *Trichopilia suavis*, with beautifully spotted flowers; also the showy *T. crispata*; and by the side of this was the *T. lepidota*, a charming species. *Cypripedium caudatum*, with its curious long tail; C. Warneri, one of the brightest and most free of all the barbatum section, and one that every grower should procure. This was one of the finest plants exhibited at the St. Petersburg international show, where Mr. Warner's collection was the finest display of Orchids.

Now we come to the principal attraction at Broomfield—namely, the cool Orchids, which are no doubt more numerous than at any place we have seen. Our readers will be surprised when we tell them that there are 12,000 plants of *Odontoglossum crispum* and its varieties at this place, and the greater part of them fine plants; besides these there are many other cool Orchids which are well looked after by Mr. Warner's gardener (Mr. Jarrett). This collection has been forming for many years, and of

course in it are to be found many of the finest varieties, as Mr. Warner has spared no pains in collecting the best forms and varieties. He is one of the most able judges of these plants, and he has had a collector out, so that he can select and send home the best varieties that can be found, and that is the reason he has such a large quantity. Of course, amongst such a numerous collection some bad forms must creep in, and which may be found in almost all importations; but when a collector is employed the best can be selected, and there is more chance of having a better result, as the natives when left to themselves, and paid so much per hundred for collecting, do not mind whether they are good or bad so long as they are *Odontoglossum*. The first house of *Odontoglossum* we entered is 60 feet in length and 17 in width, with a centre table and tables on each side. This was a sight that no one could conceive unless they saw it; it was beyond my comprehension, as I had no idea of seeing such a glorious sight. There were many hundreds of spikes in full beauty, the glorious spikes of bloom arching over the foliage; and intermixed with *Masdevallias*, of which there is a well grown collection in full beauty, the effect was striking and complete. We now descend a few steps, and when the canvas door is open our eyes have the full feast of this glorious display; indeed, it may be described as a complete forest of flowers of almost every shade of colour, from pure white, crimson, magenta, orange, scarlet, &c. I mentioned a *canva door*—this is placed there in warm weather to allow the fresh air to pass in. I was surprised to find such a quantity of air admitted into this house. You could even see the flowers moving as though they enjoyed the breeze. Some fresh air is always kept on both night and day, and no doubt this is the cause of so much success, and of their producing such fine spikes of flower. The plants are grown strongly, and the bulbs well ripened, which is a far better plan than bringing them up so tenderly as some amateurs do.

I will name a few of the most conspicuous in this house. The varieties of *crispum*, many of them, such as *crispum Warneri*, with its white, rose, and crimson-spotted flowers, form a good contrast with the white varieties, of which there were many of a large size too numerous to mention; there were also several specimens of *O. hebraicum*, a very distinct form of *O. Andersoni*: there were several plants with its charming spotted flowers; *O. Edithæ*, which is an elegant variety, and I believe only to be found in this collection. *O. Coradinei* was there, with its white and brown flowers. *O. prionotepalum*, also very distinct, with its white and spotted flowers. *O. radiatum* was unusually good. *O. O. Hallii* many varieties of this showy species, with fine spikes overhanging the *crispums*; also triumphans, with its bright yellow and bronze-like flowers. *O. roseum* was very bright in colour, and produces a good contrast with other colours. The *Masdevallias* were charming. Amongst them were many varieties of *M. Harrayana*, also grand forms of *M. Veitchii*, with very bright colours; also *M. Lindenii*, *M. Harrayana reflexa*, which is a curious growing form. The finest in the collection is a new one, called *Imperialis*, with the brightest colours and the largest flowers we have seen. It was exhibited by Mr. Warner recently at South Kensington, and received a First-class Certificate, and it was the admiration of every one who saw it. This was from an importation. We noticed intermixed with the *Odontoglossum* the orange-coloured *Epidendrum vitellinum majus*, which is grown in large quantities here, and is well adapted to intermix with the *Odontoglossum* to help throw up the white and pale-coloured flowers. We were loth to leave this house, but there are more of this class of Orchids to speak of yet.

The next house is a span-roofed one, with a path up the centre: it is about 40 feet in length. This is filled with *Odontoglossum*, but they are not in bloom; many hundreds are, however, showing flower, and they seem in the best of health. By the side of this was another span-roofed house, where were many fine plants of *Masdevallia* in bloom, and other showy flowers, also several hundreds of *Odontoglossum* of smaller size. We went further on, and here we came to a span-roofed house about 70 feet in length filled with *Odontoglossum crispum* and its varieties. The whole length of the house was one blaze of bloom, overhanging each side table. Besides those on the tables there were rows of plants hanging from the roof, showing spikes of buds which will be coming into bloom in order to keep up this grand show for many weeks. *T. Foster.*

The Herbaceous Border.

PRIMULA SIKKIMENSIS.—After buying this plant in pots two or three times, and planting it out, and losing it after flowering, I obtained a good stock from seed last year. Like most other *Primroses*, if grown fast and planted out when large enough, and never confined in a pot, its cultivation appears to be easy enough, though the plants will probably not last longer than other *Primroses*—two or three years. Having tried it in all kinds of positions, in none of which the strong seedlings refused to flower when two years old, I think it does best at the base of a rockery with a westerly aspect, where there is a foot of well drained made soil and a cool subsoil. The plants, of which the flower-stalk ranges from 2 feet to 15 inches in height, grow stronger in this situation than in a bog bed, where they have always wet a foot below them. *C. Wolley Dod, Edge Hall, Malpas, June 5.*

GENTIANAS FROM SEED.—The notes of Mr. Correvon on the cultivation of alpine plants have proved so useful to me that it may appear ungracious to question any of his statements, but when he says (p. 736) that seeds of *Gentianas* take a year and a-half or two years to come up, he probably means that it is so when the seeds are sown in the open ground and left to the chances of the weather. During the last two years I have raised three kinds of *Gentian* from home-saved seed and seed which had been kept dry through the winter, and in each case the seedlings were visible in two or three months after sowing. The kinds were *G. acaulis*, *G. cruciata*, and *G. septemloba*. I cannot raise alpine plants from seed in the open soil, but I sow in pans in February or March, covering them with a frame-light, and never allowing the soil to get dry. I give no artificial heat at all, but give them all the benefit of sun-warmth. Some kinds, especially *Primroses*, I find it better to sow as soon as the seed is ripe. No doubt many kinds of seed germinate better and quicker in this way. I find that some plants, which have the reputation of growing very slowly from seed, do not require so much patience as is generally supposed. For instance, I sowed seed of *Dodecatheon integrifolium* as soon as ripe in June last year. The seed came up at once, and the seedlings were planted out in a store bed in autumn, and in May this year, when the plants were hardly ten months old, about one-third of them flowered. *C. Wolley Dod, Malpas, June 5.*

ANCHUSA ITALICA.—We frequently see notices of the lovely Forget-me-not, *Lithospermum prostratum*, and *Omphalodes verna*, the beauties of which are extolled on account of the choice blue of their flowers; but we seldom or never have any mention made of *Anchusa italica*, which, if it does not surpass the above-named deservedly popular flowers, is equal to either in richness of colour, and affords fine sprigs for cutting to furnish vases, or for working up in bouquets. Being a perennial of strong habit, it can quite hold its own among weeds and grass, and is specially adapted for planting near the sides of woodland walks or in semi-wild places, where, from the free way it spreads and seeds, it soon becomes naturalised, and forms bold, irregular patches or masses that are sure to arrest attention when the plants are clothed, as they are during early spring and summer, with a wealth of gay blossoms. These are borne profusely on tall branching bisulcate stems, and are about the size of those of the *Lithospermum prostratum*, or *Myosotis dissitiflora*, and of a shade between the two; and as the *Anchusa italica* will grow and flourish where they will not, its value may be estimated and judged of accordingly. With us, in our hardy fernery, it is quite at home in dense shade or out in the open, and appears perfectly indifferent in regard to soil, for whether in moist sand or clay it does equally well, and flowers with the greatest of freedom. Those who would like to cultivate this very desirable plant should obtain seeds and sow at once under handlights, by doing which plants may be raised and got up strong enough to bloom next spring, or crowns may be obtained later on, when the tops die down, and they are fit for removal. *J. Sheppard.*

HERBACEOUS AND OTHER PLANTS AT MR. WARNE'S.—A mild early spring, succeeding a winter which had little in it beyond the name, as might be expected has not been without its influence on most

of the best and rarest kinds of herbaceous plants, many of which are this season flowering unusually well. Where all that it is possible to procure in the shape of rarities, as well as everything worth growing of a more common character, are brought together and cultivated under conditions found best adapted for the wellbeing of each, in a season like this the many acres occupied by the enormous stock present such variety in form and colour, as may be sought for in vain in any other division of cultivated plants. Large masses of any particular species, such as here present, when seen together, give very different impressions of what the plant really is than is possible from the meagre isolated examples often met with. On the extensive rockwork, where stations have been prepared to suit the wants of particular species, in long borders sheltered from cutting winds, and in others where needful shade from the sun is present to meet the requirements of those things which do not like its full play on them, and in beds and quarters without number in this home of perennial flowering plants, may be seen such a display of bloom as is by no means forthcoming every season. To name individually the species and varieties of fine things that have been and are now in flower would make a formidable list, but we may mention a few of the most beautiful and interesting—*Meum athamanticum*, an Umbelliferous plant bearing pretty white flowers, and most elegant leaves; *Anthericum liliastrum*, St. Bruno's Lily, has lovely pure white flowers; *Borbartia aurantiaca*, an orange flower, distinct and handsome; *Zephyranthes atamasco*, flowers similar in form and general character to the better known *Z. rosea*, but quite white; *Calochortus scerulea*, white ground, with purple or dark blue spots, very pretty; *Cyclobothra pulchella*, a beautiful yellow-flowered Liliaceous plant, not very plentiful; *Brodia inxoides*, and one or two others, all desirable small bulbous plants; *Ixiolirion tatarica*, purple and very pretty. Amongst Aubrietias, where all are good, Hendersoni is still the best bright violet; *Cistus formosus*, bright shining yellow, with a dark spot on each petal; *C. florentinus*, flowers white, these two dwarf shrubs deserve a place in every garden. Hundreds of other species of herbaceous and alpine plants, either in bloom or fast approaching this state, are here, in addition to the more cultivated hardy garden plants, such as Finks, of which a collection is grown in quantity of the kinds that those who want to cut and come again require.

Amongst these are *fimbriata alba major*, the large form of the old white; Mrs. Simpson, a beautiful white variety, with a tolerably smooth edge; Derby Day, pink ground colour, laced with red; Ascot, light pink, with a dark base to the petals; Mrs. Moore, good white, laced with purple; Lord Lyons, dark purple; and Ware's Clove: these are all really good varieties. Amongst Delphiniums are *Gloire de St. Maude*, dark blue, shaded crimson; *Belladonna*, the old sky-blue variety, is not surpassed in its shade of colour; *C. Glyn*, bright blue, centre white; Mrs. F. Helm, dark blue, white eye; Cambridge, as its name would suggest, light blue, with dark centre; *Gallica plena*, double, bright blue; Heerman Stenger, violet, with a metallic tint; these are distinct, and where well done, too, will make a feature in any garden. Of *Orchis foliosa* there is a large bed containing more plants most likely than many to whom this fine hardy Orchid is known ever saw on one occasion before. The same may be said of the hardy *Cypripediums*; of *C. Calceolus* there is a grand lot. Many of the other hardy kinds are here, also thriving well. Ferns, of which there is a fine collection, are alone worth seeing; the deep and delicate colours in these gorgeous spring-blooming plants are not surpassed in any other family of hardy flowers. There is an unlimited quantity of double and single *Pyrethrums*, comprising all the most distinct kinds. These have the merit of being amongst the best plants that can be grown in the neighbourhood of towns, as they thrive where the smoke will be death to many things. *Lysimachia nummularia aurea*, the golden-leaved form of the well-known Creeping Jenny or Moneywort, makes one of the brightest golden-yellow carpets imaginable, most effective where judiciously introduced amongst green-leaved plants. How the public have taken to single Dahlias may be judged from the fact that up to the end of May over 21,000 of them have been sent out from the Hale Farm Nursery alone.



The Rosery.

GARDEN ROSES.—The objection to Rose growers is often made, that so much attention has been given by them to exhibition Roses, that nothing is considered in these days as deserving of any consideration unless it be of a particular shape, size, and colour, so as to fit it for being placed in a formal stand along with a certain number of others of similar character, to be submitted to critical eyes, and judged according to certain clearly defined rules, and to this is added the cry, "We want 'garden Roses.'" This cry proceeds from different quarters; there is the class of persons who resent as a personal affront any attempt to improve upon Nature, to whom anything double is an abomination, who can talk of the preciousness of a single flower, and go into ecstasies over a Sunflower or a Daffodil, but who turn away with well affected disgust from such abominations as a florist's Pansy or Picotee. Then there are those who, having broken away from the geometric, ribbon, and carpet-bed system, feel bound in duty to rush into the opposite extreme; and it therefore sometimes occurs to me that when people cry out for garden Roses there is a certain vagueness in their demand of which they themselves are unaware.

Definitions are grand things: it saves a world of time and a lot of words if one can only get people to agree together as to what they mean—for it may be found after a considerable amount of skirmishing, that we entirely differ as to what we were fighting about; when, then, a person says that he wants garden Roses, what does he mean? Does he mean Roses that shall give a brilliant mass of flower at one time, making the garden gay with colour, or sweet with perfume; does he want single Roses like the wild Brier, or the Japanese rugosa? Does he want Roses that shall run wild over everything; or is his ideal Rose one which is to combine all these qualities? I have seen some vague aspirations that seemed to imply that all this was expected, and that especially among some of the species which had as yet been uncontaminated by the hybridiser we were to find the perfection of a "garden Rose." All this is, I dare to say, an idle dream; nay, more, I am prepared to say that if you want garden Roses for decorating and perfuming your parterre with bright colours and delicate odours, you must mainly look for them amongst those Roses with which the skill of the hybridiser has enriched us. No one would ever dream of banishing the delightful moss Rose; although its period of blooming is so brief, and its opened berries are not such as its budding charms gave promise of. The grand old cabbage Rose, the little Rose de Meaux, and it may be a very few of what are called summer Roses, must come under the term, but I do not think that they will satisfy those who want something more lasting and permanent to enrich their gardens with. What, then, are our requirements? We must in the first place have perfume—"A Rose by any other name would smell as sweet" shows that the very first idea associated with the flower is its perfume. The moment we are presented with one the instinctive action is to sniff up its perfume, and so I should be quite prepared to dismiss from any claim to be considered as garden Roses some of our most beautiful exhibition flowers; the lovely Baroness Rothschild, Victor Verdier, Monsieur Noman, and all of what are called the Victor Verdier blood, must be "tabooed;" indeed, I do not think that even exhibitors will be satisfied until they obtain flowers with as much beauty of colour and form as these and others of the same type, but with that one qualification which they lack. Then I think we ought to have continuance of bloom. The term hybrid perpetual is a misnomer, the true distinction between them and summer Roses being that the latter gives at once a grand mass of flower, but that the shoots which start forth after this are utterly flowerless. The hybrid perpetuals, or many of them at least, act differently. They give us their grand blooms as their first effort, but as they start for growth they take with them in many instances a second crop of buds, while later on in the autumn others succeed to them, so that it

is not too much to say that any one who has a tolerably good collection of Roses can from June to November always find some Roses in his garden worth gathering; and this property of second blooming is more properly expressed by the French term *remontante* than by our English equivalent hybrid perpetual. Then a good garden Rose must possess organs of constitution and freedom of growth; to have a miffy, neat-growing Rose would certainly not conduce to decoration, leaving out of sight altogether the disappointment and annoyance such plants occasion; their very existence in a garden is an anomaly, and although some are yet tolerated by exhibitors on account of some excellence, in fact, the idea is fast laying hold of them that they must give way to better constituted and more vigorous growers. This would, then, dispose of some very beautiful Roses, such as *Horace Vernet*, which are only good even for exhibitors on maiden plants; and some of our very prettiest Tea Roses must in the same way relinquish their claim to being considered garden Roses, although I think it is in this class or in *Noisettes* that we shall find those which will best satisfy the many requirements of a good garden Rose.

If we take, then, those which are of rampant growth, delightful for running up the side of a house or pillars, or making *Rose arbours*, we must take grand old *Gloire de Dijon*, somewhat straggling in habit, but good in all situations. *Maréchal Niel*, glorious as he is, is not an out-of-doors Rose; his proper place is running along the rafters of a house, where his golden cups hang down over your head. The yellow Rose which I value most for covering a wall is *Rêve d'Or*, when true; it has most beautiful foliage, a good habit, not with long straggling shoots, but close, well covered ones from the very root up. When I say that previous to the cruel winters of 1880 and 1881 I had one that had run up to the very eaves of my house, 30 feet, that it half covered two sides of it, and that I am sure it had not less than 3000 blooms on it, it will be readily conceded that I have good reason to praise it. Then we must not forget *Cheshunt Hybrid*, for whatever its parentage there is no doubt of its excellence as a garden Rose. I have seen it in all situations in the United Kingdom, and everywhere it is a good and valuable Rose. *Bouquet d'Or* is another of the very free flowering Tea or *Noisette* Roses, which has large and well formed yellow flowers; so, too, is *Belle Lyonnaise*, although its flowers have a great tendency to come quartered. *Setina*, a new Rose, is highly spoken of; the climbing *Devoniensis* is surely a garden Rose, but beware of imitations—there is a rampant kind which will grow to any length, but is chary of blooming, but *Pavett's* variety will grow 8 or 10 feet, and is very free flowering. We have also climbing *Charles Lefebvre* and climbing *Jules Margottin*, vigorous sports of grand old Roses, bright and fresh in colour, and *Longworth Kambler*, a very free small flowering climber.

Then with regard to Rose bushes—*i.e.*, dwarf Roses—which shall decorate the garden, we must try to have those which bloom well in autumn, but I think, from what I have noted in the gardening papers and from my own observation, that situation and season have a great deal to do with this, and it would not, perhaps, be very easy to give a reliable list. Thus I have seen one writer recommending *Alfred Colomb* and *Marie Baumann*; now I rarely if ever get an autumnal bloom from these, and they are both so delicate in habit that they cannot be considered as garden Roses, however grand they may be as exhibition flowers; while *Captain Christy*, also recommended, will so little stand weather that it cannot fairly be included. I should recommend *Aimé Alexiéf*, an old Rose; *Comtesse de Chabrillant*, lovely in form; *Jean Cherpin*, violet; *Souvenir de Charles Moutail*, dark; and *Jules Margottin*; but I think in this matter if a grower finds that any of the strong growing hybrid perpetuals flower freely with him, by all means use them.

In single Roses, we have *Austrian Yellow*, moderate in growth; *Prussian Yellow*, free, beautiful in colour and vigorous; *Kosa rugosa*, and its var. *alba*, the Japanese Rose, very lovely, both in flower and fruit; *Rosa pyrenaica*, delightful for rockwork; and to these we must add the old *China* and its relative *Cramoisi supérieure*, and a Rose now rarely seen, *Mrs. Bosanquet*; and the new little *Paquerette* or *Daisy Roses*, very free and very pretty. The *Macarney* Rose, beautiful as it is, is generally too tender and requires a wall, but the *Scotch Perpetual* is well deserving a place in any garden. *Wild Rose*.

Orchid Notes and Gleanings.

AMONG THE ORCHIDS AT MANCHESTER.—The last Whitsonide exhibition of Orchids at Manchester was doubtless the most remarkable floral display of the kind ever seen in this country. There was quantity and quality of a kind to command and rivet the attention of the most superficial observer, but, notwithstanding all this, there were several species of well known plants flowering at this season of the year that were "conspicuous by their absence." There were no *Saccolabiums*, no *Phalenopsis*, no *Vandas* of any note, barring the Dalkeith variety of tricolor shown by Mr. Hardy; no *Aerides* in quantity—in fact, East Indian Orchids of a distinctive character were barely, if at all, represented in those lines upon lines of plants that graced both sides of the large exhibition house. It cannot be because these old species are dying out, for *Phalenopsis* are coming by their tens of thousands, and so are *Saccolabiums*, and so are *Aerides*; and the question naturally arises, Why is it so? It must be because the *Cattleyas*, the *Odontoglossums* of the *Eudontoglossum* type such as *veillarii*, the *Dendrobiums*, the *Masdevallias*, and the *Cypripediums*, are much easier "bedded out" to make a grand display. And here comes the rub, Where is this bedding-out to end? No exhibitor can do without it, no caterer for the public, in the position of Mr. Findlay, for instance, can afford to put his heel upon it, no judge can ignore it. The question, therefore, arises, What's to be done? It must go on, I suppose; but there ought to be some limit to size of pot, else we shall have, instead of sixteen plants, sixteen miniature circular beds of flowers, and the biggest grower, and the biggest purse, will swamp all the lesser growers in the kingdom. There is as much difference now between plants that were exhibited in point of size and plants that are now systematically made up, as between the old small hand-bouquet that ladies used and the one of the present day, which, with a little variation, would make a useful parachute. The gardening element will naturally say, Why need I struggle to grow large single plants when my neighbour next door can make double the show of flower by lumping a dozen or two together, and my skill goes for naught? That is a difficulty that gettersons of schedules require to study, else growers of limited collections of Orchids will never put in an appearance, at least if they do so once or twice and quitte both employer and employe! will get soured. I hate admit it is a difficult matter to frame a schedule to give general satisfaction, and at the same time command a display such as was shown at the Manchester exhibition; but there ought to be something done to encourage the cultivation of single plants. [Certainly, Ed.] For excellent culture of individual plants I might point now to the *Dendrobium Wardianum* and *Odontoglossum crispum* in Mr. Hardy's group, to the same latter species in Mr. Walker's, and to by far the finest *Lælia majalis* I ever saw, in Mr. Brown's group, which doubtless charmed the eye of every Orchid grower. If it is not practicable to offer prizes for them in the one case or get them in groups of half-dozen or so from one exhibitor it would be an easy matter to offer extra prizes to such distinguished plants, apart altogether from the groups in which they are shown. *James Anderson, Meadowbank.*

— ORCHIDS AT HOLLOWAY. — Mr. B. S. WILLIAMS' houses are very gay just now, and so many fine plants are showing for bloom that for another month at least the collection will contain things worth seeing. In the *Cattleya*-house are several fine examples of *Lælia purpurata* in variety. One has eight spikes of flowers, the rich colours of the lips of which make an effective contrast with the clear white sepals and petals. In another plant these organs are rose-tinted, in the way of *Williamsiana*, and there are five flowers on the spike; while yet another resembles the last in all but its larger lip, which contains a large blotch of lilac. The collection of *Cattleya Mossiae* includes a variety with a large lip beautifully veined with orange, purple, and chestnut right up the throat; and *Chysis aurea* is attractive, from its pretty orange

and buff-coloured blossoms, with crimson-spotted lips. The entrance to the *Vanda*-house reveals a wealth of blooms that is very delightful. Here are examples of *V. suavis* with four spikes on a plant and fifteen flowers on a spike; *V. tricolor insignis* with three grand spikes; and *V. tricolor* with three and four spikes each, &c. A fine piece of the rare *Dendrobium Schroederi* is just going off; *Cypripedium superbiens*, one of the best of the *barbatum* section, is in nice form, as also is the sweet and pretty *Aerides crispum*. *Cypripedium caudatum* with six spikes takes the eye as a good specimen, and a fine variety of *Dendrobium suavisimum* is conspicuous for its large and well-defined blotch on the lip. In the cool-houses the rare *Odontoglossum Horsmanni* is in bloom, and stands out distinctly among the *crispums*, its flowers being white spotted with bright chestnut. The scarce *O. Coradinei* also claims notice; and then the *Masdevallias* demand attention, the varieties of *M. Hararyana* being especially well represented by the true Bull's-blood var., *violacea*, *Dennisoni*, and *lutea*—all fine plants in beautiful bloom, and will bud enough to continue the supply for some time to come.

CATTELYAS AND ODONTOGLOSSUMS AT MR. BOCKETT'S.—There is a grand lot of *Cattleyas* in flower here, including an endless variety of *C. Mossiae*, of which fine old kind there are some of the largest and finest marked forms we have met with. Of *C. Mendeli*, which is alike variable in both the size and marking of the flowers, there are several beautiful varieties, possessing plenty of substance and highly coloured. Also the scarce *C. lobata* and *C. Regnelli*; an unusually strong example of this, with a bulb nearly a foot long, was bearing four flowers to one spike. In company with these was the large-bulbed variety of *Lælia purpurata*, with pure white sepals and petals. Grown in the same house are a fine lot of *Aerides Fieldingii*, near on a dozen plants of which were in bloom, along with the scarce and singular *Vanda cristata*, a couple being in flower. *Cattleya* treatment suits these kinds as also *Vanda cœrulea*, several fine examples of which kept close up to the glass as healthy and free from spots as can be. A batch of *Aerides crispum* in unusually strong pieces have made a year's growth in the same house such as confirms the now acknowledged fact, that it does best when not kept too hot. A nice form of *Epidendrum prismatocarpum* was also in flower. The principal *Odontoglossum*-house, 100 feet long, will shortly be a sight such as not often met with, notwithstanding the extent to which these favourite Orchids are now cultivated. Although much the greater number are yet to flower, already there are scores of racemes open of such size as only to be seen where the plants have attained size and strength to show their true character. The collection is unusually rich in fine forms, or, rather, it may more correctly be said there is an absence of the indifferent varieties generally plentiful where such quantities of these Orchids are grown. When it is stated that the plants are four or five rows deep on each side of the path of this long house, and that the whole consist of the cool section of *Odontoglossum* and *Masdevallias*, with a few other species requiring a similar temperature, and that the great bulk have attained a large size, some idea of the display may be imagined. The *Masdevallias* are in equally fine condition; amongst them are numbers of splendid forms of *M. Hararyana*, *M. Lindeni*, *M. Veitchii*, of the true Bull's-blood variety, originally bought at the Meadowbank sale. There are three good plants in strong vigorous condition, one is just coming into flower; this is undoubtedly not only one of the finest, if not the finest, of all the *Masdevallias*, but, still finer, is among the select few species that stand at the head of the whole Orchid family.

ANGULOA CLOWESII.—We very much doubt if since this Orchid first flowered in 1843 so grand a flowering specimen has been seen here or elsewhere as is that now in flower at Mount Anville Park, Dundrum, Dublin, the residence of Henry Roe, Esq. The plant, which is growing in a pan of the largest size, is fully 4 feet through and 12 round. It is in the highest health, and showing thirteen or more fresh growths, while round the circumference of the leafy centre no less than sixty-five flower-scapes, each capped with its great cymbiform cup of golden or most pronounced æsthetic yellow, the whole forming a picture the plantsman who has seen it is not likely soon to forget. We may fairly congratulate Mr. Roe on the possession of such a specimen, and his excellent gardener, Mr. Fisher, on what must be regarded as a triumph of cultural skill. The plant is grown in an intermediate-house, the potting material being peat, loam, and charcoal—good, wholesome food, which Mr. Fisher did not care to supplement or moisten with other stimulant than Varry water. *Lish Farmers' Gazette.*

The Kitchen Garden.

SEED SOWING.—Sowings of Broad Beans and Canadian Wonder French Beans, also Endive of the broad-leaved and green curled type, and Walcheren and Veitch's Autumn Giant Cauliflowers, should now be made; as also Mustard and Cress, and Radishes, which, as previously recommended, should be sown every fortnight or three weeks during the summer. And about the end of the next, or early in the following week, make another sowing of Scarlet Runners on the south side of the preceding row, assuming that it runs east and west, and in the event of the row running north and south, the next sowing should be made on the west side; but the former position (respecting which full particulars were given in your number for April 15, and at p. 498) is unquestionably the best, inasmuch as the first row protects the second. Make another good sowing of the late varieties of Peas for use from the middle to the end of September, and about a week later a sowing of any of the second early varieties should be made to supplement the gathering from the preceding sowing, and for this purpose Dickson's Favourite and Laxton's Supreme are two suitable varieties; as also, for sowing a few days after the last-named varieties, are Sutton's Kinglerd, Emerald Gem, and William I. Successional sowings of Turnips, Carrots (Nantes Horn) for autumn and early winter use, and Lettuces of the Cos and Cabbage varieties, should also be made, and subsequently attended to when necessary in the way of watering, protecting from the ravages of birds, &c.

BROCCOLI, &c., PLANTING.—This will be a good time for getting good breadths of Broccoli and autumn and early winter Broccoli planted. Of the Broccoli, the dwarf curled Scotch and Cottagers' are unquestionably the best and most hardy varieties; but it will not only be necessary to determine what variety to grow, but also to consider how best to grow our plants to withstand the effects of a severe winter. The first step to be taken in this direction is to have the seedling plants, as recommended in a former Calendar, transplanted in nursery beds before they have become crowded in the seed beds, and thence, as soon as the plants have thoroughly established themselves, and before they get crowded, finally planted out and watered until the plants have taken hold of the soil. In planting, the plants should be buried to the collar, the object being to keep them dwarf, and as near the ground as possible, so that in the event of a fall of snow and its being accompanied, as unfortunately was the case a couple of years since, by a spell of frost, the plants may come under the protection of the former. Moreover, it is a fact that cannot be too well known, that it is the stems of Broccoli, Borecole, and kindred plants, that suffer most, and that where these, through habit or cultivation, are dwarf, the losses through frost are inconsiderable; hence the object and advantage of growing dwarf sturdy plants. Borecole will succeed moderately well in almost any garden soil and position, but where a good well-manured open piece of ground can be given to it the quantity and quality of the crop will be considerably increased. The green curled Kale should not be planted closer than 20 inches between the plants in the rows and 2 feet between the latter; and Cottagers' Kale should be allowed from 9 to 12 inches more each way. Broccoli.—Of these the following varieties, with Walcheren and Autumn Giant Cauliflowers, make a good succession, of which a good planting of the respective kinds should be made forthwith, in ground prepared the same as for Cabbage and Cauliflower plants, in drills 2 feet asunder and at the same distance between the plants in the rows, viz.:—Grange's Autumn, White Cape, Early Purple Cape, Veitch's Self-protecting, Dancer's Late Pink Cape, Snow's Winter White, and Early Penzance. The later and stronger-growing kinds of Broccoli should have from 6 to 9 inches more room between the plants each way, if that space can be afforded to them, and should be planted in ground from which Peas and old Strawberry plants have been cleared, and, in order to facilitate the planting process, in holes made with the crowbar. In planting Broccoli plants, some kind of classification of the respective kinds, and the time at which they come in for use, should be observed, so that the crops may be taken, and the ground become

vacant, in regular succession, thereby rendering the ground available for trenching, &c., at the proper time. Make another planting of Early London and Veitch's Autumn Giant Cauliflowers, and protect the heads of those now coming into use, with the leaves, from the full force of the sun as a means of retarding the crop; also plant out the necessary quantity of dwarf Savoys in rows 15 inches apart, and 12 inches in the rows, and make another planting of Brussels Sprouts. Capsicums, where much in demand, may now be planted out under a south wall in a bit of rich soil, which should then be watered to settle the latter about their roots. It is a good plan before planting any of the Brassica family to dip the roots in a puddle made of ordinary garden soil, with sufficient clay added to render it more adhesive, and to which a few handfuls of soot should also be added. This will have the effect of saving the roots of the plants from the attacks of worms, which last year were very troublesome and destructive to the roots of freshly planted Cauliflowers and Cabbage plants here and elsewhere; but since we had recourse to dipping the roots in the liquid compound of soot and clay, we have had no further trouble in this direction, and this is due, no doubt, to the agency of the soot.

GENERAL WORK.—This will consist of the earthing-up of Brussels Sprouts, Cabbages, Cauliflowers, Broad Beans, French Beans, and Peas, together with the staking and mulching between the rows of the latter with rotten dung, the watering of seed-beds, seedlings, and freshly planted plants, and ranks of Peas and Beans, and Celery, when necessary; Vegetable Marrows and ridge Cucumbers, which should now have the hand-glasses raised by placing a brick-bat under each corner and the shoots taken out underneath in different directions, will also, in the absence of rain, require copious supplies of water at the roots, and recently transplanted herbs will require attention in the same direction, as also will Tomatos out-of-doors. Clear the ground of early Peas as soon as the crops have been gathered, and manure and dig it for French Beans or other crops. *H. W. Ward, Longford Castle, Wilts.*

NOTES ON VEGETABLES.

EARLY AND LATE PEAS.—Among vegetables there is no crop to which greater importance is attached than early Peas, and as this is the best season to compare notes as to the forwardness of particular kinds, I send mine as a first instalment, in the hope that others may do the same and give dates when the Peas were sown and the time when each sort was ready for picking. As our earliest lot were sown in boxes of silted leaf-soil and planted out after being nursed-on in frames, I shall omit further mention of them and turn to those sown on an open border on January 16, which border is a sunny one under a south-east wall, where early Peas always do well. The kinds we have growing there are Kentish Invicta and William I., both of which were put in on the same day—the date mentioned above, and on June 3 we gathered a good dish of Invicta, and though William I. is following very closely on its heels, pods of it will not be full enough till four or five days more have elapsed. This shows clearly that the Kentish Invicta is the earlier Pea of the two, and this has been my experience of it for years past, and for colour and quality I like it better than any other variety I have yet tried. William I. is better in both these respects, and should always be sown with it, as it is a valuable Pea, that is not only first-rate in colour and good in flavour, but it is a prodigious bearer where it has a good soil and plenty of room. The way these and all other Peas do best is when sown at wide distances, which need not involve loss of space, as Spinach, Lettuce, or any similar dwarf crop may be sown or planted between. Day's Sunrise, though not so early as either of the above-named, is an excellent Pea, possessing more of the Marrow character, and has large well-filled pods of whitish Peas, that are sweet and delicious when cooked. For field culture, or to grow as an early market Pea, I should take it to be the best, for, besides the qualities mentioned, it is of dwarf compact habit, and a capital bearer. Sown side by side with Advancer on Jan. 16, it is a good week forwarder than that sterling variety, and, judging from present appearances, there will be a fine lot for picking about the middle of June. To succeed these we sow Veitch's at the same time, and every week after a row or more of Tele-

phone, Ne Plus Ultra, or British Queen, keeping chiefly to the latter for late work, as we find it withstands mildew better, and fills its pods well into the autumn. *J. Sheppard.*

Plants and their Culture.

STOVES.—Any stock of stove flowering plants that may be relied on to give a display during the summer months must receive every attention, both in regard to cleanliness and general cultivation. Plants of Allamandas that have been stopped as previously recommended will, in some cases, be "knotting" for flower. When this is seen to be the case, occasional doses of liquid manure will be beneficial, and should be more liberally supplied as the plants advance into flower. Some growers make it a practice to keep the shoots of these plants tied in close to the trellis as they advance in growth; but this is a mistake, and should not be done until the flowers begin to show colour. Where the tying-in process is followed, many shoots will either turn blind or never show any flower at all, especially if bent in a downward position. On the other hand, the growths of these plants should all be encouraged in an upward direction, and as near the glass as possible, so that they receive the maximum amount of light and sunshine. These remarks also especially apply to Stephanotis, Bougainvilleas, and Dipladenias when grown as specimens in pots.

Where Ixoras are putting up their flower trusses, see that the plants have a thorough cleansing previous to their development, if any mealy-bug is about. When this insect gets into the trusses, the flowers will the more quickly fade and drop off. Plants of Hoyas, Cyto-ceras, and such-like subjects, that retain their flowering growths from year to year, should also be kept as clean from insects as possible. The truss of a Hoya is a favourite place for the bug, adhering to the flowers after they fall till they can find fresh quarters. In syringing the leaves, &c., of these plants be careful not to damage the point of the flower-truss, or it may be injured for the future. Pentas carnea and kermesina are useful summer flowering plants; these should be liberally treated—young stuff will be found the most serviceable. Red-spider is at times troublesome among these, as it is also on Vincas; the free use of the syringe will, however, keep this enemy in check. Where the last named plants have attained to a flowering size pinching the points of the shoots may be discontinued, and when the first flowers open the plants should be deluged in water, with stimulants occasionally. With this treatment and under ordinary stove temperature they will develop flowers as large as a crown piece. These should be kept constantly picked off as they fade, or the succeeding blooms will be injured by the decaying of the old ones. Sharp watch must also be kept for spider on Thunbergias and Meyerias. These are handsome subjects when well grown, but are a prey to insects. The temperature of the stove should now be at the maximum, say 70° for night, 80° to 85° by day, closing at the latter quotation on all favourable occasions. Fires ought not to be dispensed with yet, if the wellbeing of the inmates of the stove is to be studied.

PLANTS FOR DECORATIVE PURPOSES.—Where any considerable quantity of plants for the above work has to be supplied for indoor use in the filling of vases, ornamental baskets, and in groups, a good stock should be kept up of two or three of the best of the Selaginellas, as *S. Kraussiana* (dentulata) and *S. cressa*. *S. apoda* and *Martensii* are also useful, but not so well for rough treatment. Some pots of cuttings of *Panicum variegatum*, *Tradescantias* in variety; *Ficus repens* and minima, *Saxifraga sarmatensis*, and *Isolepis gracilis* (if division) will all be found useful for a finishing touch to any arrangement. These as they become shabby may be cast aside as long as a young stock is coming on. Stocks in small pots are always acceptable, *Mignonette* also, and *Heliotropes* with *Aloysia citriflora*. Where suchlike plants are grown for these uses, the stock of more permanent plants of slow growth, hard-wood subjects, and the like, will frequently escape injury, whereas soft-wooded stuff and annuals can be consigned to the rubbish heap, to make room for another supply. *Aspidistra larida variegata* is one of the most durable

of plants for a room, and ought to be propagated extensively either for this purpose or for conservatory decoration. Of Ferns, *Pteris serrulata* and *unilobosa*, *Asplenium biliferum* and *flaccidum*, *Niphobolus ligula* and *Davallia bullata* are all good and durable kinds; and of Palms *Phoenix reclinata* and *Corypha australis* are among the best and hardiest. *James Hudson, Gunnersbury House, June 6.*

The Orchard House.

OUR house is a useful structure for many other plants besides fruit trees. Many large specimens of half hardy plants and trees are sheltered for the winter; and this season the cold east winds have prevented us turning out some that ought to have gone out long ago; they must remain in no longer, as the fruit-bearing trees require all the space. Our plan is to turn out all that have not a crop of fruit set upon them, reserving all the space for those that will bear a good crop. In many cases, fruit trees are placed far too close together. If there was room in the house for twenty trees to develop themselves well, with sufficient space for light and air, and it contained twenty-four trees, rather than they should be over-crowded I would destroy the four trees; but in most gardens there would be room for them in a good position out-of-doors, and early fruiting varieties would be the best for that purpose. Our Peach and Nectarine trees have nearly passed through the stoning period, and in our whole large collection of about thirty varieties not one has dropped any fruit. If the trees had been overloaded, or if they had received any check, such as lack of water at the roots or neglect to open the ventilators in the morning, no doubt we should have had another tale to tell. As soon as the fruit begins to swell apply the surface dressing recommended at p. 531, and the temperature may also be raised considerably, both by night and day. Artificial heat may be applied if it is necessary to get the fruit a few days earlier. Syringing the trees well night and morning, and fumigate if there is much greenfly on them. The fumigation must be attended to before the fruit becomes soft, indeed they ought to be quite clean by this time. The Strawberry plants on the shelves are now ripening off their fruit, and this rather prevents us from syringing the trees so freely as we would, as the ripe or ripening fruit is rather injured by the wet on it. It is also very difficult to keep the leaves of the Strawberry plants free from red-spider, and this pest gets from them on to the fruit trees, so that it is best to get the plants out of the house immediately the fruit is all gathered from them. Pear, Plum, and Apricot trees may now be removed out-of-doors, into a position sheltered from high winds, if there is not room for them in the house; but if room can be spared, the fruit is of much better quality when ripened under glass. The young growing shoots ought to be stopped as often as they require it, and in many cases it is also necessary to thin them out. In the Calendar of Operations by the late Mr. Rivers, of Sawbridgeworth, he says, "On the 10th, and again on the 25th of June, lift the pots to break off the roots and prevent them going too deeply into the border." I never allow the roots to grow outside the pots; our trees have their pots raised on bricks in a way that allows the air to draw underneath the pots. *J. Douglas.*

Peaches and Nectarines.

As the trees in the early houses become cleared of fruit, give them a thorough washing with the engine or the syringe to clear them of red-spider, which generally makes its appearance in strong force during the time the fruit is ripening; keep them as cool as possible by throwing the ventilators wide open, to prevent the wood getting too ripe, as with the hot sun we have had this season they are very forward already. Still keep them well supplied with water at the roots, and any trees that are very weak from overcropping or other causes may still have a supply of weak manure-water. Treat the second house according to the directions already given for the early house, when in the same stage as the second one now is (taking their last swelling). The directions given in the last Calendars still apply to succession and late houses. If not already done, trees in late houses may have a good mulching of half rotten manure, and be well watered afterwards. *J. Wallis, Keele Gardens.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, June 13	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; Evening Rec. at 8 P.M.
WEDNESDAY, June 14	Branche Horticultural Exhibition (two days). Linnæan Society meets at 8 P.M. Sale of Glass Erectors, &c., at the Barrack's Green, Bursary, Stoke Newington, by Frotheroe & Morris.
THURSDAY, June 15	Sale of Imported Orchids, at Stevens' Rooms.

A WRITER in the current number of the *Gardener* details the results of his recent visit to Sherwood, near Tunbridge Wells, where Mr. BUCHANAN, under the direction of Dr. SIEMENS, is continuing the experiments with the ELECTRIC LIGHT, to which we have before called attention. The reporter is not favourably impressed with the power of the electric light as a help to gardeners, and no doubt, looking at the matter purely from a practical and immediate point of view, the writer is perfectly justified. The matter has not yet passed out of the experimental stage, and it seems as if it would be a long time before it would do so. So far the experiments have not been sufficiently comparative, nor have they been carried out with that precision, definiteness of purpose, appropriate adaptation, and selection of subjects which the great importance of the subject demands. All such experiments should be carried out at first with a purely scientific aim. The cost should be accurately estimated, but it should not be allowed to influence the experiment in the first instance. It is much to be regretted, in this connection, that the recent electrical exhibition at the Crystal Palace should have been allowed to terminate without some effort having been made to test the power of the light as a possible future aid to the gardener.

Passing over some cases in which, this season, the electric light, as tried at Tunbridge Wells, has done no good—and from which negative evidence outsiders can reap no benefit, though those entrusted with the experiment should do so—we find it admitted as probable that three William Tillery Melon plants grown in a low pitched Cucumber-house, and exposed to the light, produced ripe fruit earlier than others in the same house which did not get the benefit of the light, although six week younger than the others. This looks like a substantial advantage, and at any rate it is hopeful. As to Strawberries, we are told that three batches were started at the same time in November, 1881: one batch has since been grown under electric light only (it is not stated whether the plants were illuminated at night); another batch has been submitted to daylight only, and a third lot to daylight and electric light. The two former batches were stated to be equal; if so, the electric light has no advantage over daylight. The third batch, subjected to constant illumination, daylight and electric light, "was decidedly earlier than the others, and was ready for eating on the 26th January, 1882." Similar results have now been obtained from repeated experiments with Mustard, treated in the same way as the Strawberries. Sunlight, as might have been anticipated, is preferable when it is available, but when the days are overcast, and the sun shrouded, then plants grown with the electric light will be earlier and better than those grown without such adventitious aid.

We do not gain much information from the mere fact that a Strawberry or a pot Rose, whose flower-buds were formed long before it was submitted to the light, has had its development hastened by such exposure. We want to know what would happen to the plant if it were continuously grown from the beginning under such conditions. What would happen to it next year? It would be interesting to know if any of the Melons and Cucumbers grown continuously under the light produced seed of good quality, and, if so, of what character were the seedlings. Mr. BUCHANAN can probably enlighten us on

these points. It is also greatly to be desired that a series of plants should, if possible, be grown from the seed to the seeding stage again, under the electric light, and that the size, weight, measurement, and whole life history of such plants and of all their organs should be accurately observed and faithfully recorded in comparison with those of other plants grown under natural conditions and at the same time.

It is really a matter of the greatest importance in vegetable physiology to ascertain precisely what is the effect of growing a plant under continuous light. The prevalent notion among physiologists is that light retards growth—that a plant feeds by day by virtue of the sunlight, and uses up at night the food so gained, or rather that which has previously been so gained and stored in the tissues. At first sight it seems as if this opinion must be in direct contradiction to facts that come under our daily observation—that it must be directly contrary to what is observed in the short summers but nightless days of the far North, where for a few weeks the plants are constantly exposed to light, and where, in consequence, growth and harvest operations occupy a much shorter time than with us. It would seem also that the results already obtained by the aid of the electric light are directly contradictory to the opinion of the physiologists. But the divergence is not so great as it appears. Laboratory experiments are one thing, ordinary cultural experiments are quite another. It is the object in the laboratory, as far as possible, to study the influence on plants of light only, or of heat only, or of moisture only, to isolate each factor of a plant's growth, and study it by itself—see what it does, and what it does not do when separated from other agencies. In Nature, or under ordinary cultivation it is quite another matter. All the forces of Nature come into play, and fashion the plant by their combined influence. The action of light is controlled by that of heat and moisture, and so the plant is the result of the concurrent operation of many forces, and it varies in character and in the way it does its work according as it is equally or unequally influenced by these agencies.

It is rash at present to speculate, still more so to dogmatise, as to the absolute necessity for rest in plant-growth—we know how desirable it is sometimes—rash to affirm that periods of darkness are absolutely essential to their health. On all these points we want accurate information, and should welcome it from any source.

For immediate practical purposes we need not, however, be so exacting. It is for early forcing purposes, as we have before said, that we imagine the light will be found most useful. It is now established sufficiently that the light, properly applied, will supplement the daylight and afford light when the sun does not, and that in so far it will hasten vegetation and promote the more rapid ripening of fruits. But whether it will do so at such a cost as to allow of commercial success is a point that has not yet been satisfactorily answered. Again, as practical men, looking at matters from a commercial or an economic standpoint, we are not concerned in the first place with what is good or bad for the plant. It is not good for the Strasburg geese or prize pigs to be over-fed, over-heated, and under-exercised—on the contrary, it is very bad for them, and so our cultural proceedings may be very bad for the plant: it may be worth our while, as indeed it is, to grow plants under conditions wholly unsuitable to them in a natural state, so that the circumstance that the electric light may prove injurious to plants affords no argument whatever against its use. If it is once made clear that it is worth our while to avail ourselves of it, we can soon adopt means to compensate for any injury it may occasion.

— THE SUCULENT HOUSE AT KEW.—Visitors to the Royal Gardens, with their curiosity whetted by the sight of Miss NORTON'S remarkable series of

illustrations of characteristic plants in various parts of the world, may find confirmation of the artist's fidelity, and realise in a measure the effect of the association of plants of similar contour and habit—such as HUMBOLDT called physiognomical plants—by entering the Succulent-house. Our illustration (fig. 118) taken from a different point to that shown in our New Supplement some years since, shows the magnificent group of Agaves, Foucroyas, Beaucarneas, &c., which occupies one end of the house, and forms one of the most striking features in a garden which is full of such attractions.

— MR. W. T. THISELTON DYER, C.M.G.—We are pleased to have to announce that in recognition of the services rendered by the Assistant Director of the Royal Gardens, Kew, to the various Colonial Governments, the honour of Companion of the Order of St. Michael and St. George has been conferred on him. The ordinary visitor to Kew has little idea of the magnitude of the labours undertaken at Kew in the service of the Indian and colonial botanic gardens and plantations.

— HYBRID CERESUS.—From Mr. FLEMING, of Clivenham, come flowers of a very beautiful Ceresus—a most aristocratic-looking flower, as a lady critic asserts. The plant is a hybrid between the rich crimson Ceresus speciosissimus and the very lovely night-blooming Ceresus, but in which direction the cross was effected we do not know. In any case, the result is a flower of singular beauty, the narrow, sharply pointed outer segments varying in colour from cream coloured to orange-brown, the outer or lower surface of each being the more highly coloured. These pass imperceptibly, and without any sudden break, into the broad obovate oblong pointed inner white segments of the corolla. Within these is a crowd of delicate white filaments of different lengths, and in the centre a long pure white columnar style split up at its apex into about ten short white velvety stigmas, radiating like the lobes of a star-fish. The flower has the beauty of the night-blooming Ceresus but with less pure yellow or orange in the outer segments, and, in addition, has the advantage of flowering in the day-time, and with less heat, though our enthusiasm has many a time kept us from our couch watching the unfolding of the amazing beauty.

— THE PARIS FLORA.—M. COSSON & G. MAIN DE SAINT PIERRE have lately issued a second edition of their *Atlas de la Flore des Environs de Paris* (WILLIAMS & NORGATE). The fidelity of the illustrations and the neatness of the engravings are very remarkable, so that many British botanists will be glad to possess a pictorial record of a flora in many respects identical with our own. The book contains forty-seven octavo plates, each with numerous figures, so that a large number of those species which are the most difficult of determination are figured, while, still further to assist the student, analytical tables are given showing how to discriminate between nearly allied species.

— EUCALYPTOGRAPHIA.—Baron VON MUELLER continues his very useful descriptive atlas of the Eucalypts of Australia. The eighth decade is before us, containing figures and descriptions of *E. condata*, *E. crythronema*, *E. gamophylla*, *E. macrocarpa*, *E. Preissiana*, *E. pruinosia*, *E. pulverulenta*, *E. pyramidalis*, *E. santalifolia*, *E. sepulchralis*.

— SEEDLING PELARGONIUMS may be submitted in competition for the Pelargonium Society's Certificate of Merit at the meetings of the Royal Horticultural Society's committees at South Kensington on Tuesday next, Mr. HIBBERD, 15, BROWNWOOD Park, Stoke Newington, Secretary to the Pelargonium Society, will supply entry forms for seedlings, and whatever else may be required by intending exhibitors.

— THE PALERMO BOTANIC GARDEN.—Prof. BARON TODARO has recently issued a *fasciculus* of his publication entitled *Horæ Botanicas Tamaritanæ*, containing the description and folio coloured illustration of *Agave macrantha*, a species with thick oval acuminate spine-tipped dentate leaves, and yellow flowers, with long pinkish protruding stamens; as well as of *Ophrys* (arachnites) *Benotii*, and *O. fuciflora*—terrestrial Orchids nearly allied to our *Iris* and *Diandra* Orchises.

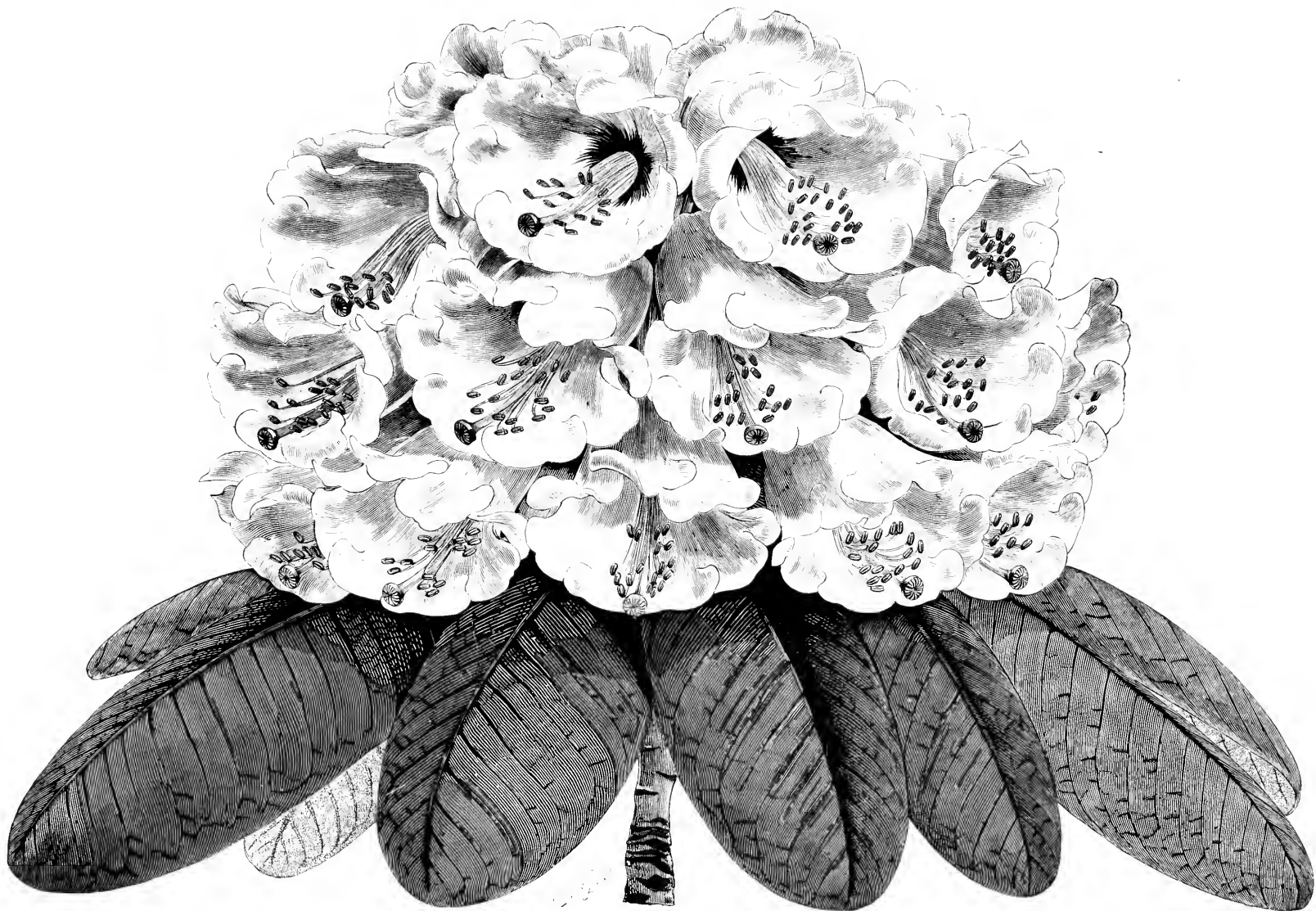
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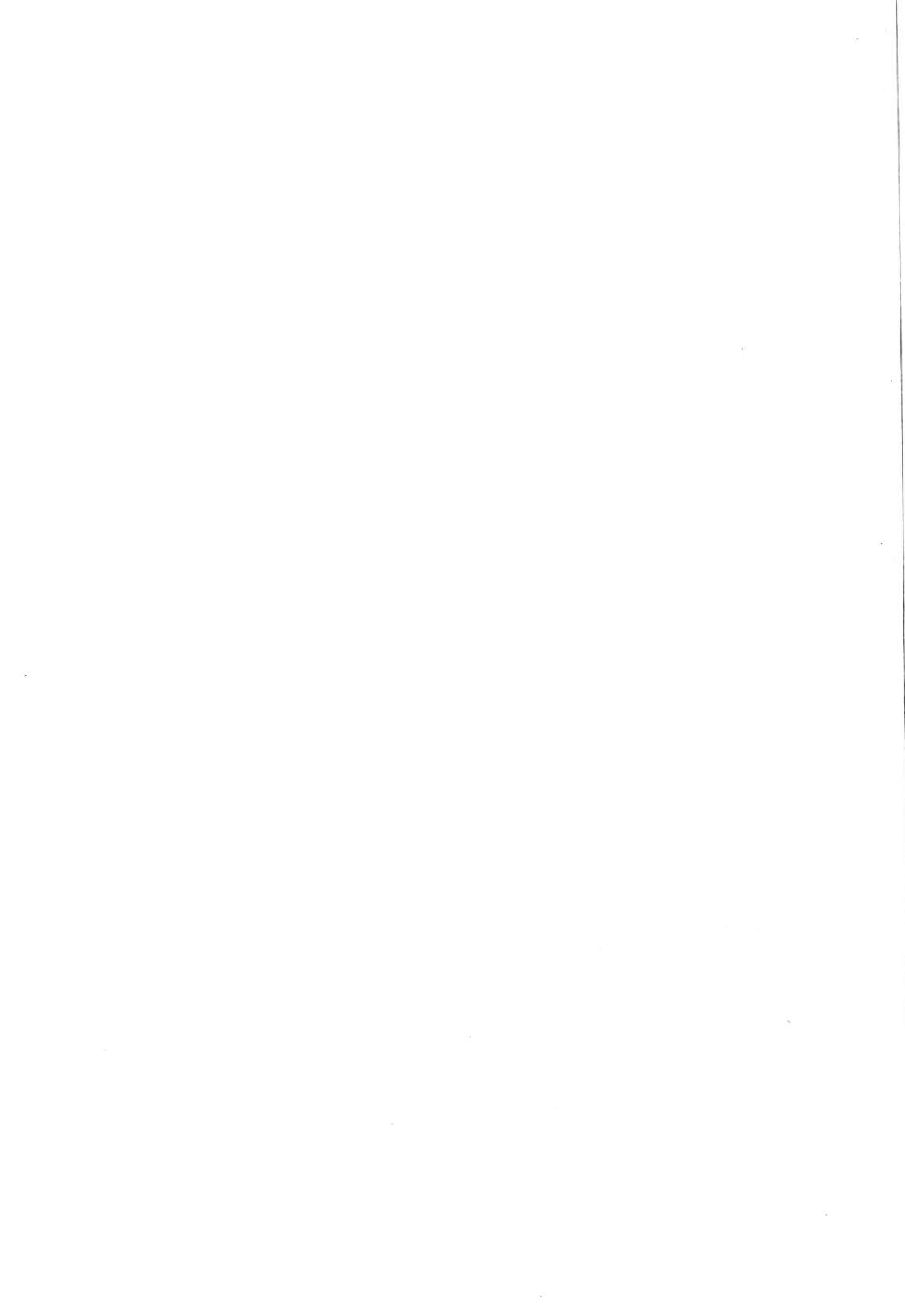
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RHODODENDRON GRANDE







JAMES E. SMITH, D.

The Garden's Terrace.

FIG. 118.—THE SPECTACLE HOUSE AT NEW. (SEE P. 77.)

— THE GUM CISTUS.—Beds of these in this season are very attractive in extensive pleasure-grounds, for they are hardly suitable for a small garden, owing to their habit and mode of growth. A single plant is often very ornamental, but given a good-sized bold bed of them located between specimen Conifers, they supply a mass of colour which is very acceptable and distinct in form from most other things that flower at the same time.

— THE MARKET PEA CROP.—Peas promise to be both cheap and plentiful this season. That can be hardly other than good news to consumers, especially to the poorer section of the public, to whom fresh new vegetables, and Peas especially, come as a welcome boon, invigorating and health-giving. Under ordinary conditions of sale, the first gathering of Peas fetch from 7s. to 10s. per bushel, but this year, owing either to a large influx from other sources, or because the crop is abundant as well as simultaneous in its incoming, prices have already run as low as 4s. per bushel, much to the disappointment of the growers, who certainly looked for better returns. It must not be too readily concluded that a heavy crop, if low in price, will pay as well as a smaller one that obtains a higher figure. Whether Peas obtain 3s. or 9s. per bushel, the grower has to pay just the same for gathering, so that if the crop be a heavy one the picker finds perhaps more profit than does the grower. The charge of 6d. per bushel for gathering is almost always adhered to at any time in the season. Some growers may perhaps get their Peas gathered at a penny per bushel less, but the gain is seldom on the grower's side. A little less care in sampling, and in the handling of the haul, may soon make the penny wise into the pound foolish. Growers are very largely in the hands of their pickers, because the lapse of a few days may both spoil the crop and lose the market. Conciliation and liberal treatment is the safest and wisest policy. An expert gatherer—and women always make the best—filling ten bushels per day, of course in long hours, can show a goodly wage account at the end of the week; and sometimes it happens that whilst the husband works overtime is making 21s. per week, the wife and a couple of active girls are earning 50s. more, so that there may be worse times for the working classes than is the season of Pea gathering.

— TRADESCANTIA MULTICOLOR.—This is largely used at Ashton Court, Clifton, Bristol, as an edging plant, by Mr. AUSTEN. Planted in good soil it grows like a weed, and is a conspicuous feature in the flower garden. It appears to prefer a warm sunny position. The plants need a little pegging to get them into position, and then, if needs be, pinching-back can be performed to keep the line perfect. The old *T. zebrina* is also used for the same purpose, but *T. multicolor* more so because of its handsome and striking variegation.

— HYDRANGÆAS IN SMALL POTS.—Possibly there are many who purchase these favourite plants who are not aware how simple it is to grow them. Private gardeners generally have not the knack of cultivating them dwarf like the trade growers—such, for instance, as the Messrs. LOW, of Clapton. The cuttings after they are rooted are as a rule kept too long in heat, and the result is that plants that should be little more than a foot high are over a yard. Now is a good time to propagate these plants. Insert the cuttings into a sharp compost and place in a gentle warmth until they are rooted, and harden off immediately before much growth is made. Then turn the plants out-of-doors and plunge them in the full blaze of the sun in a bed of coal ashes. If they are kept in 4 or 5-inch pots they do not grow much, and the wood is thoroughly ripened early in the autumn. Introduce into a gentle heat the following spring and in a few weeks a fine flower-truss upon a stem not much over a foot high will be the result.

— KEW.—Wednesday, June 7, will be an important anniversary in the future history of the garden. On that day was opened the Marianne North Gallery of Paintings, to which attention is called in another column. The collection is well described as unique—no such adjunct to a botanical garden exists anywhere—and our national pride in our national garden is in so far enhanced. As to the artist, one knows not which most to admire—her talent, her undaunted perseverance, or her generosity. The value of such works and deeds is not alone estimated intrinsically—it makes itself felt

in the stimulus exerted upon others. The magnificent *Nepenthes Northiana* described and illustrated in these columns by Sir JOSEPH HOOKER, might have remained a botanical curiosity, or even less, for, till Messrs. VEITCH, fired by Miss NORTH'S drawing, sent Mr. CURTIS to Borneo, expressly to secure the plant, it was known only by the drawing in Miss NORTH'S collection. On the same day the new rock garden was opened to the public. We have so recently referred to this that we need not now speak of it again, unless it be to congratulate the authorities on the satisfactory effect they have managed to produce in a remarkably short space of time. As each year passes we hope to note still further realisations of the ideas of pictorial beauty and scientific utility with which this rock garden has been constructed.

— SPELLER'S PROLIFIC TOMATO.—When at Cliveden the other day, Mr. FLEMING called our attention to a new variety of Tomato fruiting in one of the houses, and which from the excellent character he gave it deserves to be better known. It was raised by Mr. J. SPELLER, a florist, at Woolburn, near Hedsor Towers, Bucks, about eight years ago, from the old red variety, and has been kept true since by Mr. SPELLER, who devotes six houses to its cultivation, the whole of the fruits being taken by one firm in London. It is a most prolific cropper, both under glass and out-of-doors, and the fruits grow to a good size, and of a bright reddish crimson colour all through. In outline the fruits are more corrugated than such varieties as the Stamfordian; but its freedom in bearing, beautiful colour, and fine flavour considerably outweigh that objection.

— THE WHITSUNTIDE EXHIBITION AT MANCHESTER.—The numbers present during the week this great exhibition was open at Old Trafford were 51,000, being 7000 in advance of last year. The financial result is a balance in favour of the Society of about £800.

— TREES AND SHRUBS AT CHESHUNT.—Trees and shrubs in the home nursery seem to have suffered less from the storm at the end of April than in most places, the result of which is that the bloom of shrubs of all kinds has been unusually fine and free from the seared appearance visible in many parts. Amongst Thorns the Tansy-leaved variety, *Crataegus tanacetifolia*, deserves mention for its late habit of blooming, coming in when all others are over, thus extending the season of Thorn flowers, which are favourites generally: it is a single white-blossomed variety. There is now in flower a variety of the common Laburnum that reminds us how often it happens that some really fine shrub or tree remains for a lengthened time but little known to the generality of planters—we allude to *L. Alschingeri*, a kind that should be in every garden in the kingdom. Nothing can surpass the elegance of this tree when in bloom; its flowers are a paler, more refined shade of yellow than the common variety. They are produced freely, the racemes being of extraordinary length; some measured on the Cheshunt plant were 18½ inches in length, not including the 2 or 3 inches of foot-stalk. Its branches are laden with these long bunches, as full apparently as the common variety, and it has the still further merit of not opening its flowers until the others are quite over. The tree seems to be a little more erect in habit. A tree often talked about than seen is here—the true weeping Purple Beech, as fine in colour as the ordinary kind, and of the most decided weeping habit. Amongst evergreens may be mentioned the erect-growing American *Arbutus-vitæ*, dense and full in habit, and nearly as erect and close as the form of *Cupressus Lawsoni* known as *erecta viridis*. This *Arbutus-vitæ* is of such vigorous growth, so full and distinct from other species and varieties, as to give it a character of its own.

— GEUM COCCINEUM FLORE-PLENO.—Lovers of herbaceous plants desiring to make the most of bardy plants will find this *Geum* a most invaluable plant, either for cutting for rooms or for massing in the open garden. It is one of those plants for which too much cannot be said. It makes a beautiful show planted in lines and a bed of it planted *en masse* is equal to anything that can be produced by massing the best of several *Pelargoniums*. When a good stock is obtained it is best planted in the latter way if it is intended to show off the brilliancy of the plant to the best advantage. It succeeds well in any ordinary situation, and

enjoys a genial climate. In certain parts of Devonshire it grows so luxuriantly and flowers in such profusion that it might safely be employed for the embellishment of any garden where a late spring or early summer effect is desired.

— INORA PILGRIMII.—Although Mr. B. S. WILLIAMS does not this year intend to show large specimen plants, it must not be understood that he has none to show. There are many fine examples in bloom at Holloway now, and coming on to bloom, which look none the worse in the houses for a little rest; amongst them, in flower, being a noble specimen of this new *Ixora*, which measures 4 feet through, and carries over a hundred trusses of flowers.

— AZALEA MISS BUIST.—This is an American novelty, sent out last year by Mr. B. S. WILLIAMS, which is meeting with much favour. It is of the amœna type, and very free flowering, the blossoms being pure white and of great substance, of good size, and a model of a flower in form.

— PERENNIAL SPECIES OF IBERIS.—A short time since Messrs. DICKSONS & Co., of Edinburgh, sent us a series of specimens of *Iberis* grown by them, and which we have since compared with the account given by Mr. BAKER in these columns, 1868, p. 712, as well as with specimens growing in our own garden:—

I. Tenoreana.—Of the series before us, sent us by Messrs. DICKSONS; this is the only one in which the inflorescence is so much branched as to be truly panicled. It is abundantly distinct from all the rest. Its leaves are linear, broad at the apex, and obscurely lobed. The main flower-stalk is covered with whitish hairs, and it is noteworthy that those near the top are hooked and bent downwards, forming vicious-looking tenter-hooks, the use of which is presumably to keep off unwelcome intruders from the flowers; in any case, the hairs at the lower part of the stem present a much less formidable appearance.

I. gibraltatica we mention here merely to confirm what Mr. BAKER says as to its rarity in gardens, though probably the remark is less true than when he wrote in 1868. It is the largest and finest of the series, and its glabrous, toothed leaves and large flat inflorescence (*corymbosæ*) sufficiently distinguish it. We saw it lately at Kew in bloom.

I. corifolia (we do not guarantee the name, nor have we at the moment leisure to look up the synonymy) has also a flat-topped inflorescence or corymb, the snow-white petals overlapping and forming a charming contrast with the deep shining green of the oblong somewhat spoon-shaped leathery foliage. The main flower-stem is also more or less leafy nearly to the top. What Messrs. DICKSONS send us under this name is apparently the same as our own, but if so it is later in expanding its flowers. It is quite distinct from *I. Garrexianna*, to which Mr. BAKER refers it.

I. superba (Hort.) has linear acute, or shortly acuminate, glabrous leaves and racemose flowers. The main flower-stalk is leafless near the top. This is, we suspect, the plant most commonly grown as *I. gibraltatica* in gardens. A seedling raised by Messrs. DICKSONS is very similar.

I. sempervirens has broadly linear leaves, racemose flowers much smaller than any of the preceding but rather larger than those of *I. Garrexianna*, the upper part of the flower-stalk leafless.

I. Garrexianna is, as Mr. BAKER says, the smallest of the series. Its very narrow linear leaves are somewhat larger than the preceding and have a grassy look; the small white flowers are ranged on very slender pedicels in raceme fashion.

In endeavouring to distinguish these plants attention should be paid to the size and habit of the plants, *I. gibraltatica* being much the largest, and *I. Garrexianna* the smallest. The form, size and texture of the leaves next demand attention, noting the differences between the leaves on the barren shoots and those on the flowering stems. It should be ascertained whether the leaves are broadest near the tip, in which case the prefix "ob" is applied in botanical descriptions. The comparatively flat or dome-topped inflorescence of the "corymbosæ" set is generally well contrasted with the more cylindrical form of the racemose section, but it must be remembered that the forms run one into the other, and that it is imperative to compare different specimens in as nearly the same stage of growth as possible, and that it is prevalent tendencies and indications rather than absolute characteristics that all must look. No botanist would be an hour without his pocket magnifying glass, and those who do not possess one would find themselves rewarded for the purchase of one by an inspection of

the ultimate flower-stalks or pedicels, the upper surface of which is studded over with little pimples, like so many tiny glass beads, which also run down the main peduncle in longitudinal lines, but which do not occur on the lower surface of the pedicel. Similar but smaller pearly excrescences fringe the margins of the leaves in all the species. What the use of these decorations may be is matter for enquiry.

— DWARF POINSETTIAS.—There are few plants cultivated for winter decoration that are more popular with the masses, or that better repay the cultivator for his labour, than the Poinsettia. Good heads—or, in technical phraseology, large bracts—are obtained in a variety of ways. Very often they are produced upon plants which are not conspicuous for fine foliage, and even these are useful for the embellishment of staircases where the naked stems are hidden from view. As table or room plants no brighter subjects can be used, but they must be clothed in clean green healthy foliage down to the rim of the pot. The simplest way of securing this is by late propagation. At one time it used to be the practice to start plants early in the year—say about the middle of April—and to propagate a second time in August. The tops were simply cut off about 6 or 9 inches in length, and inserted singly in small pots plunged in a brisk bottom-heat, and kept shaded from every blink of sun until the plants were well rooted. In this way good heads were obtained, but it must be admitted that, if the cuttings received the slightest check during the rooting process, the result was not always satisfactory. A much better plan is to keep a number of old stools at rest until late in the season, and then turn them out-of-doors in time to get stiff, strong cuttings by July. The cuttings should be taken off with a heel; and, owing to their vigorous nature and hardy condition, they are less susceptible to check during the rooting process, and if grown on quietly (that is to say, in a very moderate heat) during the autumn, not one plant in twenty will lose a leaf. From 400 to 500 plants have been grown in one season upon this plan for decorative purposes, and, in addition to playing a prominent part in the houses during the winter months, they also assisted materially in keeping up a good display in several plant-houses.

— THE CORONA OR CUP OF THE NARCISSUS.—What pages on pages have been written about this. The fact is, it is a botanist's business to ask questions. When he sees a plant it is his business to interrogate it as best he can, so when he finds a flower presenting any peculiarity of structure like the cup of a Narcissus, it is his business, his duty, and his pleasure to ask what it is, how came it there, what it means, and what is its use? The answers he gets to his questions depend very much indeed on the way the question is put—on the proper framing of the question, that is. In the case of the Narcissus cup the answer to the question "What is it?" has been sought in various directions, as by comparing the cup with similar conformations in other genera, such as *Paneratium*, or by observing the changes it sometimes exhibits when inclined to be "sportive." *In vino veritas*, so when a plant deviates from orthodoxy it very often lets out secrets not discernible at other times. Another mode has been by examining the mode of growth from the very earliest to the adult condition. Professor BABINGTON has kindly sent us a flower of *N. poeticus* in which to outward appearance either one or two stamens have assumed the guise of the cup, or a portion of the cup has taken on itself the appearance of a stamen. Some years ago, fascinated by the surpassing interest there is in attempting to unravel puzzles and to reduce the complex to the simple, the present writer, following in the track of others far wiser than he, ventured the opinion that the cup of the Narcissus consisted of a series of modified stamens, or, as some critic or mischievous printer wrote, of "mystified" stamens. There were grounds for this belief—there still are—Professor BABINGTON's flower might at first sight be cited in evidence along with others already recorded—but a more careful examination of the flower in question shows that in this particular instance it is not the corona reverting to a staminal appearance, but a dislocated and distorted stamen which is partially grown in union with the corona, and so looks as if it were a portion of the corona itself. The conclusions at which we arrived years ago were assailed by no less a person than Mr. WORTHINGTON SMITH. On looking again at his arguments, after the lapse of years, it

seems to us now that while in matters of detail Mr. SMITH was quite wrong, in matters of general principle he was quite right—in his interpretation of the mode of formation of the cup of Narcissus. The ill-advised use of the word "stipule," and the false analogies thereupon based, concealed the underlying truth, that the organ in question was and is an outgrowth from the flower-tube, and not necessarily either perianth-segment or stamen. In those days we relied upon one or two modes or styles of questioning when others were available, which would have shown, as they have done since, that the real interpretation of the corona of Narcissus is that it is an outgrowth from the perianth-tube—an adaptation probably to facilitate the cross-fertilisation by insect agency. The cases formerly relied on to prove the staminal nature of the corona are capable of other interpretation, which it would be tedious to give here.

— LINNEAN SOCIETY.—At the last meeting of the session, to be held on June 15, the papers to be read are:—1. "Apocynaceae Caoutchouc-Yielding Plants of Malaya and Central Africa;" by W. T. THISELTON DYER. 2. "On the Fungi of Queensland, Australia;" by Messrs. BERKELEY and BROOME. 3. "Discovery of Tasmanian Plants in South Australia;" by J. G. OTTO PEPPER. 4. "On a Collection of Ferns from the Solomon Islands;" by J. G. BAKER.

— STATICE FLORIBUNDA AND HYDRANGEA JAPONICA TRICOLOR.—These plants were exhibited at the meeting of the Floral Committee on May 23 by Messrs. CHARLES LEE & SON, and both obtained First-class Certificates. In our report of the meeting the credit of showing the *Hydrangea* was inadvertently given to Messrs. VEITCH & SONS.

— THE PROSPECTS OF THE SEED CROPS.—At this season of the year seed growers take a general survey of the seed crops, in order to read what promise there is of good or indifferent crops. As far as garden seeds are concerned, the crops generally, with the exception of Cabbages, promise well. From some cause or the other, Cabbages that in October and November last looked very promising indeed, and continued to do so through the winter, have not bolted to seed with their usual freedom, and this cause is not quite explainable. Their hearts turned hard, and remained so. The seed harvest of Cabbage will, therefore, be small. So far Peas are looking very well, and the rain has come in good time to help the plants materially, and the same may be said of Longpod and Broad Beans. Scarlet Runners and dwarf French Beans are only just coming through the ground; but with the rain has come the promise of a good plant. Broccolis look well, and in so far as Cauliflowers are grown for seed in this country—never very extensively—the crops promise favourably also. Among agricultural seeds Mangel Wurzel is looking very well. On the other hand Swede Turnips look poor, and very much "cankered" on the leaves; this, it is supposed, is caused in part by wet, but in a large measure from growing the seed on the same land for a few years. Scotch Turnips look remarkably well, and if favourable weather holds a good yield will result. White Turnips are of a very short breadth indeed this season, but they also look remarkably well. For a few years past white Turnips have been largely grown, until there was quite a glut of seed in the market; and in order that much of this accumulation might be cleared away smaller breadths of white Turnips were sown last year than is usual. On the whole, the outlook into the seed crops is not an unfavourable one, and if these "kindly fruits of the earth" can be ripened and harvested in good condition, grower and purchaser alike will have reason for congratulation.

— GHEAT AZALEAS AT COOMBE WOOD.—These beautiful hardy shrubs, although not attaining the size or possessing colours such as to rivet the eye at a distance in the way of the banks of Rhododendrons at Coombe Wood do, are nevertheless only second in importance, and are deserving of being grown much more extensively than they are in most gardens. The marked advance that has taken place in recent times in the colours and form of the flowers places the newer varieties far in advance of the old better-known sorts. In the very complete collection at Coombe Wood the following are a few of the best, alike conspicuous for their free vigorous habit, fine flowers, and distinct handsome colours:—*Coccinea speciosa*,

orange-scarlet; *Belle Merveille*, deep orange, tinged with red; *Perle du Printemps*, salmon, shaded with pink—an enormous flower; *Admiral De Ryuter*, reddish-scarlet—large and distinct; *Marie Verschaffelt*, pink, upper petals yellow; *Marie Dorothee*, white, suffused with pink and yellow; *Directeur Charles Baumann*, vermilion; *Fama*, salmon, upper segment yellow; *Nancy Waterer*, golden-yellow, shaded with salmon; *Graf von Méran*, white, shaded with blush—flowers semi-double; *Oscar I.*, creamy-white, suffused with pink; *Julius Cæsar*, red upper segment, suffused with deep orange—a telling kind; *Invictissima*, yellow, striped with pink; *Narcissiflora*, pale yellow—distinct. One and all of these may be relied on as fine double kinds.

— PAPAVER ORIENTALE.—Those who are fond of size and colour in flowers will find this a striking plant for the herbaceous garden. Good sized plants, bearing from four to six of its large scarlet flowers, are intensely bright objects—so bright, indeed, that they are hardly equalled among hardy flowers. They grow from 2 to 3 feet high, and instead of being planted, as they often are, in lines, they would probably be most effective among low evergreen or flowering shrubs, and not planted too thickly. The colour is so strong, that a few plants will be found sufficient for a small place unless it is deemed desirable to obtain a larger number for some special reason.

— PUBLICATIONS RECEIVED.—*The Great Northern Railway Panoramic Guide.* (BEMROSE & SON.)—*The Agricultural Depression, and How to Meet it.* By A. J. BURROWS, Pluckley, Kent. (RIDER & SON.)—*Lehrbuch der Baumkrankheiten.* Von ROBERT HARTIG. (Diseases of Trees.)

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending June 5, issued by the Meteorological Office, London:—The weather during the first part of this period was fine and bright, but the last few days were very unsettled and rainy, while in many places sharp thunderstorms were experienced. The temperature has been slightly below the mean in "England, S.W.," but in all other parts of the kingdom it was equal to, or a little above, the normal value. The maxima, which were registered on different days in various districts, were as high as 72° at Nairn, Loughborough, and Silloth, and between 69° and 71° at many other stations; while the minimum ranged from 37° at Londonderry, and 39° over central and northern England and the east of Scotland to 44° in the south of Ireland. Rainfall has been slightly less than the mean in "England, E.," "Scotland, W.," and "Ireland, N.," but considerably in excess over the western and central parts of England, and a little in excess elsewhere. Bright sunshine again shows decrease in duration, although the percentages were nowhere very low, ranging from 51 in "Scotland, E.," and 50 in "England, E.," to 34 in "England, S.," and 33 in the "Midland Counties." Depressions observed:—At the commencement of the period a large anticyclone existed over the greater part of our islands, with very light winds, varying in direction between north-west and north-east. This area of high pressure, after moving northwards with increasing easterly winds in the south, finally travelled eastwards and south-eastwards, and disappeared over Denmark and North Germany. Between the 3d and 5th numerous small depressions passed over England in a westerly direction, while on the 4th a rather important disturbance travelled over our north-western coasts from the Atlantic, causing moderate and fresh south-westerly winds in all places.

— GARDENING APPOINTMENTS.—Mr. F. CLARKE, late Gardener to T. BEVINGTON, Esq., Beckenham, and formerly of Barleythorpe, is engaged to succeed Mr. SHAND, as Gardener to the Earl of LONSDALE, Louthwaite Castle, Westmoreland.—Mr. WILLIAM DUMBLE, late Foreman at Rangemore Gardens, Burton-on-Trent, has been engaged as Gardener to C. CORRETT, Esq., Adley Hall, Salop; and Mr. JOHN RUDOLPH, another Foreman at Rangemore, has been appointed Superintendent of the Burton-on-Trent Cemetery and Recreation Grounds.—JOHN DUNSE, lately Gardener at Buratnooch House, Rannoch, Perthshire, has been appointed (through Messrs. DOWNE & LAIRD, Edinburgh) Head Gardener to Mrs. HUNT, Kibworth Hall, Kibworth, Leicestershire.

A GARDEN IN LANCASHIRE.

Is the wealthy and beautiful suburb of Liverpool named Aigluith there are many good gardens, but none more remarkable in many respects than the garden of Enoch Harvey, Esq., of Riversdale, beautifully situated on the eastern bank of the Mersey, which here assumes the appearance rather of a large inland lake than of a river. A splendid view of the grand expanse of water and the fine coast of Cheshire beyond, studded with villas nesting among the woodlands and pastures, is obtained from every part of the place. The charming landscape is rendered still more picturesque by the bold background formed by the rounded forms of the Cheshire hills, blending with and toning down those of the more rugged and distant Flintshire mountains. The place is small, but an excellent example of what may be made of a small garden in the hands of an amateur, whose views of gardening, both in its practical, scientific, and æsthetic relations are original and untrammelled by the dicta of any particular school.

Mr. Harvey's views of gardening have nothing conventional in them. In developing his garden he has not been led by them into the laying down of artistic lines and other merely mechanical features of surface, to the exclusion of the more important consideration of what was fittest and best for the classes of plants he delights to cultivate. His love of plants is catholic, and his aim in laying out his garden has been to gratify that love to the utmost, by providing suitable accommodation for the beautiful things of all climates and elevations. In doing so it has—owing to the physical peculiarities of the situation—been necessary to give more heed to the consideration of how the wind blows than merely artistic effects. The place is in the teeth of the blast which frequently sweeps from the north and north-west; therefore, a bold belt of hardy trees has been planted on the northern and western sides of the garden. In the bend so formed the rockwork, bog-beds and Lily-beds, which are nestled pretty closely together, find cosy shelter. The place is further adorned with clumps of *Rhododendrons*, *Azaleas*, and other choice evergreen and deciduous and flowering trees and shrubs. Fine specimen *Hollies*, *Thorns*, &c., are dotted about the lawn with easy, graceful taste, so as to help rather than prevent the enjoyment of the charming landscape stretched to the right and left to the westward. The margin of each clump of shrubs is made the home of choice hardy perennials and annuals, of which there are hundreds of species and varieties.

Nor are bedding-out plants despised or neglected. I have said Mr. Harvey's love of plants is catholic; his interest in them is neither led nor influenced by fashion. Whilst his devotion is, perhaps, most freely given to his alpine gems and his Orchids, he can appreciate the brilliancy of the spring and summer bedding, for which limited accommodation has been provided in a sheltered corner of the lawn.

The principal feature of the garden is the rockwork. It is constructed in the most simple and natural manner, consisting of depressed hollows and bold elevations, commanding every aspect and circumstance of habitat. Fantastic notions, which too often mar the beauty and usefulness of works of this sort, are entirely absent. Yet there are pleasing lines and contours combined with a proper adaptation of the structure to the culture of a large and varied collection of alpine plants.

Viewed from a distance, the most prominent objects on the rockwork at the present time are bold masses of the following, many of them several feet across:—*Saponaria ocyroides* and *S. o. splendens*, the latter a variety, we believe, sent out by Messrs. Backhouse, of York, and a great improvement on the better known normal form; *Lithospermum prostratum*, *Anemone sylvestris*, *A. alpina*, *Veronica pectinata* rosea, *Hormium pyrenaicum*, *Saxifraga hybrida*, *S. recta*, *S. atropurpurea*, *Cheiranthus alpinus*, *Erodium petraeum*, *Genista triquetra*, *Phlox atropurpurea*, *Daphne encaurum*. These, in the boldness and breadth of the masses they exhibit, give colour to and light up the whole picture, and neutral and relieving tints are supplied by the varied tints of green and grey of intermixed masses of *Saxifraga*, *Cerastium*, *Thymus*, while here and there a bold block of red sandstone, rearing its head to give shade and shelter to some gem or genus at its base, also adds a touch to the charming blending of colour that pervades the whole.

A closer inspection of the rockwork reveals many

beautiful and rare things in and out of flower and yet to come. We shall only note those which we observed in flower on the occasion of our visit. Fine clumps of *Dianthus alpinus*, *Arenaria purpurascens*, *Astragalus adsurgens*, a gem alike in style and colouring; and the scarcely less beautiful but more common *A. monspessulanus*, *Erius alpinus*, *Geum montanum*, *Delphinium nudicaule*, *Cypripedium calceolus*, *Trollius Fortunii* pl., *Campanula Elatine*, *Dodecatheon integrifolium*, *Ranunculus parassifolius*, *Rosa pyrenaica*, *Rubus deliciosus*, *Ranunculus acrifolius*, the single-flowered form, very beautiful and much more rare than the double *Fair Maids* of France; *Phyteuma orbiculare*, *Ranunculus repens* fl.-pl., and many other bright things too numerous to mention at present. Two grand plants of *Rosa rugosa*, one white, the other rose, occupy a prominent position on the rockwork, and showed, by their uncathed and luxuriant condition, that they have withstood the destructive blasts of spring, which had crippled the H.P. Roses to be found plentifully in other not less sheltered spots in the garden.

One is tempted to dilate further on the many points of interest that still remain unnoticed in the outdoor department of this interesting garden, but space will only admit of a brief notice of the collection of Orchids, which Mr. Harvey is getting together with as much intelligence and success as guided and attended his efforts in making up his alpine collection. It is only about three years since Mr. Harvey set himself earnestly to Orchid culture, but in that short time he has done a great deal. No doubt the secret of his success lies in the fact that he is his own gardener. He directs and superintends everything in connection with cultural matters, and does much with his own hands. The collection, although containing few large or specimen plants, as might be expected in one so recently formed, yet bears the marks of skillful culture. The plants are generally in good health—*Odontoglossum* are particularly so. The following were much admired by Mr. Harvey's friends on the dinner-table on a recent occasion—*Cattleya Mendelii*, *C. Mossie*, *Odontoglossum citrosum*, *O. crispum*, *Oncidium oncolor*, *Lælia cinnabarina*, and *Oncidium flexuosum*. They were arranged along with Maidenhair Ferns, in a large oblong dish of Chinese *cloisonné* (part of the loot of the Summer Palace at Peking), pale blue picked out in gold and dark crimson flowers, the whole forming a charming centre-piece of a rare description. *S. G. W.*

LIST OF GARDEN ORCHIDS.

DENDROBIUM.—(Continued from p. 735.)

223. *D. STIPITUM*, Lindl., *Bot. Reg.* 1838, Misc., n. 94; *Walt. Ann.*, vi., p. 260.—India. Cultivated by the Duke of Devonshire and Messrs. Loddiges. Resembling *D. candidum*, but having smaller flowers; the labellum furnished with a deep orange callus below its point, and the ovary is thickly covered with a coarse tow-like hairiness. Hort. Kew.
224. *D. SUBVANSIUM*, Rehb. f., *Gard. Chron.*, n.s. i., p. 490; *Walt. Ann.*, vi., p. 256; *Walt. Bot. Mag.*, Feb. 23, 1878.—Barma. Introduced by Mr. Buxall for Messrs. Low & Co., a handsome species, closely allied to *D. chrysotomum*, having darker blotches on the labellum. Hort. Kew.
225. *D. SUBARISTULUM*, Teijsm. et Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv., reprint, p. 12.—Java. Buitenzorg Botanic Garden, 1862. Flowers small, green and white.
226. *D. SUBULATUM*, Lindl., *Gen. and Sp. Orch.*, p. 61. *Onychium subulatum*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 288.—Java. Buitenzorg Garden.
227. *D. STACHYDIUM* SUBULATUM, Lindl., *Bot. Reg.* 1838, t. 65.—India. Introduced by Miss J. Gibson for the Duke of Devonshire, in whose garden at Chatsworth it flowered in 1838. "A fine species, nearly related to *D. Grinithianum*, from which it differs in its three-lobed peduncles, and in the form of the lip." *Stem*, disc-shaped, deeply furrowed. Flowers tawny-yellow, pencilled with red on the dilated labellum.
228. *D. (DENDROBYNNE) SUPERBIENS*, Rehb. f., *Gard. Chron.*, n.s. vi., p. 516; ix., pp. 49, 49; with a figure, 659; *Floral Mag.*, n.s. t. 204. *D. Goldiei*, Rehb. f., *Gard. Chron.*, n.s. ix., p. 622; *the Garden*, Sept. 14, 1878.—North Australia. Imported by Messrs. Veitch. Allied to *D. bigibulum*. Handsome large dark purple flowers. I have referred to *D. Goldiei* here because I think it can only be regarded as a fine variety of the same species. Dr. Reichenbach required considerable persuasion to accord it the status of a species. It sometimes bears several many-flowered racemes on the same stem, and, as Dr. Reichenbach observes, it is the finest *Dendrobium* from the Australian region. Hort. Kew.
229. *D. (EULOBODIUM) SUBERBUM*, Rehb. f., *Walt. Ann.*, vi., p. 252. *D. macrophyllum*, Lindl., *Bot. Reg.* 1836, Misc., n. 46; *Fl. des Serres*, t. 757, non Richard. *D. macranthum*, Hook. *Bot. Mag.*, t. 2970, non Richard.—Manilla. Introduced by

Messrs. Loddiges. There are several varieties of this handsome species. This, the type, had flowers 9 inches in circumference; the sepals and petals of bright rose colour, with a downy lip, deeply stained with two large blood-red blotches. Hort. Kew.

Var. ANOSMUM, Rehb. f., *loc. cit.*, p. 283; Lindl., *Bot. Reg.* 1845, Misc., n. 41; *Pant. Mag. Bot.*, xv., p. 67, with a coloured plate (species)—Philippine Islands. Introduced by Loddiges, with whom it flowered in 1847. Flowers smaller, lilac, with a deeper coloured base of lip. Hort. Kew.

Var. GIGANTUM, Rehb. f., *loc. cit.*, p. 283. *D. macrophyllum*, var. *gigantum*, Lindl., *Gard. Chron.* 1882, p. 21. Flowers four times as large as the ordinary form.

Var. PURPUREO-MAGNIFICUM, Rehb. f., *loc. cit.*, p. 283. *D. macrophyllum*, var. *purpureo-magnificum*, Lindl., *Fl. van der Hoff*, p. 17.

230. *D. TAURINUM*, Lindl., *Bot. Reg.* 1842, n. 28; *Pant. Mag. Bot.*, x., p. 247, with a coloured figure; *Flora des Serres*, t. 1094.—Manilla. Sent by Mr. Cumming to Messrs. Loddiges, with whom it flowered in 1843. A very distinct species, having large flowers in racemes terminated by a long, slender stem. Sepals yellowish-green, rolled back at the points; petals very long, deep purple, twisted; lip paler purple, striped.

231. *D. TETRAELMUM*, Lindl., *Gen. and Sp. Orch.*, p. 91; *Miq. Nederl. Ind.*, iii., p. 534. *Onychium tetraelum*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 327.—Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.

232. *D. TERES*, Lindl., *Bot. Reg.* 1840, Misc., n. iii.; *Walt. Ann.*, vi., p. 281.—Singapore. Imported and flowered by Messrs. Loddiges. Leaves terete, flowers in terminal naked racemes, small, whitish, fragrant; lip stained with orange near the apex.

233. *D. (STRONGYLE) TERETIFOLIUM*, R. Brown, *Prodr. Fl. N. Holl.*, p. 333; *Benth. Fl. Austral.*, vi., p. 475; *Endlicher, Iconogr.*, t. 69; *Bot. Mag.*, t. 2814. *D. concolor*, Rehb. f., *loc. cit.*, 1841, Misc., n. 9.—North-east Australia. Introduced by Mr. Moore, of the Sydney Botanic Garden, and flowered at Kew in 1853. A very distinct and curious species, having slender stems, very long, terete racemes, and small white flowers in panicles. Sepals and petals very narrow; labellum strongly undulated.

234. *D. TETRACHROMUM*, Lindl., *Gen. and Sp. Orch.*, n.s., xiii., p. 712.—Borneo. Imported by Messrs. Veitch through Mr. Curtis. Flowers white, with some yellow, green, and purple. Allied to *D. aqueum*.

235. *D. TETRAEDE*, Lindl., *Gen. and Sp. Orch.*, p. 87. *Onychium tetraede*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 327.—Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.

236. *D. TETRAGONUM*, A. Cunn., *Bot. Reg.* 1837, Misc., n. 33; *Benth. Fl. Austral.*, vi., p. 279; *Bo. Mag.*, t. 593; *Gard. Chron.* 1873, p. 363.—North-east Australia. Cultivated by Messrs. Robinson in 1874. A curious species with tetragonal stems thickened upwards from a very slender base and proceeding from spheroidal pseudobulbs. Flowers similar in form to those of *D. amboinense*, but smaller and of a yellowish-green with a yellow red-striped labellum. Hort. Kew.

237. *D. THYRSODEUM* = *D. densiflorum* var. *albocinctum*.

237. *D. THYRSODE*, Rehb. f., *Hamb. Gartenz.*, xv., p. 51. *D. Kuhnii*, Lindl., *Bot. Reg.* 1847, t. 47; *Gard. Chron.* 1847, p. 655; non *Fendulum*, Kuhnii, Blume, *Reichenbach, Bot. Mag.* Introduced by Mr. T. Lobb for Messrs. Veitch. Allied to *D. secundum*. Flowers bright rose.

238. *D. (DENDROBYNNE) TUPILIFLORUM*, Rehb. f., *Gard. Chron.*, n.s. viii., p. 72.—Fiji Islands. Discovered and introduced by Mr. Peter Veitch. A miniature, curious species with small, spider-like, purplish flowers, whose sepals and petals terminate in long bristles; labellum fringed.

239. *D. TOKAI*, Rehb. f., *Hamb. Gartenz.*, xxi., p. 293; *Seeemann, Flora Tonicis*, p. 304, t. 92. *Fiji Islands*. Discovered by Mr. T. Lobb for Messrs. Veitch. Flowers large, white, suffused with purplish-rose; labellum yellowish-white; petals waxy. Allied to *D. Pierardii*, Hort. Kew.

240. *D. (EULOBODIUM) TOETILE*, Lindl., *Gard. Chron.* 1847, p. 797, with a figure; *Bo. Mag.*, t. 4477. Mouthed. Introduced by Mr. T. Lobb for Messrs. Veitch. Flowers large, white, suffused with purplish-rose; labellum yellowish-white; petals waxy. Allied to *D. Pierardii*, Hort. Kew.

241. *D. (EULOBODIUM) TRANSPARENS*, Wallich; Lindl., *Gen. and Sp. Orch.*, p. 79; Lindl. and *Pant. Fl. Gard.*, t. 1, p. 27; *Bot. Mag.*, t. 4663; *Leafield, Gard. Fleur.*, t. 68; *Walt. Ann.*, vi., p. 285. *D. Henshallii*, Rehb. f., *Bongibandi*, iii., p. 226.—Assam, &c., India. Originally introduced by Mr. Thomas Lobb for Messrs. Veitch about 1852. A pretty species allied to *Pierardii*, but less brilliantly coloured. Flowers profuse, transparent white, tinged with purplish-rose towards the tips; labellum with a small deep purple disc encircled by a yellow zone, and bordered with purplish-rose. The figure in the *Garden Fleurist* represents the sepals and petals almost stone-grey, with a white zone to the labellum. Hort. Kew.

D. TRIMMUM = *D. mutabile*.

(To be continued)

HOME CORRESPONDENCE.

Epping Forest in Ancient British Times.—In the interesting account of Epping Forest at 75, the writer briefly refers to the condition of the Forest in the time of Cæsar. Some of the camps in the Forest are well known, and the Ambresbury Earthworks have recently been admirably described and illustrated by Major-General A. Pitt-Rivers in the *Transactions* of the Epping Forest Club. It is, however, not generally known that flint-flakes, as struck off from flint blocks by the Ancient Britons, are by no means infrequent in the Forest. British pottery, generally in a fragmentary condition, is sometimes found in the newly disturbed ground. I have many times found both. Three superb wholly polished flint celts were found last February in an old western outlier of the forest by a workman in digging a shallow drain not far from Leyton: the celts were as sharp and perfect as on the day they were made, and had evidently never been used. They were only a few inches below the surface, and were resting side by side. The man saw all three in his shovel at once. These three instruments must have been laid down side by side by their owner in prehistoric times, and never gathered up again, and so they gradually got buried by the dust. The man who found the celts was one of a company with whom I often fraternise (I fraternise with all the excavators round the district where I live), and so a few hours after the celts were found, I availed myself of the opportunity of easily acquiring them. Some persons might say these celts ought to have been deeper in the grounds if the earthworks ever since the Roman Conquest had been piling fresh earth upon them, but such persons often forget that there is a considerable amount of denudation going on from rain in sloping places. Waltham is also mentioned in your account. There is preserved in the schoolroom at Waltham Abbey a fine example of a stone hammer made from a large flatish quartzite pebble; this instrument was found in the Lea, close by, and is almost unknown to archaeologists. The surface geology of Epping Forest is very interesting, especially where the gravels and sands occur. Some are glacial, as at Buckhurst Hill, whilst others belonging to the Lea and Roding are of river origin, and contain the rude flint implements of primeval man. Sir Antonio Brady was surprised when I showed him my palæolithic implements from the valley of the Roding, close to where he had for so many years disinterred the mammoths at and near Hford. Sir Antonio had never suspected the presence of the relics of man with the bones of his great fossil beasts, and the sight of the stones was a revelation to him. The presence of these stones, found by me in the Roding valley, at Hford, East Ham and Barking, has not hitherto been published. *W. G. Smith.*

Wasps.—The past mild winter has evidently been favourable for wasps, as for weeks they have been on the wing in great numbers, and up to the end of May we have paid for over eighty dozens; but although this quantity has been destroyed, we see many daily about the trees and bushes and in the houses, and on the first of June, I had a nest brought me from a heap of loam, and the man who found it assured me he killed two wasps at it, which he showed me. I had always thought that all wasps living through the winter were impregnated queens, and that each one that survived made a nest, and was able to breed young ones, which power I should much like to deprive them of, for assuredly they are the greatest plagues one has in a garden, for no sooner is fruit ripe than they are at it, spoiling and devouring it in the most wholesale and deplorable manner. I judge by the numbers taken up to make nests, things will be entirely eaten up by them this season, and it would be well if some one could make up a mixture to poison the lot, for to keep them at bay by means of protectors is out of the question. Hawthorn's hexagon netting may be so used as to exclude them from vines, but Peaches and Apricots on open walls are quite at their mercy. If we are to save these by-and-by unusual measures will have to be adopted, and I shall be glad to hear if any one has tried arsenic and sugar syrup, and with what result. If set up in shallow saucers or plates on the tops of walls there would be no danger in using the arsenic, and as it is said to be tasteless I should think the wasps would take it readily, and, if so, they would seal their own doom. An easy way of destroying their nests, if in the ground, is to pour tar into the holes and bung them up tight, or turps used in the same way, but better still, as being more economical, is to soak rags or wadding in it and plug the hole up with that. The time to assault the wasps is at night, when they are all home, and if the places where the nests are are marked during the day there is no difficulty in finding them out. The men here often dig them out after having squibbed them with a mixture of powder and sulphur put into Bamboo or Elder tubes, the smoke and fumes from which so stupefies them that they lie as if dead for a time, and

while in that state they may be smashed up with the comb, mixed with the soil, and a quick end of them made. *F. S.*

Stott's Monarch Rhubarb.—This grand variety was well shown here to-day by Mr. Elliott, gardener to James Moffat, Esq., Edenhall, Kelso. Seven stalks averaged 6½ lb. weight each, and measured 24 inches by 9 inches in diameter. A clump of this gigantic-leaved Rhubarb would make a splendid ornamental plant: the leaves measure about 4 feet in breadth by 3 feet in length. The flavour of the Rhubarb stewed is considered about equal to green Gooseberries stewed. *Stuart & Mein, Kelso, N.B., June 6.*

Double White Lapageria.—It seems a little curious that of two plants of Lapageria, one of L. alba and one of L. rosea, planted close together at the north end of a small span-roofed greenhouse here about seven years ago, each has produced within the last few months a bloom having double the usual number of segments, especially as the growths made by the plants are by no means remarkable for vigour. Besides the perfect double flower of L. alba I now send you (fig. 119), it has evidently attempted to produce something even more extraordinary, but, as you



FIG. 119.—LAPAGERIA ALBA FLORE-PIENO.

will see by the enclosed, the result is a miserable failure. [Not quite so; straws show which way the wind blows, though they themselves are not very valuable. *Ed.] G. Duffield, Winchmore Hill.*

Mr. Darwin's Letters.—Will you allow me to mention that I am collecting my father's letters, with a view to a biography. I shall be much obliged to any of my father's friends and correspondents who may have letters from him, if they will kindly allow me to see and make copies of them. I need hardly add that no letter shall be made public without the full consent of its owner. *Francis Darwin, Down, Beckenham.*

Carter's Model Cucumber.—We observe in your report of the Reading show that the special prize for the best brace of Cucumbers was awarded to our Model, and which is stated to be a selection from Telegraph. Be good enough to allow us to say that Carter's Model Cucumber was not a selection from Telegraph. *James Carter & Co.*

Best of All Melon.—Without entering at all into the controversy that has been carried on—on rather too personal lines—in your columns concerning the merits of this Melon, perhaps you will permit me to say that having been called upon at the great show at Manchester on May 29 to express a judicial opinion

on its merits, the samples shown by the raisers were of excellent quality and far superior to another new oval-shaped Melon that competed against it. But there happened to be present in competition a single new scarlet-fleshed Melon called Shelton Abbey Scarlet-flesh, of most exquisite flavour, that carried off the only prize given for the best new Melon. Had there been a second prize Best of All would have taken it. In regard to the scarlet-flesh certified I could not distinguish between it and our strain of Queen Emma—a green-fleshed favourite that we have grown for many years that has now changed into a scarlet, and the scarlet strain of which took first honours at Manchester some two years ago. Queen Emma seems to have lost none of its exquisite flavour with the change of colour in its flesh, and still holds its own as one of the best Melons in cultivation. Has any one the green-fleshed strain true? If so I shall be glad to exchange scarlet with them, as I wish to have it back. I may add that I have had Best of All very good flavoured. It was rather too small for us, and therefore we have not grown it in quantity. I agree with the raisers that in Melons much depends on culture, and also a great deal on the taste of growers and jurors; and hence the likes or dislikes of cultivators afford no very reliable data for determining the merits of particular varieties. Again, Melons for sale won't sell unless they are large, prettily netted, or finished externally, no matter what their natural merits may be. *D. T. Fish.*

Sutton's Late Queen Broccoli.—Mr. Muir has brought an invaluable vegetable to the front in Sutton's Late Queen Broccoli. Here it has been very largely planted again this season, and thoroughly tested in two grand breadths in these gardens, where I have cut as many as twenty dozen per week, and for many weeks in succession. It must eventually be the Broccoli of the day, but unless it is grown no one can form any idea of its intrinsic value to them. It is of a very dwarf compact habit, and has splendid white compact heads of a medium size, and of a most delicious flavour. All our plants came as true as possible from seed direct from Messrs. Sutton & Sons. Our last cutting was made yesterday, June 3, so that it forms a capital substitute for cauliflower, and fills up a break which otherwise would be caused. *J. Clarke, The Gardens, Eryndale.*

Hardy Rhododendrons.—How grand these are again this year, last season having just suited them, as the rain came in time to enable them to make plenty of growth, which ripened up after and set well with bud. These are now opening fast, and plants are making a gorgeous display, and will continue to do so for some weeks to come. As Rhododendrons are such excellent evergreens and so hardy, the wonder is they are not more planted instead of Laurel and other shrubs that have nothing but their leaves to recommend them, except it may be that they are of quicker growth and take less time to shut out unsightly objects from view. This need not militate against their use, for where there is room Laurels or Hollies may be planted behind; indeed it is always a good plan to do this, as they form admirable nurses and an excellent shelter against violent winds, which, unlooked, knock the heavy trusses of Rhododendron blossoms about. Laurels, being the faster growers, make a capital background and answer the purpose of shade, which, in moderation, Rhododendrons like and require. For planting in front of Rhododendrons nothing looks better than Berberis Darwinii, and with regular belts of the three shrubs named a splendid effect is produced. Borders in front may then be utilised for herbaceous plants, which when so grown look more at home than they do anywhere else. Why Rhododendrons are not more often seen in quantity in gardens is a matter about which the erroneous notion in people have that they will not succeed without peat, which is a great mistake, as in sharp, clean, gritty soil they do as well, or better, without it than with it. What they do object to is chalk or lime rubbish, which is fatal to them, as their roots will not work in it or near it. Half rotten leaves from Oak and other deciduous trees they delight in, the only danger in a free use of these for them is their liability to generate fungus, especially in dry soils, where it breeds and spreads rapidly. Here the ground requires no preparation for Rhododendrons whatever, and we simply dig a hole and plant anywhere, and they grow and flourish in the greatest perfection. In places not quite so favoured, all that is necessary is to use plenty of sharp sand, and work it into the land round about where the plants are to stand, or what is even better than sand, is road scrapings and the turfy trimmings from the sides, which Rhododendrons lay hold of at once, the soil gatherings are free from chalk or other calcareous matter, and the Rhododendrons are fond of moisture, they will not do where ground is continuously wet, unless the drainage is free. In soils naturally dry, mulching is a great help, as it affords shade to the roots, keeps them cool and moist, and prevents them suffering during hot arid weather. Long stable manure is as good as anything

to mulch with, but the mowing of lawns or any grassy litter of that kind may be used with advantage. Rhododendrons increase readily by layering their branches, which, if buried three or four inches deep, root in a couple of years. *J. S.*

Mulching by Strawberries.—The remedies against slugs advised by several correspondents the good in their way, but to have fine Strawberries the beds must be mulched, the mulching being necessary to keep the ground cool and shaded and the roots moist, which is essential for the production of large, rich-flavoured fruit, as any check to its swelling spoils its quality by making it sour. We always make a practice of strawing our beds down before the plants come into flower, as then the work may be done in half the time it takes later on, when the foliage spreads farther about and the stems are borne down by the weight of the blossoms or fruit; and not only this, but when the rain falls soaks in, and is not taken out again in the rapid way it is by evaporation when the ground is not covered. The litter we generally use is that of straw saved from the ice stack, or that which has done service for covering up cold frames, which by the time it is done with for either of these purposes is short and broken up, and therefore just the thing for mulching. By putting it on early, the litters portion of stable manure answers well, as by the time the Strawberries are ripe it is washed sweet and clean. Where slugs are troublesome, the best thing ever met with is dried Fern or Bracken, which, broken up, has sharp edges and ends that both slugs in their movements, and renders it very difficult for them to travel. To get British Queen Strawberries to colour well it is necessary to prop or sling the fruit up, the most expeditious way being to have a few sticks and run a strand of matting round each plant, keeping the matting as high from the ground as the stems will fairly admit. Wire guards are, I believe, made and sold for the same purpose, and if to be bought cheap are preferable to anything, as they may be quickly put down, and would last a lifetime. I am thinking of trying some coarse-meshed narrow rabbit wire run along over each row of plants low enough for the fruit-stems to protrude, which ought to answer and keep it up out of harm's way. *J. S.*

Notices of Books.

Holt Castle; or, the Threefold Interest in the Land. By Professor Henry Tanner, F.C.S. London: Chapman & Hall.

This latest work of the author of *Jack's Education; or, How he Learnt Farming*, has the merits of a pleasing style and a subject well chosen and well treated. In a readable and—to praise it further—a small volume of 237 pages, the management of the model estate of Holt Castle by a model agent, acting under a model landlord, is described. There are no technicalities in the book, no talk of ploughs, or barley, or chemical manures; it is not a work written only in the interest of rent-payers and rent-receivers, farm tenants and landlords, and dealing only with material interests: on the contrary, at the first rent-audit, which the Squire happily calls his "harvest home," when the new steward has taken office and begun to develop his plans, the toast of the evening is "Success to the threefold interest in the land," or, in other words, to landlord, tenant, and labourer. Then, again, instead of offering the reader a schedule of the lowest prices at which farm labourers may be induced to undertake various kinds of work, after the fashion of most books on farm improvement, various plans are laid before the reader whereby the happiness and efficiency of labourers may be increased. The ladies, too, are called to council, from the Squire's wife to the cottage dame, and the whole community pulls together and strives to comprehend its mutual wants. Of the pleasant story and the agreeable characters of this healthy book, the rapid incidents, the successful development of the plot, and the happy ending, we need not speak. The story is a cheerful one from the outset. That excellent man, Mr. Hoimes, "our agent," takes the helm, and from that hour all goes well. A fall from a horse is the worst disaster throughout the volume. One heart, and one only, is in danger of being rather broken for a while, but this cannot be reckoned as an evil, since it is a manifest delight to have the heart a little broken, but not too much so.

We have noticed the attractiveness of the book before us in the hope that a subject of such supreme importance to the whole community as the welfare and management of a landed estate may attract attention now that the opportunity offers of studying

it in the form of a novel. The *Journal* of the Royal Agricultural Society contains, perhaps, in special papers a full description of all the plans set forth by the author of *Holt Castle*, except that the influence of ladies is ignored in the *Journal*, while Professor Tanner makes it an essential part of his scheme that all the ladies of the estate, as already said, should join in promoting such methods of improvement as lie within their province.

But the *Journal* of the Royal Agricultural Society is a technical and learned volume, and does not, of course, devote itself in any single paper to a comprehensive scheme which shall enlist the sympathies of general readers. A demand, however, has arisen for a somewhat new and certainly a most wholesome kind of literature. We shall only add to this very brief notice of a work which is not quite in our department, that several subjects are handled which the difficulties of the labour question have brought into prominence in recent years.

At the conference of wives—the squire's, agent's, tenants' and labourers' wives—both cows and cockies receive their due attention. In those arable districts, as in Suffolk, where the labourers are entirely ignorant of the management of a dairy, and would hardly know at which end of a cow her lactical fountain is situate, it is useless attempting cow-keeping among farm labourers. But Holt Castle is in a pastoral district the dairy is understood, and proper arrangements are, therefore, made for calling back to usefulness that banished animal—the cottager's cow. The author of *Holt Castle* is perfectly correct, that the labour difficulty is only in abeyance, and that united efforts must be made to render rural life and farm work more attractive. The plans of "the three-fold interest" relating to the labour question seem to us, therefore, particularly interesting, and especially the arrangements for securing a more systematic teaching of young labourers by means of apprenticeship. Farmers and farm labourers between them have abandoned the domestic system of the last century, so far as the South of England is concerned, and young labourers are trained, or neglected as the case may be, in cottages, instead of spending their earliest years of youth in the farmhouse kitchen under the immediate influence of their employers. Both have been great losers by the change. Home is the best place for a child, and the worst possible school for a young man, whether he be a young farmer or a young labourer. This and other kindred subjects are well handled in *Holt Castle*. We need hardly add that the author, as a Professor of Agriculture, does not neglect any part of the comprehensive scheme of estate management to which the book before us is devoted. In the course of a very readable story the dry bones of many a tough and technical subject are clothed with life and interest.

Les Meilleurs Blés. (*The Best Varieties of Wheat.*) Paris: Vilmorin.

Messrs. Vilmorin, Andrieux & Cie. have lately issued a handsome quarto volume containing coloured illustrations and descriptions of the best varieties of Wheat, together with indications of the circumstances which influence the yield and the quality of the crop. In order to increase the crop without increasing the cost of production it is necessary among other things to exercise care in the selection of the varieties most suitable for cultivation under particular circumstances. This necessitates a knowledge of the varieties and of their qualities. Few people can have had better or more extensive opportunities of studying these matters, and few have turned them to better account than MM. Vilmorin and their predecessors. The collection of varieties accumulated during three generations of the house of Vilmorin is probably the largest and most complete in existence, and the notes that have been accumulated by them concerning the cultivated cereals during a long series of years under every variety of season, soil and climate, form probably the most complete record that exists.

All the varieties are referred to seven types, viz.:—*Triticum sativum*, *T. turgidum*, *T. durum*, *T. polanicum*, *T. Spelta*, *T. amyaleum* and *T. monococcum*. The points of distinction reside in the separation or otherwise of the glumes or chaff-scales from the grain, the hardness or softness of the grain itself, the presence or absence of awns to the spikelets, the colour and pubescence of the spikelets, and the colour of the grain. Each variety figured by Messrs. Vilmorin is accompanied by descriptive text, giving the characters, history, distribution, and special

adaptations of each variety. The value of such a publication needs no telling. Hallett's Pedigree Wheat we see is referred to Autumn Victoria, of which it is considered to be a special race produced by selection. Major Hallett himself considers it to have originated from the Nursery Wheat, but according to Mr. Vilmorin Mr. Hallett's Wheat has all the characteristics of the Victoria Wheat, and none of those of the Nursery Wheat, neither in the grain, the ear, nor in the stalk. We should have been glad to have seen some statistics, which no doubt Messrs. Vilmorin could furnish, as to the comparative yield, under equal conditions, of each variety, and of the quality as estimated by the miller. Moreover, as this work, from the valuable information it contains as to the variation of Wheat and the influence of external conditions on them is likely to be consulted as a work of reference alike by physiologists, botanists, and agriculturists, it is an unfortunate circumstance that the plates are not numbered, and that no general alphabetical index is given. These deficiencies can, however, readily be supplied in a new edition.

— We have received from the publishers of the "Holiday Handbooks," the first of the series, *A Trip to the Ardennes*. Described in Mr. Percy Lindley's sparkling style, the comparatively unknown ground (so easily accessible) will, we think, prove very attractive to those who have only time for a short holiday. This handbook is issued at the small price of 1s., is illustrated with woodcuts, contains a map of the district, time-tables, and full directions as to the best routes and hotels. We can cordially recommend this unpretending guide to those who are inclined to "try" the Ardennes, and to visit the very interesting cities and towns in the vicinity.

— *The Great Northern Railway Panoramic Guide* (London: Bemrose & Sons) will prove a useful companion to those who like to beguile a long railway journey by ascertaining something more than the name of the towns and villages they are passing through. There is a useful map, and much general information in this pamphlet.

— *Cookery and Housekeeping*. By Mrs. Henry Reeve. With coloured illustrations and numerous woodcuts. (London: Longmans, Green & Co.)—This is a book that will make its way in spite of the plethora of cookery books which exists at the present time. Most of the receipts are clearly given, the "hints" are very "sensible" and useful to the inexperienced, while the numerous bills of fare for small and large families will help and relieve many a mistress who is puzzled to know what she shall provide for dinner and for breakfast. In a new edition we venture to suggest that *gravy*, that very important item, shall not be excluded from the index, and that clearer directions shall be given to the cook on some points, respecting the operation of roasting; for instance, everybody ought to know now-a-days that a leg of mutton should be plucked for five minutes into boiling water, not into "hot" water only, which would not set the juices of the meat; while a teaspoonful of cayenne pepper (!) and one of mustard would render a cheese salad neither an agreeable nor a safe dish. A little more careful revision would render this book a very valuable one.

— *How to Live on Nothing*. By Madame Bouchard (Mrs. Arthur Smith). (Chapman & Hall, Henrietta Street.)—A little *brochure* published at the small price of 6d., and containing many useful recipes. It is rather disappointing, however, on opening the book, to find that it does not tell us how to live upon nothing—a secret which a good many people now-a-days would like to discover—or even how to exist upon a straw day, which would be the next best thing perhaps, but it does tell us how to cook Orel, to make a Dandelion salad, to render cold Parsnips edible, in short, how to make a little go a long way, and to utilise a small kitchen garden to the best advantage. The author says: "If you live in the country, your garden should supply you with most of your food. I myself can go at any time into my garden and get my dinner." A very useful cooking-stove is described also, obtainable in Paris at a small cost. One main reason why French cookery is so superior to English, is that the stoves are so much pleasanter to use, more capable and economical than the clumsy, costly, extravagant articles found in most English kitchens.

— *The Botanical Atlas.*—Under this title Mr. D. McAlpine is preparing a series of illustrations destined to serve as a guide to the practical study of plants. The illustrations (coloured) in the part before us comprise a series of dissections of common wild flowers with appropriate descriptive matter. The figures are just such as a student should draw for himself. In plate 15 the placentation in the diagram of the flower is not well represented, and the statement, "free central placenta," as applied to Caryophyllaceae, demands some explanation. The foliage leaves of *Fumitory* and *Geranium* are not rightly described as compound. In a publication designed for the use of beginners strict accuracy is specially desirable. The *Atlas* may be useful in schools, with the assistance of competent teachers. Messrs. W. & A. K. Johnston are the publishers.

— *The Orchid Album.*—The species figured in the two last parts of this important publication are *Angreæum cburneum*, *Dendrobium superbum* var. *macrophyllum*, *Odontoglossum crispum* var. *flavolum*, *Lælia anceps Dawsoni*, *Cypripedium chloroneurum*, *Dendrobium bigibbum*, *Phalenopsis Stuartiana* var. *nobilis*, and *Odontoglossum Krameri*. We shall notice these more fully on another occasion.

— *The Florist* for June contains coloured figures of the Dryden Nectarine and the splendid Apple called *Beauty of Hants*.

— *The Illustration Horticole.*—Recent numbers contain figures of *Croton magnificus*, *Heliconia triumphans*, *Araucaria Muelleri*, *Spathiphyllum hybridum* x, *Kenta Luciani*.

— *Gartenflora.*—The May number contains coloured figures of *Sedum rhodiola* var. *limifolia*, *Dracocephalum imberbe*, *Nemastylis celestina*, *Herbertia cœrulea*, *Echinocactus Kunzei*, *Opuntia stricta*.

— *Journal des Roses.*—The plate in the May number is devoted to the illustration of *Rose Panachée d'Angers*, H.P.

— *Revue de l'Horticulture Belge.*—A coloured plate is given of *Luculia gratissima* in the June number.

— *Garten Zeitung.*—*Nicotiana affinis* is the subject of a coloured representation in the June number. In the preceding part a description and coloured figure is given by Dr. Magnus of a Potato, a graft hybrid between Mexican and Black Kidney, to which we shall afterwards refer.



Florists' Flowers.

GOLD-LACED POLYANTHUSES.—The establishment of the Southern Show of the National Auricula Society has operated to create quite a new interest in the gold-laced Polyanthus in the South, and old varieties of sterling merit were, and still are, anxiously inquired for, and one satisfactory result has been that attention has been turned to the necessity for raising seedlings, and a considerable amount of success has followed attempts in this direction. Foremost in the work is Mr. Samuel Barlow, of Stakehill House, Castleton, Manchester. The task of raising improved seedling forms could not have been in better hands. Stakehill is essentially the home for florists' flowers. There Polyanthus, Auricula, Tulip, Ranunculus, and other subjects are most carefully and intelligently tended, and many other subjects are cultivated with a tender and unflinching regard. The garden at Stakehill is full of interest—it is a garden of a character one seldom meets with, and when once visited is never forgotten. There, at all times and in all seasons, florists' flowers and kindred subjects are reared and flourish; and no man has acquired the right in such a degree as Mr. Barlow to be looked up to as the leader of the Northern florists. They trust and follow his lead: his great experience, his high character, and his unstinted social courtesies, never fail.

In setting about the improvement of the Polyanthus,

such high-class varieties as Lord Lincoln, Cheshire Favourite and Exile were used as pollen and seed parents. The brilliance of colour found in the former, and the exquisite lacing of Cheshire Favourite appear in the progeny. Seedlings of approved character have in their turn been used as pollen and seed parents. In prosecuting this work many disappointments have ensued; from crosses of which great hopes were formed, nothing but rubbish has come; from others a few prizes have been mingled with the numerous blanks; but something of promise and hope have been secured; and they are but the stepping-stones across the stream along the road which leads to higher results.

Two of Mr. Barlow's earliest flowers are Sunrise and Criterion. Round the former a war of words has raged as to its quality and position among known varieties. As seen in bloom at Stakehill in the early part of this month it represents an exceedingly pretty and distinct red ground flower, bright clear red in colour, good eye, circular centre, and well defined lacing, cutting down to the centre without a break; habit medium in height, and apparently a good grower. Criterion is a black ground flower, as black as Cheshire Favourite, clear golden centre, and a beautiful regular lacing; very bright in appearance, throwing up fine trusses of bloom on stiff footstalks, and good robust habit.

Following these, as of more recent origin, come Fire-fly, deep red ground, golden centre, pure and regular lacing, which goes well down through the centre of the segments to the golden zone round the eye; very pretty and bright in appearance, good habit. Model, red ground, remarkably fine flat and circular pip, red ground, deep golden centre, becoming a trifle clouded with age; broad and regular lacing, a trifle paler in colour than the centre; fine bold truss, and excellent habit. A well developed pip of this variety appears to come very near to what is regarded as a reliable coloured illustration of Addis' Kingfisher, which appeared in the *Birmingham and Midland Gardeners' Magazine*, published in 1851-52, and which variety is now regarded as utterly and irrevocably lost. John Bright is a dark ground flower, with a distinct black ground, deep golden centre, and fine and rather broad lacing, very bright and attractive, but wanting shape; good habit, very free, and highly fragrant. There may be some uncertainty in getting this good enough for show purposes, and of this Mr. Barlow is fully aware; yet it is an exceedingly pleasing variety for pot culture, and will make a rare border flower where quality is appreciated. Harbinger is very like the true form of Cox's Prince Regent, but with a slightly narrower lacing, and a little clouded in the centre; Prince Regent being very clear and bright, Harbinger will make a useful variety for show purposes.

But all these, fine as they undoubtedly are, are only the mediums by which newer and better forms are to be brought to the fore. Some very promising seedlings have opened this season and are marked for future trial, while special crosses have been made for this year's seedling, Model in particular being used as a parent.

A promising seedling named *Zoe*, raised by Mr. William Bolton, of Warrington, was seen at the National Auricula Show at Manchester. It has a rich black ground, fine clear golden centre, with a well-defined lacing of gold, good pip and truss, something like Cheshire Favourite, but of a paler colour both in the centre and lacing. Then Mr. William Brockbank and Mr. James Deswick also have promising seedlings, of which we shall no doubt hear more next year.

Some new Northern flowers have been introduced during the past two or three years, such as Brilliant, Congleton Queen, Staffordshire Queen, and Lancashire Hero. Of these Lancashire Hero was the only one seen at Manchester—a dark ground flower, but not first-rate as shown on that occasion. It is not regarded with great approval by the Polyanthus growers in the North. Of this quartette Congleton Queen has the highest reputation. I have it, but it has not bloomed with me, though a strong grower.

Of the older sorts the best at Manchester were Cox's Prince Regent, one of the leading flowers; Lord Lincoln, very fine, of which a strong plant is flowered—a variety that requires to be grown with great care; Beauty of England, black ground, a variety that, like Exile, is apt to come clouded in the ground colour and cupped in the pip; but, like Exile also, very attractive when clear in the ground, and the lacing well-defined; Cheshire Favourite,

generally good; and Lancer very pretty and effective when in good condition. George IV. was in fairly good condition; here and there a pip or two was perfect; Formosa was, as it always is, singularly bright in appearance, but confused in the ground colour, being neither red nor black, and with the lacing irregular and imperfect.

We are yet some way off the realisation of the typical gold-laced Polyanthus growers and writers have set up as their ideal. Perfect clearness and perfect circularity in the golden centre have yet to be attained, and we are at present further off the realisation of the latter than of the former. A centre, the circumference of which is irregular, imparts to a flower a scolloped appearance, and the symmetry of the whole is thereby impaired. We want the ground colour pure black or pure red, the lacing harmonious in tint with the centre, and well and evenly defined. Then we have not as yet reached onwards to perfect evenness in the parts of the flower as put by Glenny: "The flower should be divided thus—the yellow tube in the centre being measured, the yellow centre round the tube should be the same in width as its diameter, and the ground-colour of the flower should be the same; or draw with the compasses, opened to the sixteenth of an inch apart, a circle for the tube or eye; open them to three-sixteenths, and draw another circle for the centre; then open them further to five-sixteenths, and draw a third circle for the ground colour. Beyond these circles there is a yellow lacing, which should reach down the sides of every segment to the yellow centre, and down the centre of each segment also, and be so much like the edging as that the flower should appear to have twelve similar segments." In this last sentence Glenny assumes that a perfect Polyanthus should have six segments to the flower. To many flowers there are but five only, but the number is variable.

Tested by the required diameter of the tube and zones of colour as set forth by Glenny, what one thinks of the diagrams of gold-laced Polyanthus as occasionally found in illustrated catalogues? Truly, they are wonderfully conceived and fearfully executed. They are burlesques of flowers, and bad burlesques too. They serve as floral decoy birds—that is all.

Let the Polyanthus raiser be encouraged to persevere, for his work, if at all acceptable, will be recognised. In the North a lemon-yellow is preferable to a golden-yellow centre, as being softer and more harmonious in tone. In this respect the true artistic expression and idea is set forth. Let the raiser eschew all big, coarse, clouded, and imperfect flowers that to some appear to represent "prize strains of gold-laced Polyanthus," and let him be not dismayed though some can sell seed of named flowers at 5s. per ounce! He can afford to smile at these absurdities. To him who works and to him who waits there will come a day when he shall be able to present to view cheering results that will raise floriculture a step nearer to the higher level of comparative perfection. R. D.

THE AURICULA.—Those who pot their plants as soon as they are done flowering will now have quite finished. The plants must be rather carefully watered at first, and until the roots have well grown into the fresh soil; indeed, all through the summer months I find it is better rather to under than over water them. The smaller offsets taken from the plants last autumn, and in February last, should now be potted on as they require it; if they are carefully treated they will form good flowering plants for next year. They must not have too large shifts; most of them will flower in large 16's or small 4's. If the general collection has not yet been shifted it is quite time that it was done. I could not get at some of ours until the end of July last year, and I find that those that were late potted did not fill the pots so well with roots as they ought to have done. Among the principal growers there is considerable diversity of opinion as to what is the best potting material. One grower said he would never use any more cow-manure, as very often a white maggot was found in it, which quite ruined valuable plants by eating round their collar; he used stable-manure instead. I have found a mixture of equal parts of cow and stable-manure answer well; and one good grower uses two years old cow-manure. This is a good old-fashioned manure, and I approve of it very much. Four parts good turfy loam, one of manure, one of leaf-mould, and some sharp sand, with a sprinkling of charcoal, is as good as anything.

CARNATIONS AND PICOTEES.—The continued east winds, sometimes bitterly cold, stopped us at bedding-out, and we had a week cleaning, tying-up the flower-stems, and surface-dressing the Carnations and Picotees. They are looking very well this year, and are not so early as we expected by their appearance early in the year. All the attention they require now is to have the flower-stems disbudded as they become sufficiently advanced. We find a good way to destroy greenfly, which clusters on the flower-buds, is to have a small box of tobacco-powder, and look over the plants with a dry camel-hair brush, dipping it in the powder before it is used to brush off the fly. The tree or perpetual flowering section now demands considerable attention. They also must be kept quite clear of insect pests; they should be potted on as they require it, and the growths must be secured to sticks, as few plants are so easily injured by high winds. The best place for them at present is in an open position out-of-doors; the pots to be plunged to half their depth in cocoa-nut fibre refuse.

DAHLIAS.—As soon as the weather is favourable the plants should be put out. It would be a mistake to plant them during dry gusty east winds. If the plants are likely to become pot-bound, it is always much better to re-pot them into a size larger than to plant out too early. The ground has, of course, been prepared long ago, and ought now to be in good condition. To do the flowers well for exhibition the plants should be at least 5 feet apart. I would again urge the importance of putting in the stout permanent sticks at once, and plant out against them; the side-sticks may be put in afterwards. Slugs are often troublesome in the early stages of the plant's growth, and do much damage if they are not looked after. Earwigs should also be trapped early; their destruction now may save much vexation by-and-by. Look after the slugs at night with a lamp, and trap the earwigs in small pots on the top of the sticks. Invert the pots, and place a little dry moss in the bottom of them. It is a good plan to place a mulching of rotten manure round the plants as soon as they are planted. *J. Douglas.*

The Poultry Yard.

FEEDING YOUNG CHICKS.—Chicks of various ages will now be plentiful, and good feeding, with the mild weather now experienced, will bring them fast forward. A free and plump growth and early maturity is always desirable, no matter whether they are intended for the table, laying, or showing; chickens which are half-starved when young never make fine adults, and stunted rearing may show itself for years in the stock. Cramping with all kinds of luxuries we do not approve of, and forcing foods are to be avoided in all fowls which are intended for stock, but giving them as much as they will eat readily of sound wholesome food will always be productive of much good. Few creatures change more with the weather than fowls. In wet dull weather the strongest of them will go moping about and brighten up with sunshine, and in the case of young chicks their food should be varied accordingly. Plenty of soft food is the proper thing in hot dry weather, but during wet periods grain should be their chief meals. It is by having regard to a rule like this that we often attribute the unusual healthfulness of our young flocks. Spratt's Patent Meal is the best of all such foods for poultry. Three or four handfuls of it placed in a dish and covered over with water will swell out to three times its original size in a very few minutes, and it should always be treated in this way before giving it to the fowls. They may have it pure, or it may be mixed with a little barley-meal. Soaked bread-crusts are a good change of food, and barley-meal is always a staple food. Oat-meal is excellent when boiled before using, but it is rather expensive, and should only be given occasionally to choice stock; ordinary Wheat and Buckwheat are, too, good feeding grains. Indian corn is very fattening, and not very healthy if given often and largely. Oats are a good change from the Wheat. Until they are a fortnight old chicks should be fed every two hours, but afterwards the times may be reduced to four times a day, and then to three, always giving as much as they will eat, but never any to waste or lie about the ground afterwards, as this will soon give them a distaste for food, and be a great loss as well. Giving food very early in the morning, say at 4 A.M., just now, will bring them on at a wonderful

rate. They are always inclined to be out and about in the mornings, and consume their food more readily than late in the evening. When first we took to chicken rearing, and were encouraged by gaining prizes at some of the largest shows, we have frequently got up at 4 A.M. to give them their first meal, and this agreed so well with all that we cannot do better than advise its general adoption.

GAPES IN CHICKENS.—This is a very common disease among young chickens. Its presence is indicated by little coughs or sneezes. It is said to be caused by a worm in the throat, and whether they increase in number or size is open to question, but if not checked they take a powerful hold on the chickens, as they become quite weak, droop their wings, refuse food, and ultimately die. Dozens may be lost in this way if a sharp eye is not kept on them. At an advanced stage we never hope to cure, but on the first indication we have always a certain check in putting a piece of camphor in their drinking water. To a pint of water we add a piece of this about the size of a hazel-nut, and it floats about until it is all dissolved. As the water is changed it is shifted too, and as a prevention of gapes, and other diseases as well, this remedy is both simple and effective.

BROODY HENS.—Early in the season these are in great demand, but now, when they are much more plentiful and less wanted, they are regarded by many as a nuisance. Few eggs will be placed under them now, as the hatching season is well-nigh over, and the best way is to put them off their sitting habit as soon as possible. If allowed to sit for any length of time they will soon be reduced in condition and not lay again for a long time, but if put off at once they will lay again very soon, and thus become profitable. A change of run is almost a certain cure for broodiness, or shutting them up with nothing to sit on for two or three days will generally effect a cure.

WEEDING OUT.—In all good poultry yards this is a practice which finds much favour during the summer months, and that, too, before many of the youngsters are fully grown, as it gives the superior birds more room and avoids overcrowding, which is always to be recommended. When quite small it can generally be told which are most likely to be the finest in the end, and the inferior ones should be disposed of as soon as possible. Many will buy these at a reduced price, or they may be penned up and fattened quickly for killing. Prize poultry keepers are always anxious to let the cream of their young stock have as much room as possible, as overcrowding is injurious to the full and perfect development of the best of the birds, and this rule applies to all fowls.

OLD STOCK.—If poultry keeping is to be made to pay at all, nothing but healthy young birds must be kept; and all fowls, excepting some choice prize ones, should be killed off after they become two years old at least. Now, when plenty of young ones are coming forward, is a good time to kill or sell away all the old ones. They may be kept until they cease laying, but not a week longer, as it will be many a day before they lay again, and then, being so old, they would never lay sufficient eggs to pay for their keep. *Henwife.*

Reports of Societies.

The Wakefield Amateur Tulip Society: *May 29 and 30.*—This was the forty-seventh annual exhibition of this Society, it having been established as far back as 1835. The show took place in the large club-room of the Iron-works Hotel, Borough Market, and a series of tables occupying the middle of the room was quite filled with flowers. The Tulip is cultivated about Wakefield with a great deal of enthusiasm, and the exhibitors are almost mainly confined to working men and small tradesmen, and the show-making class appears to be well represented among the growers. The best pan of six-recurred Tulips was shown by Thomas Gill, Crigglestone—flamed bizarre Sir J. Paxton and feathered bizarre Wallace, flamed byblomen Lord Denman and feathered byblomen Majestic, flamed rose Lady Catherine Gordon, and feathered rose Industry; 2d, Mr. George Gill, Eastmore, with flamed bizarre Sir J. Paxton and feathered bizarre Lord Lilford, flamed byblomen Maid of Orleans and feathered byblomen Lady Denman (which is flamed byblomen Lord Denman in a feathered form), flamed rose Agonia, and feathered rose Minerva. Mr. R. Sharpley, Silver Street, was 3d, with flamed

byblomen Sir J. Paxton and feathered bizarre Lord Lilford, flamed byblomen Adonis and feathered byblomen Lord Raglan, flamed rose Mrs. Lea and feathered rose Fanny. Ten prizes were awarded in this class, so some idea can be obtained of the number of Tulip cultivators in the neighbourhood of Wakefield. In the class for six breeders, Mr. R. Sharpley, who had a fine collection of unbroken flowers, was 1st with bizarres Lord Frederick Cavendish and Sir J. Paxton, byblomen George Hardwicke and Hardwicke's Seedling, roses Queen of England and Mabel, 2d, Mr. T. Gill, with bizarres John Brook and Nancy—the last a very striking yellow flower—the shape byblomen Duchess of Sutherland and Maid of Orleans, roses Queen of England and Catherine, 3d, Mr. J. Nettleton, Warren Gate, with bizarres Sir J. Paxton and John Bright, byblomen seedlings and roses Mrs. Longbottom and Mrs. Jeffery. Eight prizes were awarded in this class. The best three breeders, one in each class, came from Mr. Thomas Spurr, Veiarage Street, who had bizarre John Brook, byblomen Ethel Rose Longbottom; 2d, Mr. R. J. Sharpley, with bizarre Dr. Hardy, byblomen George Hardwicke, and rose Lady Grosvenor. Ten prizes were awarded in this class.

In addition there were classes for single flowers of each division, both feathered and flamed, and also for breeders in each division, and of these a large number of flowers were staged, and the judges had a somewhat difficult time to set them. The best feathered flower was John Brook, bizarre, from Mr. R. J. Sharpley; the best flamed flower Lord Denman, byblomen, from Mr. T. Gill; and the best breeder John Brooks, bizarre, from Mr. T. Gill. Looking over the flowers staged on this occasion, which for variety and beauty of development were of a most commendable, we noticed as the best in each class:—Flamed bizarres, Sir J. Paxton, Dr. Hardy, John Brook (a very good flower indeed, of local origin), and Ajax. The best feathered bizarres:—Lord Lilford, shown very fine, and of which variety there appears to be an excellent strain in the neighbourhood of Wakefield, George Hayward, the Wallace, and Everard. Flamed byblomen:—Lord Denman, Maid of Orleans, very showy indeed; and Mr. Jackson, Feathered byblomen:—Wilson's Queen, Bessie, Adonis, Majestic, very fine indeed; and Mrs. Gill, Flamed bizarres:—Industry, and Mrs. Minerva. Feathered roses:—Mrs. Lea, Heron, and Industry. The exhibition is shown open free to the public, and the money given in prizes is obtained by subscriptions from members and from the general public, and also by means of entrance fees.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on Tuesday, June 6, the President in the chair. Mr. W. E. Dixon, Brechin, on the subject of the "Finger and Thumb" form of Plants," dividing his subject into two heads, viz., the nature of variegation, and its causes. It was a subject which had caused a great deal of discussion in scientific circles, having received a considerable amount of attention from the Brussels Congress of 1854. By some it was maintained that it was a hereditary character, and had been introduced in Japan for some length of time; while others held that it was a disease, and was a sign of weakness in plants. Mr. Dixon then enumerated the different forms of variegation, and quoted at considerable length the opinions of many men who had given this subject their attention.

Mr. P. W. Fairgreive, Dunkeld Gardens, exhibited a large plant of *Phorium tenax Veitchii* in flower, to which was awarded a Cultural Certificate. It was agreed to send a special vote of thanks to the Dowager Duchess of Argyll for exhibiting such a fine plant. Messrs. Dickson & Co., Edinburgh, received a Certificate for *Populus Boleiana*, introduced into Germany from Tashkend; they also received Certificates for a show Pansy, named President Grieve, and a fancy Pansy, named Evelyn Prince; and also exhibited *Saxifraga MacNabiana*, &c. Messrs. Downie & Laird received two Certificates for two fancy Pansies—May Tate, and Miss Maggie Morrison. Mr. A. Paul, Gilmore Place, received a Cultural Certificate for a collection of Orchids which he exhibited, the principal one in the collection being *Odontoglossum vexillarium*. Mr. J. H. Morrison, Strathgairn, exhibited a new Rose, named Stirling Castle. Mr. M. Chapman, Easter Duddingstone Lodge, exhibited several hardy plants in flower, viz., *Oursia coccinea*, *Spiræa*, *Cypripedium spectabile*, *Eurybia tomentosa*, &c. Mr. Bowie, Chillingham, exhibited a new Coleus, named Lord Bennett.

ACHIMENES VERSCHAFFELTI.—When one recognises an old acquaintance in a new shape, the mind naturally reflects back over a number of years, and the changes that have taken place in plant growing are vividly brought to the recollection. How few Achimenes are grown now-a-days compared to what there used to be. The specimen which is the subject of these remarks is a beautiful basket plant in the garden of Mrs. Thornton West, Streatham Hall, Exeter. It is grown globe-shape by simply filling the basket in the usual way and inserting the tubers in the surface of the soil to a depth of a few inches below the rim of the basket. The rest is done by a simple method of training, or pegging, to use a common term. When the tubers are set in the basket, those that grow out at the sides of the basket are trained downwards, in order to form a complete globe, and now that the plants are in full flower it would be hard to find a more handsome floral ornament.

PLANT PORTRAITS.

ABELIA SPATULATA, Sieb. and Zucc., *Bot. Mag.*, t. 6601.—A Japanese shrub introduced to Messrs. Veitch's establishment by Mr. Maries. It has lanceolate, coarsely-toothed leaves, and greenish, funnel-shaped flowers provided at the base with a small calyx of full ovate rosy segments.

ÆCHMEA GLAZIOVII, Baker, *Belg. Hort.*, t. xliii., 1881.—Leaves tufted, broad at the base, strap-shaped, obtuse coarsely toothed; flowers reddish, in a dense branching panicle.

BOUVDARIA ALBERT NEUNER, *Illustr. Hort.*, t. 437.—A charming greenhouse shrub, with trusses of double white flowers, having a superficial resemblance to those of the double Lilac, but white. It is said to be a variety of *B. Davidsoni*, and is of American origin.

CASCIMUM LITTLE GEM, *Floral Mag.*, t. 479.—A charming little bush for winter decoration, with dwarf, much branched, compact habit, small ovate acute leaves, and a profusion of small ovoid scarlet berries. Mr. B. S. Williams.

COLEUS CRIMSON VELVET, *Floral Mag.*, t. 478.—Leaves ovate acuminate, coarsely toothed, rich crimson. Mr. Ed. Cooling.

CYPRIPEDIUM EURYANDRUM, *Revue de l'Hort. Belg.*, January.

CURCULIGO RECURVATA, Dryander, *Revue de l'Hort. Belg.*, January.

DAHLIAS, *Floralist*, February, t. 555.—Show varieties. 1, Pioneer, very dark maroon, medium size, excellent form, dwarf habit; 2, Duchess of Wellington, florets white, tipped with pink, medium size, dwarf habit. Both raised by the Rev. C. Fellows.

DAHLIAS, single varieties, *Garden*, December 31.—This plate of varieties grown by Mr. Ware ought to foster the growing taste for these beautiful flowers, which have the vividness and variety of colour of the show Dahlias without their stiff form.

GENTIANA FETISOWI, G. OLIVIERI VAR., *Gartenflora*, t. 1069.—The first is a tall-growing perennial, with lanceolate or oblong-lanceolate glabrous leaves, and dull blue funnel-shaped flowers in groups at the top of the stem. Native of Turkestan. The second species is also from Turkestan, and has linear leaves, and densely crowded terminal flowers of deep blue.

INCARVILLEA COMPACTA, Maxim., *Gartenflora*, t. 1065.—A beautiful Bignonaceous plant, native of the mountainous regions of Kansu, N.W. China, with tufted or ultimately scattered fleshy, glabrous, unequally pinnate leaves, with short, ovate-acute segments. The funnel-shaped flowers are in dense clusters, each measuring about 2½ inches in length, and of a bright rose-pink, with the limb divided into rounded lobes. It is probable this plant may prove hardy; in any case it will be a great acquisition.

LILIUM PARKYI, *Floralist*, January.—Flowers funnel-shaped, with recurved segments, yellow, spotted with red. South China.

LILIUM POLYPHYLLUM, *Floralist*, January.—Flowers funnel-shaped; segments recurved, whitish, tinged with yellow, and marked with reddish-purple spots and lines. Western Himalayas.

LINDENIA RIVALIS, *Garden*, December 24.—Stove evergreen, with lanceolate leaves; white flowers, with very long slender tube and rotate 5-lobed limb. Rubiacæ.

MONTURETIA CROCOSMIFLORA ×, *Belg. Hort.*, t. xiv., 1881.—A hybrid raised between the pollen of *Trifolium aurea* and *Montbretia Pottsi* by M. Lemoine. The plant has the habit of a *Gladiolus*, the panicle is many flowered, erect, bent in zig-zag fashion; the flowers are about 1½ inch long, funnel-shaped with slender curved tube, and a spreading 6-parted orange-scarlet limb, with three deflexed stamens.

NEPHRODIUM RODIGASIANUM, T. Moore, *Illustr. Hort.*, t. 442.—A handsome stove Fern from Samoa, with arching fronds, each a yard or more in length, pinnate, the pinnae lanceolate, toothed.

ONCIDIUM INSCURVUM, Barker, fl.-alb., *Illustr. Hort.*, t. 443.—A species with much-branched, free-flowering panicles, the flowers with narrow, spreading segments, white flushed with rose. Mexico.

PEACH WATERLOG, *Floralist*, January.—An early ripening Peach of medium size, and globose form, with a deep saucer and prominent nipple; skin greenish-white, deepening into crimson-purple; flesh greenish-white, melting, juicy, vinous, somewhat adherent to the stone.

PITCAIRNIA CORALLIOHA, Lindl. and André, *Bot. Mag.*, t. 6600.—A fine Bromeliad, with long lanceolate plicate nearly glabrous leaves, recurved in the middle; racemes elongate, many-flowered, pendulous, the individual flowers brilliant crimson, about 3 inches long. It is a native of New Grenada, the plant figured flowered in the garden of Sir George Macleay.

PLUMS, *Floralist*, February, t. 556.—1, Archduke, a late Plum, good for table or kitchen; a good cropper; fruits blunt obtuse, deep violet; 2, Reine Claude du Comte Hatthem, a delicious purple Gage, and an abundant cropper. Fruit subglobose, claret-purple; and recommended by Mr. Rivers.

QUESNELIA VAN HOUTTEANA, Hort. Van Houtte, Morren, in *Belg. Hort.* 1881, t. xviii. A Brazilian Bromeliad with thick, oblong, strap-shaped, concave, acute, coarsely-toothed, ascending leaves, and long, dense, cylindrical spikes of blue flowers supported by red-tipped bracts.

ROSE BOEILDEU, *Journal des Roses*, January.—A H.P. Rose of large size, bright rose-pink colour, and good globular form. It was sent out by M. Margottin, and is stated to be a seedling from Jules Margottin crossed with Baron Prevost. The Editor speaks warily in its praise.

ROSE GUILLAUME GILLEMOT, *Illustr. Hort.*, t. 438.—A hybrid perpetual, raised by Mr. J. Schwartz from Madame Charles Wood. The flower is large, globular, rose-scarlet, and very sweet-scented.

ROSE MADAME BECARD, A Tea Rose.—A crossed seedling, between Gloire de Dijon and Mad. Falcot, the latter being the pollen parent. Flowers salmon-yellow, with a copper-coloured centre. A general favourite.

SANIERAGA DIVERSIFOLIA, Wallich, *Bot. Mag.*, t. 6603.—A species with the habit of *Paraschia*, growing also in boggy places. The lower leaves are strong-stalked, glabrous, cordate, ovate acute, the upper sessile amplexicaul; the inflorescence terminal cymose numerous yellow flowers. Native of the Himalayas with from east to west. Hort. Kew.

SELENIA AUREA, Nuttall, *Bot. Mag.*, t. 6607.—A yellow-flowered, glabrous, Cruciferous annual, with linear-oblong pinnatifid foliage. The flowers are sweet, and remain for a long time in perfection. Rocky Mountains. Hort. Kew.

SOLANUM BETACEUM VAR. COCCINEUM, *Rev. Hort.*, December 10.—A variety with long, ovoid fruits of a deep red colour; very ornamental.

TILLANDSIA LINDENI SPLENDIDA, *Rev. Hort.*, January 1, differs from the type in its free-flowering habit. It is one of the series with broad, flattened inflorescences with rose-coloured bracts, and large purplish-blue flowers. Thibaut & Keteleer.

TROPÆOLUM EMPRESS OF INDIA, *Floralist*, December.—One of the very best of the new annuals, with close habit, dark blue-green foliage, and dark brilliant crimson flowers. Messrs. Carter & Co.

VALLOTA PURPUREA, Herbert, *Revue de l'Hort. Belg.*, January.

VERATRUM MAACKI, Regel, *Gartenflora*, t. 1070.—A species from Ussuria, in habit and colour of flowers very like *V. nigram*.

VITIS LECARDI, V. Durandii, V. Chantini, V. Faidherbi, V. Hardy; *Rev. Hort.* 1881, p. 455.—Woodcut illustrations representing more or less imperfect specimens of Vines from Soudan, introduced by the late M. Lecard, and which that sanguine explorer thought might be cultivated advantageously in any country where the mean temperature amounted to 15–16° C. for three or four months.

ZEPHYRANTHES CITRINA, Baker, *Bot. Mag.*, t. 6605.—A pretty yellow-flowered species, introduced from Demetera by Messrs. Veitch, and the more interesting in that all the other species are white or red. The stigma lobes, too, are roundish. A bulbous Amyridyl, with linear leaves and long stalked funnel-shaped flowers.

AMARYLLIS MRS. GARFIELD.—This fine variety, for which Mr. B. S. Williams last year obtained a First-class Certificate from the Floral Committee, proves with longer acquaintance to possess a more accommodating habit as regards the time and season of its flowering than was at first anticipated. Mr. Williams is seldom without a plant in flower during several months of the year, and by reason of its white banded leaves, and white blooms beautifully veined with rose-pink, it is always an appreciated flower. It is quite one of the best in a family that now contains many striking novelties.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON FOR THE WEEK ENDING WEDNESDAY, JUNE 7, 1882.

MONTH AND DAY.	BAROMETER		TEMPERATURE OF THE AIR.		Hygrometric Deductions from Glaisher's Tables 6th Edition.	WIND.	RAINFALL.				
	Mean Reading from 5 P.M. to 5 P.M. of following day.	Departure from Mean of 18 years.	Highest.	Lowest.							
June 1.	30.10	+0.06	59.5	49.5	53.8	-2.7	4.5	60	N. E.	0.00	
2.	29.91	+0.11	50.2	50.0	42.5	55.2	-1.5	49.7	82	E.	0.05
3.	29.61	-0.20	51.70	51.4	07.06	0.4	3.5	55.8	86	S. W.	0.01
4.	29.56	-0.24	50.51	21.8	57.8	0.7	57.1	78	S. S. W.	0.20	
5.	29.55	-0.15	55.0	49.0	16.0	56.0	-1.3	46.6	79	S. W.	0.00
6.	29.56	-0.24	53.9	53.0	8.0	57.0	-0.6	53.8	89	S. W.	0.28
7.	29.62	-0.17	50.0	52.0	17.0	58.2	0.6	47.9	69	S. W.	0.07
Mean	29.72	-0.08	56.3	51.0	15.0	56.9	0	3.97	79	S. W.	0.01

June 1.—Fine overcast morning. Very fine bright afternoon with a few clouds. Fine night, sky cloudy.
 2.—A dull and overcast day; windy; rain at 6½. Cloudy night.
 3.—Fine day, sky generally overcast; showery; hail at 4½. Fine night.
 4.—Dull morning, fine deep blue sky when visible, no upper clouds; frequently clear. Heavy rain between 6h. and 7h. at night.
 5.—A dull, windy, overcast day. Dull night.
 6.—A very dull, rainy day. Dark sky at night.
 7.—A fine morning, gleams of sun at times. A shower of rain at 2.20 p.m., afterwards fine and bright. Fine clear night.

LONDON: Atmospheric Pressure.—During the week ending June 3 the reading of the barometer at the level of the sea decreased from 30.29 inches at the beginning of the week to 30.09 inches by 9 A.M. on the 28th, increased to 30.32 inches by 9 A.M. on the 29th, decreased to 30.31 inches by 3 P.M., and increased to 30.33 inches by midnight of the same day; decreased to 30.25 inches by 3 P.M. on the 30th, increased to 30.29 inches by 9 A.M. on the 31st, decreased to 30.28 inches by 3 P.M. on the 31st, increased to 30.35 inches by midnight of the same day, and was 29.76 inches by the end of the week. The mean reading for the week at the level of the sea was 30.17 inches, being 0.41 inch higher than last week, and 0.20 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 74°.2, on the 29th. On June 2 the highest temperature was 62°.5. The mean of the seven high day temperatures was 69°.3.

The lowest temperature in the shade in the week was 45°.5, on June 1; on the 3d the lowest temperature was 54°. The mean of the seven lowest temperatures was 50°.2.

The greatest range of temperature in one day was 24°.1, on the 29th; the smallest was 12°.5, on June 2. The mean of the seven daily ranges was 19°.1.

The mean temperatures were, on the 28th, 59°.4; on the 29th, 60°.4; on the 30th, 60°.3; on the 31st, 56°.5; on June 1, 53°.8; on the 2d, 55°.2; and on the 3d, 60°. of these those of June 1 and 2, were 2.7 and 1.5 below their averages, and the rest were above their averages by 3.8, 4.6, 4.3, 0.2, and 3.1 respectively.

The mean temperature of the air for the week was 57.9, being 0.6 higher than last week, and 1.9 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 151°.5, on the 29th; the highest on the 2d was 92°.5. The mean of the seven readings was 129.7.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 41°, on May 29 and June 1. The mean of the seven readings was 43°.9.

Rain.—Rain fell on two days, to the amount of 0.06 inch in the week.

ENGLAND: Temperature.—During the week ending June 3 the highest temperatures were 78°.2 at Nottingham, 76° at Cambridge and Sunderland. The highest temperature at Bristol was 66°, at Bolton 66°.2, and at Liverpool 66°.9. The general mean was 70°.7.

The lowest temperatures in the week were 37°.6 at Cambridge, 40°.3 at Bristol, and 41°.5 at Leicester. The lowest temperature at Plymouth was 49°, at Liverpool 47°.8, and at Brighton and Sunderland 46°. The general mean was 43°.6.

"INVINCIBLE" LAWN MOWER.

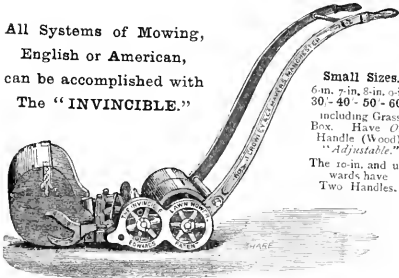
"SAMUEL EDWARDS' PATENT."

AWARDED

THE ONLY GOLD MEDAL EVER OFFERED

IN ENGLAND—FOR LAWN MOWERS—IN OPEN COMPETITION.

All Systems of Mowing,
English or American,
can be accomplished with
The "INVINCIBLE."



Small Sizes.
6-in. 7-in. 8-in. 10-in.
30" 40" 50" 60"
including Grass
Box. Have One
Handle (Wood).
"Adjustable."
The 10-in., and up-
wards have
Two Handles.

LATEST CONTEST.

Royal Horticultural Show, The Gardens, South
Kensington, London, May 23 to 25, 1882.

FIRST PRIZE—SILVER MEDAL
(For HORSE POWER).

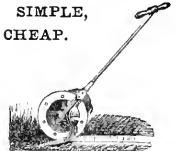
FIRST PRIZE—SILVER MEDAL
(For HAND POWER).

FIRST PRIZE (Society's Medal), International
Horticultural Show, Botanical Gardens, Manches-
ter, August 1881, in Competition with the Leading
Makers, both English and American.

LAWN EDGE CLIPPER.

R. C. Fletcher's Patent.

SMALL, LIGHT,
SIMPLE,
CHEAP.



Prices, 37s. 6d. and 45s.

PRICES. (CARRIAGE PAID.)

10-in.	12-in.	14-in.	16-in.	18-in.	20-in.	24-in.	36-in.
70s.	90s.	£5 10s.	£6 10s.	£7 10s.	£8 10s.	£9 10s.	£26

47 These Prices include GRASS BOX.

Illustrated Catalogues free on application to the Sole Makers—

JOHN CROWLEY & CO., SHEFFIELD.

S. OWENS & CO., HYDRAULIC ENGINEERS, WHITEFRIARS STREET, LONDON, E.C.

THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

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| <p>No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.</p> <p>No. 63. PORTABLE IRRIGATORS, with Double or Treble Barrels for Horse or Steam Power.</p> <p>No. 462. IMPROVED DOUBLE-ACTION PUMPS on BARROW for Watering</p> <p>No. 492. GALVANISED SWING WATER CARRIERS, for Garden use.</p> <p>No. 50 and 547. FARM and MANSION FIRE ENGINES of every description.</p> <p>No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.</p> | <p>No. 43. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.</p> <p>No. 548. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.</p> <p>No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.</p> <p>No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.</p> <p>No. 396. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.</p> |
|---|--|

S. OWENS and CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GASWORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS HYDRANTS, HOSE PIPES, &c., &c. Particulars taken in any part of the Country. Plans and Estimates furnished.

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Price 3d., Post Free 3½d.

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SHANKS'S PATENT LAWN MOWERS.

The only Lawn Mower fitted with Double-edged Sole-plate, which enables the Cutting Parts to Last Twice as Long as in other Machines.

H A N D M A C H I N E .



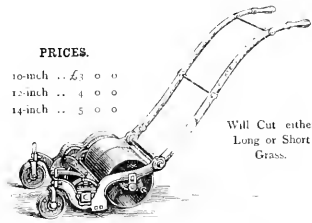
PRICES.

To cut 10 inches wide £3 0 0 To cut 10 inches wide £8 0 0
 To cut 12 inches wide 4 10 0 To cut 12 inches wide 8 10 0
 To cut 14 inches wide 5 10 0 To cut 14 inches wide 9 10 0
 To cut 16 inches wide 6 10 0

"THE YANKEE" LAWN MOWER.

PRICES.

10-inch .. £3 0 0
 12-inch .. 4 0 0
 14-inch .. 5 0 0

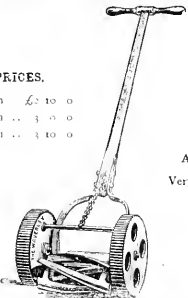


Will Cut either Long or Short Grass.

"THE WAVERLEY" LAWN MOWER.

PRICES.

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A New Machine. Very Easily Worked.

ALEX. SHANKS & SON,
 DENS IRONWORKS, AKERDATH, FORFARSHIRE;
 AND
 27, LEADENHALL STREET, LONDON, E.C.
Small Lawn Mowers, 6 in. to 18 in., 7 in., 8 in., 9 in., 10 in., 11 in., 12 in., 13 in., 14 in., 15 in., 16 in., 17 in., 18 in., 19 in., 20 in., 21 in., 22 in., 23 in., 24 in., 25 in., 26 in., 27 in., 28 in., 29 in., 30 in., 31 in., 32 in., 33 in., 34 in., 35 in., 36 in., 37 in., 38 in., 39 in., 40 in., 41 in., 42 in., 43 in., 44 in., 45 in., 46 in., 47 in., 48 in., 49 in., 50 in., 51 in., 52 in., 53 in., 54 in., 55 in., 56 in., 57 in., 58 in., 59 in., 60 in., 61 in., 62 in., 63 in., 64 in., 65 in., 66 in., 67 in., 68 in., 69 in., 70 in., 71 in., 72 in., 73 in., 74 in., 75 in., 76 in., 77 in., 78 in., 79 in., 80 in., 81 in., 82 in., 83 in., 84 in., 85 in., 86 in., 87 in., 88 in., 89 in., 90 in., 91 in., 92 in., 93 in., 94 in., 95 in., 96 in., 97 in., 98 in., 99 in., 100 in.
 Illustrated Circulars with Prices of Horse and Pony Machines on application.

CARSONS' PAINT.

Patented by **HER MAJESTY,**
 HIS ROYAL HIGHNESS THE PRINCE OF WALES,
 15,000 OF THE NOBILITY, GENTRY, AND CLERGY.

Is extensively used for all kinds of **OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames.**
 CAN BE LAID ON BY UNSKILLED LABOUR.

CARSONS,
 LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C.
 and 21, BACHELORS WALK, DUBLIN.
Discount for Cash.

ADIE'S PATENT LAWN EDGER.

THIS Machine constantly employed with myself on two days. Dr. Hogg, in the *Journal of Agriculture*, says—"This Edge-Clipper we have tried, and know that which to admire most—its simplicity or efficiency." Mr. Moore, in the *Field*,—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have no doubt, become general." Price 25s. 15, Pall Mall, London, W.

THE NEW GARDEN HOSE, made upon the principle of the fire hose used by Captain Shaw, C.B., Chief Officer of the Metropolitan Fire Brigade. It is much cheaper and far more durable than white rubber, or fabric hose. Private customers supplied at trade prices. Sample free. **MERRYWEATHER AND SONS,** 65, Long Acre, London, W.C. Works, Greenwich.

HOSE—HOSE—HOSE. PATENT RED-RUBBER GARDEN HOSE.

Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary India-rubber Hose, Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes:—"I have had a length of your Red-Rubber Hose to use nine years, and it is now as good as ever."
Private Customers Supplied at Trade Prices.

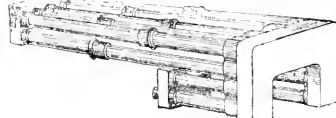
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ALPHEBY & CO.,
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WILL EXHIBIT LIFT AND FORCE PUMPS, CHAIN PUMPS, GARDEN ROLLERS, Greenhouse BOILERS, BOILER STOVES, New Pattern, HOT-WATER PUMPS WITH INDIA-RUBBER JOINTS, VALVES, GRATINGS, &c., &c.

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ROCHFORD'S IMPROVED HORIZONTAL BOILER.

Unequalled for Simplicity, Power, and Economy. See *Gardeners' Chronicle*, Jan 1880, and Nov. 19, 1881.



An inferior imitation of this now well-known Boiler being advertised and sold to the detriment of its reputation, C. F. K. & Co. beg to inform Gardeners and the Trade generally that Mr. Rochford has assigned to them the sole and exclusive right for its Sale and Manufacture.

HOT WATER PIPES AND BOILERS

From our large and complete stock at wholesale prices. **CHARLES P. KINNELL & CO. IRONFOUNDERS, 35, BANKSIDE, LONDON, S. E.**

2-WHEEL HAND GAPPING DRILLS.

Will sow every description of Farm and Garden Seeds. There is no spring and slide to get out of order and damage the seed, being worked by a brush. The rows can also be put in at equal distances without a line. Price, with 2 wheels, 20s. each, with 1 wheel, 16s. each. 10505 rows, 32s. 6d. each.

For larger Manual and Pony Drills, see Illustrated List free from **F. BIRD & CO., 11, Great Castle St., Regent St., London, W.**

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Largest Show of Baskets in London.

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SEE THE NEW **AMERICAN LAWN MOWER, THE "PRESIDENT,"**

Awarded Twenty-four First, Gold, Silver and Bronze Medals at Exhibitions in America and Europe, Carriage paid to any Station.

Before you buy any other. It is the Best in the World, and it sells exceeds any other. Unsurpassed for SIMPLICITY, DURABILITY, and LIGHTNESS OF DRAUGHT, when cutting long or short, wet or dry Grass.

Hand Sizes. 8 in. 10 in. 12 in. 14 in. 16 in. 18 in. 20 in. 22 in. 24 in. 26 in. 28 in. 30 in. 32 in. 34 in. 36 in. 38 in. 40 in. 42 in. 44 in. 46 in. 48 in. 50 in. 52 in. 54 in. 56 in. 58 in. 60 in. 62 in. 64 in. 66 in. 68 in. 70 in. 72 in. 74 in. 76 in. 78 in. 80 in. 82 in. 84 in. 86 in. 88 in. 90 in. 92 in. 94 in. 96 in. 98 in. 100 in. List of Pony and Horse Mowers on application.

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THE "SUMMER CLOUD" SHADING, FOR GREENHOUSES, CONSERVATORIES, SKYLIGHTS and all GLASS STRUCTURES that require Shading Material.

It combines Efficiency with Appearance, Convenience with Economy, and its effects are Lasting. Sold in Packets, 12. each, with full Directions for Use, and may be obtained from all Seedsmen and Nurserymen.

Sole Manufacturers and Proprietors, **CORRY, SOPER, FOWLER & COMPANY (Limited),** FINNSERY STREET, E.C., and 1, London, SHAD THAMES, S.E.

Oil Paint No Longer Necessary. **HILL AND SMITH'S BLACK VARNISH** for Preserving Ironwork, Wood, or Stone. (Registered Trade Mark.)

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FOR GREENHOUSES, CONSERVATORIES, SKYLIGHTS and all GLASS STRUCTURES that require Shading Material. It combines Efficiency with Appearance, Convenience with Economy, and its effects are Lasting. Sold in Packets, 12. each, with full Directions for Use, and may be obtained from all Seedsmen and Nurserymen.

Sole Manufacturers and Proprietors, **CORRY, SOPER, FOWLER & COMPANY (Limited),** FINNSERY STREET, E.C., and 1, London, SHAD THAMES, S.E.

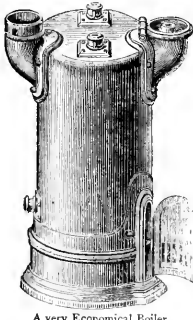
HILL AND SMITH'S BLACK VARNISH for Preserving Ironwork, Wood, or Stone. (Registered Trade Mark.)

THIS VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertiser, and its genuine good qualities were the best we ever had. Address Varnish to Piercefield Park, Chepstow. — I am, Sirs, yours respectfully, **WM. COLE & SUTHER** would particularly warn their Customers against the various cheap Varnishes now so much advertised. H. & S.'s Varnish has been an article of common use on most of the large estates in the Kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is highly marked with their name and Registered Trade mark as above, without which none is genuine. Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to **HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.**

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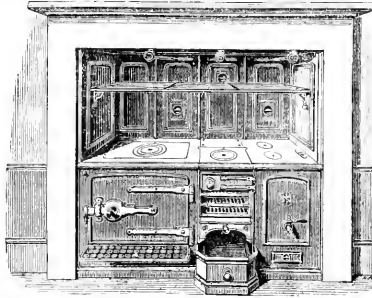


A very Economical Boiler.

GARDEN ROLLERS.
Single and Double
Cylinders, with
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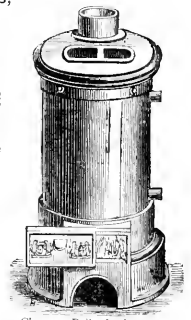
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IRONFOUNDERS AND MANUFACTURERS OF HOT-WATER APPARATUS,
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GARDEN ROLLERS.
Single and Double
Cylinders, with
Wooden Handles.



No. 51.
STAR BOILER.



Cheapest Boiler in the Trade.

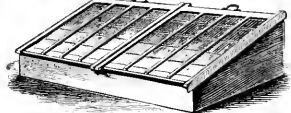
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HORTICULTURAL BUILDERS
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HOT-WATER ENGINEERS,
GILMORE PARK, EDINBURGH; and CORNER OF,
CHESTER ROAD, MANCHESTER.
Plans and Estimates on application for every description of
Horticultural Buildings in Wood or Iron.
Garden Frames and Sashes in Stock.



Rustic Garden Furniture in great variety.

Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and
Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows,
Wheelbarrows, Garden Traps, Summer-houses, Sun Dials,
Fancy Wirework, Weather Vanes, Hammocks, and all kinds of
Garden Furniture at lowest market prices. Catalogues post-free.

PANKLIHANON COMPANY, 56, BAKER STREET, W.



No. 75. MELON, or CUCUMBER FRAMES.

CASH PRICES—Carriage Paid.

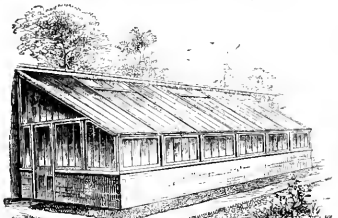
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These Frames are 11 inches deep in front, and 24 inches deep
at the back; the lights are 7 inches thick, with a strong iron
strengthening rod, and one handle to each light. These Frames
are made of the best hard red deal, shipped from the best districts
for durable wood, all painted four coats of best oil colour, the lights
are glazed with best 24-in. English glass. For Testimonials, see our
Catalogue, free on application. Carriage paid to any Railway
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"The Frames you sent me give the greatest satisfaction."
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Horticultural Work of every description executed in the very
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Highest Award, B.E.N.'S BOILER, now heating from 500 to
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Conical, first introduced by me; THE PANTON and LONDON,
requiring no brick setting or iron cases; "A 1" Saddle, &c.
MEAD'S REFLEX Garden Seat, Table, and Awning.
The "LOUGHBO" Boiler can also be had complete from
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"ART WITH ECONOMY."

Applied to Conservatories and Greenhouses.
With Illustrations, Prices, &c.
Part I. now ready Post-free twelve stamps

HORTICULTURAL BUILDINGS
Of every description Made, Erected, Fitted and Heated.
ESTIMATES and PLANS GRATIS.

CHEAP ART SUMMER-HOUSES.

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Mr. Fawkes' New Illustrated Work of Reference on Horti-
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MANSHON HOUSE BUILDINGS, LONDON, E.C.
WORKS: CHELMSFORD.



BOULTON & PAUL,
Manufacturers, NORWICH,
OF SHEFFIELD.
Poultry Appliances, &c.
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FOR SALE, a SPAN-ROOF CONSER-
VATORY, 30 feet long, 17 feet wide, 7 feet at eaves,
price, £21, 21 feet by 11 feet GREENHOUSE, £21; LEAN-
TO, 21 feet by 13 feet, £28; AMATEUR GREENHOUSES,
from 18. They can be seen temporarily fixed at
H. FREEMAN AND SONS, Horticultural Builders and
Hot-water Engineers, Cambridge Heath Bridge, Hackney, E.

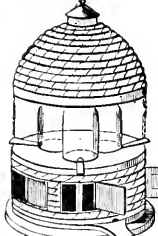
Under the Patronage of the Queen.
J. SMITH'S IMPERISHABLE
STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED
BLACK AND RED LETTERS.
The Gardeners' Magazine says:—"We must give these the
palm before all other plant labels, as the very first in merit."
Samples and Price Lists free.
J. SMITH, The Royal Label Factory, Stratford-on-Avon.

GARDEN REQUISITES.—Sticks, Labels,
Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work,
Manures, &c. Cheapest Prices of
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"Gather Honey from Your Flowers."
NEIGHBOUR'S Celebrated BEEHIVES,
for taking Honey without the destruction of the Bees.
PHILADELPHIA EXHIBITION, 1876.
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Three Silver Prize Medals awarded to Geo. Neighbour & Sons.
Also the Prize Silver Cup at the Gleditsia-Apianian Society's
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best display of Bees, Bee-Hives, and Bee Apparatus.



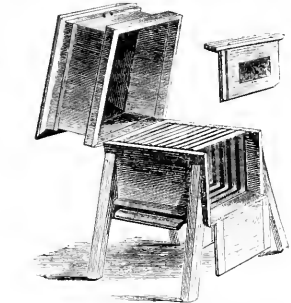
NEIGHBOUR'S
IMPROVED
COTTAGE BEE-HIVE

as originally introduced by
Geo. Neighbour & Sons,
working three bell-glasses,
is neatly and strongly made
of straw; it has three
windows in the lower Hive.

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

Price, complete £1 15 0
Stand for ditto 0 10 6

PHILADELPHIA BAR-FRAME HIVE, from which the
Combs can be removed at side opening whilst supers are on.
This Hive affords remarkable facility for manipulation, because
the frames can also be taken out from top as with other Frame



Hives, and at the same time afford great opportunity for full
inspection, having glass on three sides closed with shutters.
Price, complete, with Cover and Stand, 42s.; also Bar-
Frame Hives, of most approved construction, at 7s. 6d., 12s. 6d.,
to 15s. each.
AN ITALIAN ALP QUEEN, with full directions for
uniting to Black Stocks, at current prices.
LIGURIAN and ENGLISH BEES.—Stocks and Swarms
may be had as heretofore.

"THE APIARY." BY ALFRED NEIGHBOUR, 52s.
postage 2d.
A newly-arranged Catalogue of other Improved Hives and
Appliances, with Drawings and Prices, sent on receipt of two
stamps.
GEO. NEIGHBOUR AND SONS, 127, High Holborn, W. C.,
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RICK CLOTHS—RICK CLOTHS,
Made from extra all long Flax, Scotch cloth being the
best and most durable
CATALOGUE, with samples, on application.
TANNED NETTING,
From 1 to 4 yards wide.
RUSSIA MATS. RAFFIA FIERE.
BEST ROLL TOBACCO PAPER. SHADING CANVAS.
JAMES T. ANDERSON,
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THE GARDENERS' CHRONICLE.

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GARDENERS, AND OTHERS, WANTING SITUATIONS. 26 words 12. 6d., and 6d. for every additional line.

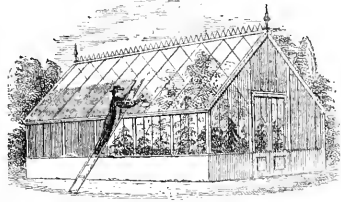
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BIRTHS, DEATHS AND MARRIAGES, 2s. each insertion. Advertisements for the current week must reach the Office by Thursday noon.

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GRAPEFUL AND COMFORTING.

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GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING and COLLECTING MACHINES for 1882.

THE WINNERS OF EVERY PRIZE IN ALL CASES OF COMPETITION.

Patronised by Her Most Gracious Majesty the Queen on many occasions, His Royal Highness the Prince of Wales, the King of the Belgians, the late Emperor of the French, the Emperor of Russia, and most of the Nobility, Clergy, and Gentry of the United Kingdom.

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Upwards of 105,000 of these Machines have been Sold since they were first introduced in the year 1856, And Thousands of unsolicited Testimonials have been received testifying to their superiority over all others.

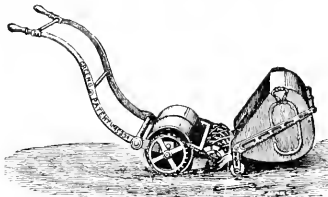
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible.
- 2d. They are worked with much greater ease than any other.
- 3d. They are the least liable to get out of order.
- 4th. They make little or no noise in working.
- 5th. They will cut either short or long Grass, wet or dry.

Single-handed Lawn Mower.

To cut 6 inches	Price £1 15 0
Can be worked by a Lady.	
To cut 8 inches	2 10 0
Can be worked by a Lady.	
To cut 10 inches	3 10 0
Can be worked by a strong Youth.	
To cut 12 inches	4 10 0
Can be worked by a Man.	
To cut 14 inches	5 10 0
Can be worked by a Man.	



Double-handed Lawn Mower.

To cut 16 inches	Price £6 10 0
This can be worked by One Man on an even lawn.	
To cut 18 inches	7 10 0
By a Man and Boy.	
To cut 20 inches	8 0 0
By a Man and Boy.	
* To cut 22 inches. By Two Men ...	8 10 0
* To cut 24 inches. By Two Men ...	9 0 0
* It made stronger, suitable for Donkey, 30s. extra.	
* Cross-stay complete, suitable for attaching	

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, with Ordinary Chaise Traces or Gig Harness:—

DONKEY and PONY MACHINES.

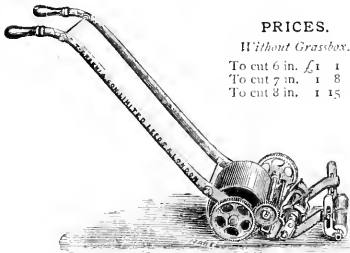
To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the Machine.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.



PRICES.

Without Grassbox.

To cut 6 in.	£1 10 0
To cut 7 in.	1 8 0
To cut 8 in.	1 15 0

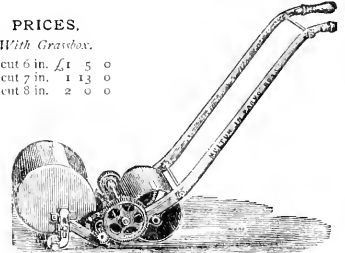
This Mower is specially designed to meet an almost universal want experienced by those who have small lawns or grass plots, to have a good and useful machine at a low price. The inventor having seen this want continually increasing, year by year, has brought out the Mower to meet the requirements of the public by supplying a good and useful machine at a cheap rate.

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c.; it is a most handy, serviceable machine, and very easy to work.

PRICES.

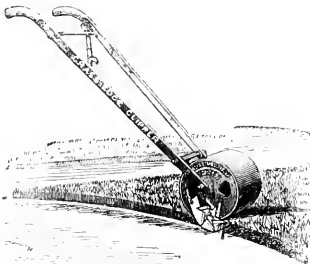
With Grassbox.

To cut 6 in.	£1 15 0
To cut 7 in.	1 13 0
To cut 8 in.	2 0 0



GREEN'S PATENT GRASS EDGE CLIPPER. GREEN'S PATENT ROLLERS

Specially designed to cut the overhanging grass on the edges of walks, borders, flower beds, &c., and to do away with the tedious operation of cutting with shears.



SIZE and PRICE.

Wide.	Diam.
8 inch	7 inch
Packing Case, 2s.	

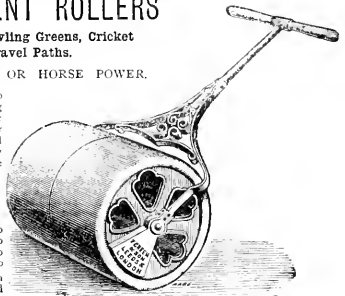
For Lawns, Drives, Bowling Greens, Cricket Fields and Gravel Paths.

SUITABLE FOR HAND OR HORSE POWER.

These Rollers are made in two parts, and are free in revolving on the axis, which affords greater facility for turning. The outer edges are rounded off, or turned inward, so that the unsightly marks which other Rollers leave are avoided by ours.

PRICES.

Diam. Length	£ 1 s d
16 in. by 17 in.	2 15 0
20 in. by 22 in.	4 0 0
24 in. by 26 in.	5 0 0
30 in. by 32 in.	9 0 0
Prices of Rollers, fitted with Shafts suitable for Horse and Pony, on application.	



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The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every description, Wire Netting, &c., &c.

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GARDENERS' CHRONICLE.

Established 1841.

No. 442.—VOL. XVII. { NEW }
{ SERIES. }

SATURDAY, JUNE 17, 1882.

{ Registered at the General } Price 6d.
{ Post-office as a Newspaper. } POST-FREE, 51d.

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

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
THE LARGONUM SOCIETY'S SHOW AND FRUIT and VEGETABLE EXHIBITION, THURSDAY, June 27.
Band of the Royal Horse Guards, from 4 o'clock.
Admission from 1 o'clock, One Shilling.
N.B.—Show closes at 7 p.m.

ROYAL BOTANICAL SOCIETY,
Gardens, Regent's Park, W.
EVENING FETE and SPECIAL EXHIBITION, THURSDAY, June 22.—The Gardens will be illuminated from 8 to 12. The Bands of the 1st Life Guards, Royal Horse Guards, and Coldstream Guards will be in attendance. Tickets to be obtained at the Gardens only by vouchers from Fellows of the Society, price 10s. each, on the day or evening of the Fete, 12s.

RICHMOND HORTICULTURAL SOCIETY.
THE EIGHTH ANNUAL EXHIBITION of this Society will be held in the Old Deer Park, Richmond Green, on THURSDAY, June 29. Schedules may be obtained on application to
Leslie Vills, Kew. GEORGE EYLES, Hon. Sec.
N.B.—The Veitch Memorial Prizes and Medals will be competed for at this Show.

THE TUNBRIDGE WELLS HORTICULTURAL SOCIETY'S TWENTY-SIXTH ANNUAL GRAND FLOWER, FRUIT, and ROSE SHOW will be held on FRIDAY, July 7, in the Great Hall, High Street, and Calverley Grounds.
Schedules and every information may be obtained on application to the Secretary,
26, Parade, Tunbridge Wells. E. F. LOOF.

ROYAL MANCHESTER and NORTHERN COUNTIES BOTANICAL and HORTICULTURAL SOCIETY.
A GRAND ROSE SHOW will be held in the above Societies' Gardens on FRIDAY and SATURDAY, July 14 and 15. Schedules may be had from the undersigned.
ENTRIES CLOSE on July 10. BRUCE FINDLAY,
Royal Botanic Gardens, Manchester.

HORTICULTURAL SHOW at LUTON,
in connection with the Bedfordshire Agricultural Show, to be held at Luton, July 19. Most of the Prizes offered will be sent to all England.
PRIZES for STOVE and GREENHOUSE PLANTS, value £30; CUT ROSES, £10.
For particulars, apply to
S. C. OLIVER, Hon. Sec.
Park Square, Luton.

NOTICE TO THE TRADE.
We shall have pleasure in forwarding our NEW WHOLESALE PRICE LIST for 1882-3 to any of our Friends who have not received a Copy, on their application for same, enclosing Trade Card.
GOSKIN, SOPEK, FOWLER and CO. (LIMITED), Horticultural Sundries Merchants and Manufacturers, 18, Finsbury Street, E.C.

SUTTONS' CALCEOLARIA. THE BEST
"Really grand in size, colour, and variety"
Rev. T. J. W.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' CINERARIA. THE BEST.
"The best I have seen, both for variety of colour and size of flower."
J. R.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA. THE BEST.
"The admiration of all who see them."
W. P. J.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA. THE BEST.
"The form, size, substance, and colour of the flowers are perfect."
W. H.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' GLOXINIA. THE BEST.
"The Gloxinias are really magnificent."
W. M.
Price 2s. 6d. and 5s. per packet, post-free.

SUTTON AND SONS,
THE QUEEN'S SEEDSMEN,
READING, BERKS.

NOTICE—NOTICE.—Grand Exhibition
DARLHAMS at greatly reduced price. Strong Plants, and best sorts only. CATALOGUES free.—C. K. PERRY,
Cedars Nursery, Castle Bromwich, near Birmingham.

CREEPERS for WALLS, TRELLISES, &c.,
in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Mistake in Previous Advertisements.
The following is Messrs. HOOPER'S offer to the Trade of
FRESH PALM SEEDS.

To arrive shortly, in fine condition, good Seeds as under:
LATANIA BORNIENSIS, 5s. per pound.
THRINAX SPECIES, 15s. per pound.
ARECA LUTEASCENS, 10s. per pound.
CARYOTA URSINA, 10s. per pound.
Immediate Orders are solicited.
HOOPER and CO., Covent Garden, London, W.C.

DOWNIE and LAIRD, Royal Winter
Gardens, Edinburgh, beg to intimate that their splendid collection of FANSIES and VIOLAS are NOW in FULL BLOSSOM and MAY be SEEN ANY DAY (Sundays excepted) at their Pinkhill Nursery, near Edinburgh.

Valuable Imported Orchids.—Special List, No. 59.
THE NEW PLANT and BULB COM-
PANY beg to inform their Friends that the above NEW LIST is just published, and will be sent post-free on application.
Lion Walk, Colchester.

ARALIA SIEBOLDII, pots, 6 to 8 inches,
25s. per pair.
NERTEA DEPRESSA, pots, fine frusses, 3 to 4 inches across; will give a profusion of berries; 3s. per 100.
GARLIES MITCHELL, Nurseryman, Stranraer.

Floral Commission Agency.
NURSERMEN and OTHERS having choice CUT FLOWERS for DISPOSAL are requested to communicate with W. CALE, Floral and Fruit Commission Agent, 7, Tavistock Row, Covent Garden, W.C. Flowers of first quality only required; when senders may rely on best prices being obtained. MARECHAL NIEL ROSES wanted. Senders please note address.

WANTED, CUTTINGS of EUPHORIA JAQUINIFLORA. Will EXCHANGE for CHRISTMAS ROSES (large roots), or Cash.
JAMES HODGKINSON, Stone, Surrey.

WANTED, MARECHAL NIEL ROSES (forced plants for fine bloom). STEPHEN NOTIS, PEACHES, NECTARINES, FIGS, MELONS, &c. WISE and RIDDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, during the season, a supply of ROSEBUDS for BEDDING. Quantity and price to L. WOODTHORPE, Glasnevin Nursery, Brixton.

To Rose Growers.
WANTED, very strong, healthy, well-grown, established Plants of MARECHAL NIEL, on Seeding Drier, for Conservatory Work, in pots. Particulars and price to W. CALDWELL, F.R.H.S., "The Fives," Wantage.

WANTED, in the Trade, for next autumn, a few Heads for seed (bloom). STEPHEN NOTIS, ROSES:—Baroness Rothschild, Anna de Diesbach, Mabel Morrison, Eugene Furst, Edmund Wood.—Please state quantity and cash price to J. L., Gardeners' Chronicle Office, W.C.

WANTED, large healthy PALMS, well furnished and clean, consisting of Seafortis, Areca lutescens, Kentia, Spathis, or any tolerably free-growing and not too tender sorts; also Aspidistra lurida and Pandanus Venchii, for stock, in EXCHANGE for other PLANTS or CASH.
W. HOWARD, Southgate, N.

WANTED, a large-sized VINEY or VINEY and PEACH HOUSE combined. Address, stating size, to be seen, and if it will be sent, to A. WILTSHIRE, West Street, Ware.

JAMES CARTER and CO. beg to direct the attention of their Customers to the following liberal CASH PRIZES, to be competed for during the next few weeks:—For the Best Four DISHES of PEAS—viz., One Dish (50 pods) Carters' Stratagem; One Dish (50 pods) Carters' Telephone; One Dish (50 pods) Culverwell's Telegraph; One Dish (50 pods) Carters' Prize, of the West.

CARTERS' PRIZES for PEAS,
JUNES 22—1st Prize, 63s.; 2d, 30s.; 3d, 20s.; 4th, 10s.

CARTERS' PRIZES for PEAS,
ROYAL HORTICULTURAL SOCIETY,
JUNE 27—1st Prize, 100s.; 2d, 60s.; 3d, 40s.; 4th, 20s.; 5th, 10s. 6d.

CARTERS' PRIZES for PEAS,
RICHMOND HORTICULTURAL SOCIETY,
JUNE 29—1st Prize, 40s.; 2d, 30s.; 3d, 20s.; 4th, 10s. 6d.

CARTERS' PRIZES for PEAS,
BACSHOT HORTICULTURAL SOCIETY,
JULY 4—1st Prize, 100s.; 2d, 10s. 6d.

CARTERS' PRIZES for PEAS,
TWINHAM HORTICULTURAL SOCIETY,
JULY 7—1st Prize, 20s.; 2d, 10s.; 3d, 5s.

CARTERS' PRIZES for PEAS,
OXFORDSHIRE HORTICULTURAL SOCIETY,
AUGUST 2.—This Collection to include three of the above Peas and three Dishes of other Vegetables.—1st Prize, 63s.; 2d, 30s.; 3d, 15s.; 4th, 10s. 6d.

NOTE.—The Competitions are confined to Gentlemen's Gardens and Amateurs only.
IMPORTANT REGULATION.—To prevent misunderstanding, special labels have been distributed with each packet of the above Peas, and all dishes will be disqualified that are exhibited without this special label being attached.
NOTE.—The Peas exhibited must be grown from Seed supplied direct from Messrs. CARTER in 1882.

FURTHER PARTICULARS
can be obtained from JAMES CARTER and CO., or each respective Society's Secretary.

CARTERS, THE QUEEN'S SEEDSMEN.
By Royal command to the Prince of Wales, 217 and 225, High Holborn, London, W.C.

Buddenbough Brothers, Bulb
Growers, House Bloomsward, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent, post-free, on application.

DAHLIAS.—Plants in pots, 300 sorts. PYRETHRUMS, in fifty varieties. CATALOGUES to be had free of KELWALD SON, Lansport, Somerset.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.

LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and price on application.
W. HOWARD, Southgate, N.

PANSIES.—The largest and finest Collection of Show and Fancy Pansies extant. Price, per dozen, 10s. or 100s. with Descriptive Priced CATALOGUE on application. JOHN FORBES, Nurseryman, Hawick, N.B.

LIST of BEDDING PLANTS (free on application), comprising Descriptions and Prices of Established Plants of the most beautiful and rare for the Terrace Parterre, the Tropical and Ordinary Flower Garden, the Mixed Border, and for Grouping en masse with Shrubs or on the Lawn. RICHARD SMITH and CO., Nurserymen and Seed Merchants, Liverpool.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JAMES COWAN) Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES, grown from eyes this year, suitable for present planting. CATALOGUE free. The Trade supplied.
Also a large stock of TEA ROSES.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4 1/2-inch pots, 10s. per 100, for cash.
MAIRIS and CO., Weston-in-Gordano, Bristol.

CALCEOLARIA "CLOTH of GOLD"
(Rapey) — Awarded First-class Certificate Royal Horticultural Society and Royal Botanic Society, New Seed. Price per packet, 3s. 6d. and 5s. free by post.
JOHN LAING and CO., Seedsmen, Forest Hill, S.E.

A. M. C. JONGKINDT CONINCK,
—Dedemsward, near Zwolle, begs to call attention to his large stock of HOME-GROWN CHONDROXA LUCILIAE. Wholesale Trade LIST of HARDY BULBS and FLOWER ROOTS gratis on application.

To the Trade.
FOR SALE, a few dozen NAPOLEON PASSION FLOWERS, very strong, in 6-inch pots, 12s. per dozen.
MAIRIS and CO., Weston-in-Gordano Bristol.

SALES BY AUCTION.

Wednesday Next.

IMPORTED and ESTABLISHED ORCHIDS. MR. J. C. STEVENS will SELL by Auction at the ATHLETIC Grounds, Covent Garden, W.C., on WEDNESDAY NEXT, June 21st, at half-past 12 o'clock precisely, a large importation of ORCHIDOPSIS, including in particular a fine specimen of MASDEVALLIA CHIMERA, upright-flowering variety; MASDEVALLIA TROCHILUS, MAXILLARIA VENUSTA, and ONCIDIUM species from various Shrublands, &c. &c. Also several small COLLECTIONS of ESTABLISHED ORCHIDS, including many fine species; RUSTIC WORK, LAWN BASKETS, GARDEN CHAIRS, SEATING, BASKETS, CONSERVATORY STEPS, ORCHID BASKETS, &c. On view morning of Sale, and Catalogues had.

Thursday Next.

DENDROBIUM JAMESTONUM. MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 33, King Street, Covent Garden, W.C., on THURSDAY, June 22nd, at half-past 12 o'clock precisely, a fine importation of this superb DENDROBIUM. It is probably the finest of the genus, and bears large white flowers lasting a long time in perfection, and its coming into bloom at the commencement of the exhibition season makes it especially valuable. Also other importations, such as a lot of ODONTOGLOSSUM ALEXANDREI and others, to which will be added some choice Orchids in flower. On view morning of Sale, and Catalogues had.

J. FAHLETON will be glad to treat with FLORISTS, &c., REQUIRING LAND and GLASS HOUSES, as he is prepared to LET or LEASE or SELL at moderate prices, LAND admirably adapted for all their requirements, in plots of 1/2 to 10 acres—J. FAHLETON, 40, York Road, close to Waterloo, S.E.

A Bargain.

TO BE DISPOSED OF, at a great sacrifice, an excellent NURSERY and SEED BUSINESS—Apply to Messrs. HURST AND SON, Seed Merchants, 157, Houndsditch, London.

RETAIL SEED and FLORISTS BUSINESS FOR SALE, situated in one of the best positions in the City of London, and an opportunity rarely to be met with for a young and active man with moderate capital. For full particulars apply, by letter only, to Z. Hurst & Son, 157, Houndsditch, E.

FOR SALE, a FLORIST and JOBBING BUSINESS, three Greenhouses. Good position. In present house, or in new one through illness. Mr. SMITH, Florist, Uxbridge Road, Ealing, Middlesex.

TO BE LET, as a Going Concern, on September 29, or earlier if desired, a compact NURSERY and small SEED BUSINESS, situated in the best part of Staffordshire, comprising about 2 acres of well-selected Nursery Stock, about 2 acres of Old Turf Land, and a Puddling House, a large stock of Hollies in variety, which do well here, as does all other Nursery Stock, the Soil being deep, Loam, and a never-failing supply of water on the ground. It has been established nearly sixty years, and declining health is the sole cause of disposing of it. For particulars address R. S. R. Bennett Cooper, Esq., Seed Merchant, 93, Southwark Street, London, S.E.

To Florists and Others.

TO LET, on LEASE, a HOUSE, only £35 per ann., fitted with every convenience, and with Garden 1/2 to 2/3 acres. Abundant supply of pure water, and 1/2 acre of garden, with 1/2 acre of Subsoil at gravel and well adapted for Florists, Nurserymen, &c. About twenty minutes to the Fulham Station, South-Western Railway. Full particulars apply to Mr. J. EMELTIN, Solicitor, House, New Hampden, 49, York Road, Waterloo Station, S.E.

Waltham Cross, Herts.—(No. 5672.)

Thirteen miles from Liverpool Street, on the main Cambridge line of the Great Eastern Railway.

TO BE LET, on Lease, about 2 Acres of productive NURSERY LAND, with Cottage, Outbuildings, and about 1200 sq. Yards of Glass, particularly adapted for Fruit Growing. Terms and particulars may be had of Messrs. PROTHORP and MORRIS, Auctioneers, 8, New Broad Street, London; or of Mr. J. S. DUFFMAN, Auctioneer, Crossbrook Street, Chesham.

DESIGNS Made and Works EXECUTED.

In the Arrangement of TERRACES, CONSERVATORIES, FLORAL CORRIDORS, ROOF GARDENS on unwatered Lead Foundations, &c. &c. with substantial PULHAMITE KERBS for the Edges of LAWNS, GARDENS, &c. &c. in TERRA-COTTA or ARTIFICIAL STONE of various colours. BALUSTRADES, VASES, PEDESTALS, FIGURES, FOUNTAINS, CONSERVATORY and WINDOW BOXES in great variety, suitable for any style of House. Various Specimens of KERB or EDGING, PULHAMITE PERMANENT TERRAZZO, PATHEON, GARDEN RACK and other WALKS and FLOORS, to be seen at the Horticultural Company's, Regent Street, W. at The Orchard, Philip Lane, Tottenham; and at our London Depot there is the most varied and the latest to be seen. DURABILITY GUARANTEED. A full description of our over 2000 illustrations, with Sizes and Prices, sent on request on receipt of twelve stamps.

Advertisement.

PULHAM & SON, The Works, Broxbourne, Established in 1837.

To Nurserymen and Seedsmen and their Assistants.

THE COMMITTEE of the SCOTTISH FRUIT AND VEGETABLE ASSOCIATION hereby offer a First Prize of Seven Guineas, and a Second Prize of Three Guineas for an ESSAY on "The Liability of the Tomato Plant to Spout, and Describing the Various Diseases to which it is liable." The subject of the Essay is to be sent to the Secretary of the Association, on or before December 1 next.

MANSION HOUSE, LONDON.

Grand Rose Show

WILL BE HELD AT THE MANSION HOUSE, ON FRIDAY, JUNE 30, 1882, IN AID OF THE FUNDS OF THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN, WATERLOO BRIDGE ROAD, AND THE Convalescent Home for Scarlet Fever Patients.

The Exhibition, which will be arranged by Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace, will consist of 10,000 ROSES from the gardens of the principal growers, arranged with Ferns and other accessories in an artistic manner, and of a Competition confined to Amateur Growers.

All Roses to be grown by Exhibitor, and exhibited in boxes to be shown as from the exhibitor. Any buds and leaves may be left, but no loose leaves to be added. Added foliage will be disqualify.

All the exhibited Roses, unless reserved, will be sold at fixed prices, and delivered at the close of the Show at 7 1/2 p.m. All exhibits to be ready for judging by 10.30, or they will not be eligible for competition.

Entries to be made on or before June 27, addressed to the Secretary, Mansion House.

- CLASS I. 24 BLOOMS, named, distinct—single. CLASS II. 12 BLOOMS, named, distinct—single. CLASS III. 12 HYBRID BLOOMS, named, distinct—three of each. CLASS IV. 6 HYBRID BLOOMS, named, distinct—single. CLASS V. 6 HYBRID BLOOMS, named, distinct—three of each. CLASS VI. 6 TEA or NOISETTE, named blooms, distinct—single. CLASS VII. 3 TEA or NOISETTE, named blooms, distinct—three of each. CLASS VIII. 6 BLOOMS OF ONE ROSE, any description. CLASS IX. HAND BOUQUET OF ROSES and FOLIAGE, with or without Ferns, 12 to 15 inches across. CLASS X. BASKETS OF ROSES, various, 20 to 30 blooms. There will be TWO PRIZES in each Class. SILVER MEDAL, 1st Prize. BRONZE MEDAL, 2d Prize. The LADY MAYOR will also be glad to receive for Sale, Bouquets or Bunches of Roses, Bouquets of Mixed Flowers, Button-hole Flowers, Baskets of Roses (large or small). Judges, Mr. G. PAUL and Mr. C. TURNER. Admission between the hours of 12 and 7 o'clock, 2s 6d.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

DUPLEY MEETING, June 27, 28, and 29, 1882. A GRAND FLOWER SHOW will be held in connection with the above, TWO HOURS and FIFTY MOMENTS IN PRIZES, for Professionals, Amateurs, and Cottagers. PRIZE LISTS may be had from J. S. HAWWOOD, Seed Merchant, 55, Inner Temple Lane, London, E.C. or the Horticultural Department. ENTRIES CLOSE JUNE 20 N.E.—Those who have received Prize Lists will please read in Classes 12 and 13—Pelargoniums, Show or Fancy, instead of Show and Fancy.

SEEDLING POTATO EXHIBITION.

THE FIRST EXHIBITION OF SEEDLING POTATOES (Open to all England), in connection with the Northamptonshire Agricultural Society will be held at Northampton, on THURSDAY and FRIDAY, September 21 and 22, under the Patronage of Lady BISHOPSTON, Fawsley, Daventry; the Most Honourable Marquis of EXETER, Buryleigh, Stamford; ROUNTON, Esq., M. F. Whitebury, Towcester. Particulars and Schedules of Prizes may be had on application to Mr. GILBERT, Buryleigh, Stamford; Mr. COLE, Althorpe, Northampton; Mr. MILLER, Whitebury, Towcester; Mr. R. KOWE, Shaw Street, Northampton; and the Secretary, Mr. W. FARR, Fawsley, Daventry.

Prizes Offered by MESSRS. WEBBER AND CO., FRUIT SALESMEN, Covent Garden, W.C., at the ROYAL HORTICULTURAL SOCIETY'S SHOW, on JUNE 27.

In order to show Fruit-growers and the Public generally the best mode of PACKING FRUIT FOR MARKET, so as to realise the highest prices, Messrs. WEBBER & CO. hereby offer the following Prizes for the best packed, four Boxes of Fruit: 1st Prize ... £5 5s. 2d " " " " £3 3s. 3d " " " " £2 2s. To consist of one Box of Grapes, not less than 14 lb.; one Box of Peaches, not less than 24; one Box of Strawberries, not less than 2 lb. Also Pyramid Prizes, in shape of Lord Napier BUCKARINE, bearing from six to twelve fruit. Price rose 6d each. The Nurseries, Sawbridgecourt, Herts.

Bedding Geraniums.—Surplus of popular kinds, 10s. per 100, all strong plants from single pots. GOLDEN FOUNTAIN, fine bushy plants, 12 to 15 inches high. HUSSEY AND SON, Mile End Nursery, Norwich.

CAULIFLOWER, BRUSSELS SPROUT PLANTS.

VEITCH'S AUTUMN GIANT, 3s 6d. per 1000. BRUSSELS SPROUTS, 3s. per 1000. Packages 75, per 1000 extra. Order of R. BATH, CROYDON, or J. BATH, 34, Wellington Street, Covent Garden, W.C.

Surplus Stock.

WILLIAM BADMAN can still supply as under in established plants turned out of 60's. PELARGONIUMS Vesuvius, Jean Sully, Madame Vaucher, White; Master Christie, Pink; Lucina, and others, at 5s. per doz., 75s. per 1000. Brouse McMahon, Black Dandelion, Car, and others, 15s. per 100; Crystal Palace Gem, 10s. per 100; Happy Thought and Silver-edged, 10s. per 100; Mrs. Pollock and J. C. BARKWELL, 2s. per 100. DAHLIAS, best Show and Fancy sorts, 15s. per 100. LOBELIAS, in best sorts, 5s. per 100. Packing included. Terms cash. Cemetery Nursery, Gravesend.

Special Offer.

DAHLIAS! — DAHLIAS! — DAHLIAS! — Strong Plants, in best varieties, 2s. 6d. per dozen, 1/2s. per 100. PELARGONIUMS, in pots, best varieties, 9s. per dozen, 7/2. per 100. AZALEA CALDWELLII, in pots, very strong, 6s. 9d. per 100, 52s. per 1000. W. G. CALDWELL AND SONS, The Nurseries, Kentford.

To the Trade — "Mrs. Pollock" — To the Trade.

W. G. CALDWELL AND SONS have still a few thousands of first-rate Plants of "Mrs. Pollock" Golden Thriller GERANIUM, in 2 1/2 inch pots, which offer at 22s. 6d. per 100; 200s. per 1000. PACKING EXTRA. Also a large quantity of Miscellaneous BEDDING and other Plants, equally good and cheap. The Nurseries, Huntingdon and St. Neots.

Primulas — Primulas — Primulas.

Thirteenth Year of Distribution. WILLIAMS' superb strain, 1s. 6d. per doz., 12s. per 100. CINERARIAS same price. Package and carriage free.

The above are quite equal to those I have sent out in previous years. Cash with order. JOHN STEVENS, The Nurseries, Coventry.

Exhibition Plants.

W. G. CALDWELL AND SONS have the following choice SPECIMEN PLANTS to offer, many of which are well known at Liverpool, Manchester, and other large Shows, having taken many First Prizes. All are in excellent condition, and are offered at the following prices: ERICA CAVENDISHII, 5 feet by 5 feet through, splendid specimen, well set with bloom. ERICA TRICOLOR SPECIOSA, 4 feet by 4 feet through, well set with bloom; many varieties of Ericas in all sizes. ALLAMANDA, APHELEXIS, BOUGAINVILLEAS, CLERODENDRONS, COCCUS, CROTONS, CYCAS, GLEICHENIAS, LATANIAS, RONDELETIAS, SEAFORTHIAS, STEPHANOTIS, SWAINSONIAS, VINCAS, &c. Prices, names, and sizes on application. The Nurseries, Kentford.

W. COOPER can still supply, in excellent plants:—

- Per 100—2 d. PYRETHRUMS, Double, in eighteen varieties, .. 18 0 P. H. H. Double, in 12 varieties, .. 12 0 GERANIUMS, Bedding, in separate pots, .. 12 0 VERBENA, Purple King .. 12 0 LOBELIA, BEST OF THE FINEST, .. 11 0 GORGES VERSCAFFETTI .. 11 0 ECHVERIA SECUNDA GLAUCIA, fine pieces .. 14 0 Various other Bedding Plants at low rates. W. W. COOPER, Florist, 10, Walks, Huntingdon.

Bulbs! — Bulbs! — Bulbs!

W. COOPER, Florist, 10, Walks, Huntingdon. SEGERS and CO., Bulb Growers, Lisse, near Haarlem, Holland, beg to announce that their Dutch Bulb Farms, especially HYACINTHS, look very promising. Their crops of TULIPS, which they have commenced harvesting, are good samples. CATALOGUES may be had on application. No Auction Sales or Retail Trade supplied, but the Wholesale only. W. COOPER observe name and address.

One Dozen of Each for 21s.

GOOD VALUE FOR MONEY. This is the best offer since the 21st and strong Plants: 12 choice splendid ZONAL GERANIUMS for 3s. 6d. per doz. 12 choice splendid BRONZE GERANIUMS for 3s. 6d. per doz. 12 choice splendid DAHLIAS for 3s. 10s. per doz. 12 choice splendid PINK PELARGONIUMS for 3s. 6d. per doz. 12 choice named PHLOX for 3s. 6d. 12 choice Silver-edged FANCY FLOWERING GERANIUMS for 3s. 6d. per doz. (10r 3) See Descriptive CATALOGUE. Cash with order. Package free. They are honestly worth double the amount. CHARLES BURLEY, Bentwood, Nurseries.

Novelty.

GRAND NEW BEDDING PLANT.

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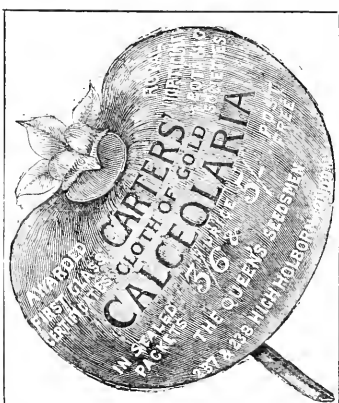
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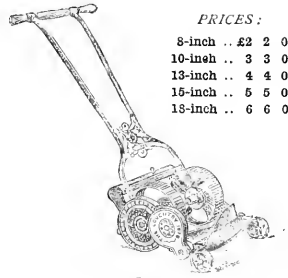
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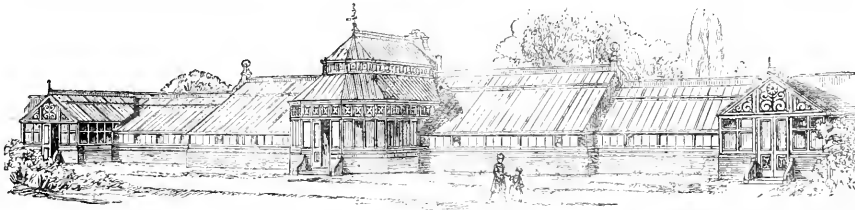
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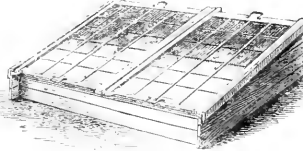
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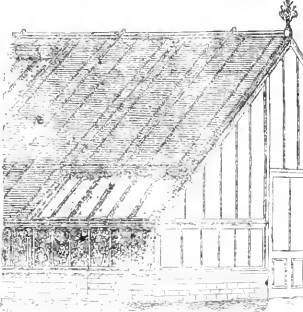
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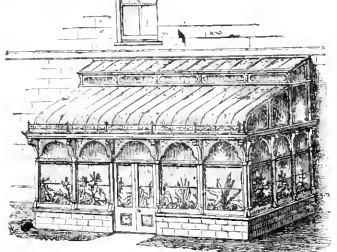


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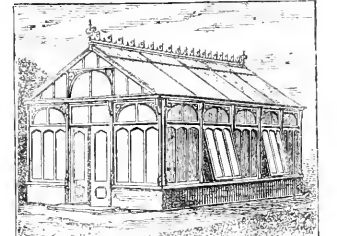
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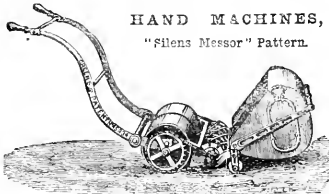
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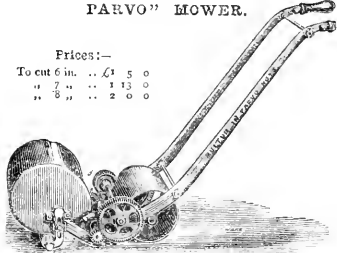
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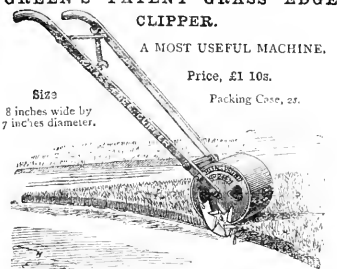
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THE
Gardeners' Chronicle.

SATURDAY, JUNE 17, 1882.

ROSE PROSPECTS.

ALTHOUGH I have lately traversed a wide extent of country, have visited many of our most celebrated Rose gardens, and conversed with many of our rosarians, and although we are now in the rosy month of June, and within a fortnight of our first exhibitions, I am as yet unable to speak positively as to the prospects of the Rose season. There are two reasons for this—one, that ever-fruital, over-frequent cause of complaint in all gardening matters—the fickleness of our climate: the other is that we are so apt to take our own standpoint and to suppose that the condition of other people's Roses is to be measured by our own; so that in asking Rose growers what is the prospect, the answer is generally determined by the aspect of their own gardens. The strangely mild winter that we passed through naturally enough led people to imagine that we must have a very early summer. Many of our spring flowers were a fortnight or more before their time, and people said we should have our great bloom of Roses over the first week in June; we were told that all Rose show fixtures were a fortnight too late, and that there would be nothing but second blooms. Many were the temptations to managers of Rose exhibitions to alter their dates, but so far the temptation has been resisted. Rose exhibitions are so many and so important that, as was experienced in a former season, changes throw everything out of gear, nor was due allowance given for the effects of that "cold wave" which for so many seasons has maulled the third week of May; it came as in duty bound, and Roses are not a whit more forward now than they were three weeks ago—the uncertainty still clings to us. I was on Saturday last with two good rosarians in a famous southern city, the day was close to a degree, the thermometer stood at 73, and my friend said, "Well, all the first blooms of Roses must be ours if this weather lasts." But it did not last; since then it has been chilly and sunless, and vegetation has made no progress. But looking at Roses as they are at present, I cannot but anticipate a favourable season. There may be, as I hear there are from some growers, swarms of aphid and attacks of maggot, although I have but little of either; mildew may destroy many a hope, although it is less likely, I fancy, with a low temperature to afflict us; drought may necessitate much watering, and yet with all possible drawbacks one may hopefully look for a good time amongst the Roses.

As to the exhibitions of the Rose, there is every prospect of much gratification to all lovers of the Rose, wherever they may be, for in all parts of the country Rose shows have sprung up, and the number increases yearly, and as a consequence the exhibitors of the Rose increase also. There is, however, a great blank to be filled up in our large shows—both of those celebrated competitors, Mr. R. G. Baker and Mr. T. Jowitt, will be absent from them, the former through a severe domestic affliction, the latter from his

having left his residence and gone to a distant part where Roses will not flourish. Those who have seen their magnificent blooms, and how far ahead they were of other competitors, may well ask—Is there any one to take their place? It may be that their absence will encourage others to come forward and make a push to take front rank—some, perhaps, whom the presence of these giants has deterred from the attempt; but without the absence of their beautifully furnished stands of Roses will form a serious drawback to our exhibitions, for it is ever well to have a high standard by which to mark our own successes or failures. There will be an anxious desire to see the new Roses, and if the opinion of competent judges may be relied upon there are likely to be some excellent additions to our gardens.

The exhibitions begin with Sittingbourne on the 23d, which will be held at Bobbing in conjunction with the assemblies of the East Kent Volunteers; Maidstone will be on the 27th, the National Rose Society will hold its first provincial show at Bath on the 28th, with every prospect of a magnificent exhibition; Farningham and Hereford come on the 30th, the Mansion House on the 30th, Horsham on the same day, the Crystal Palace and Reigate on July 1, the Grand Metropolitan Show of the National Rose Society, at the Royal Horticultural Society's Gardens at South Kensington, on the 4th; Canterbury, Oxford, and Brookham on the 6th; Sutton on the 7th, Alexandra Palace and Eltham on the 8th. In the following week the more northern and distant shows take place. Ipswich on the 11th, Cardiff on the 12th, Birkenhead on the 15th; then comes Leek, on the 18th; the National Rose Society's second provincial show on the 19th, at Darlington, &c. Thus for about three weeks the exhibitors will have a busy time of it, and manifold will be the triumphs and disappointments; and I must say that, as a rule, I know of no class of people who bear the latter better than Rose exhibitors. Where there are competent judges, surely it is unwise to make a fuss over what people may consider a wrong judgment; all men are fallible, but where rules of judging are recognised on sound principles, the probability is surely that these competent judges are more likely to be right than one over-anxious exhibitor; moreover, a couple of hours often makes a good deal of difference in the aspect of a stand of Roses, and they are often very different when the public are admitted to what they were when the judges examined them, and it is assuredly more dignified to accept their decision than to fluster oneself over a supposed injury.

Since the first lines of this were written, another proof of the uncertainty of things has occurred. I spoke of the possibility of drought interfering with the bloom. We have had since then all over the country most copious rains; aphid has met its match; and there is every prospect of a glorious Rose season. *Wild Rose.*

New Garden Plants.

ONCIDIUM MELIOSMUM, n. sp.*

A FINE *Oncidium*, whose flowers are of the richest yellow colour, with blotches of the most exquisite cinnamon. It is a pity that Dr. Lindley had already given the name *retusum*, as it might well have been given to this. The small sepals are retuse as well as the much larger petals. The basilar auricles of the lip are square, the isthmus middle-sized, and the anterior part reniform. The column is very small, of the most pallid sulphur-white, as well as the callos. I have also had a plant kindly sent over. It had originally large oblong acinapitous very shining bulbs, covered with numerous brown broken scars.

* *Oncidium meliosmum*, n. sp. (Trisetia macrostepala) pseudobulbo oblongo acinapito obscure marmorato; folio cuneato oblongo ligulato acuto; panicula ramulis abbreviatis; sepalis unguiculatis oblongis retusis; tepalibus unguiculatis subquadrate bis retusis; labelli auriculis basilaribus quadratis, isthmus aequali, paritibus antica reniformi bifida, collo depresso extrorsum multangulo, antice indentato; columna brevis bis dolabratis, mucis denticulatis; tubula infrastigmatica latissima rhomboida, fovea emarginata, basi tabule stipitata. H. G. Rehb. f.

The English grown bulbs have far less of these marks, but some are to be seen. The leaf is cuneate oblong ligulate acute. I have to thank Mr. W. Dall for this. The plant looks like a magnified *Oncidium Boothianum*. H. G. Rehb. f.

CATTLEYA (LABIATA) PERCIVILIANA, n. var.

Two merchants at a great emporium of trade having made a contract for Spanish Wheat (Trigo), had their private reasons for disliking, not so much acceptance as payment. Knowing various species of *Triticum* to be growing in Spain, they addressed to an excellent seedsman, Herr E., to decide whether the crop were of common genuine Wheat or of another species.

Herr E. looked earnestly to the seeds and mused a while as if considering the characters of species. His final dictum was "Bring me plenty of these seeds and then return next year in July. I hope to be able then to tell you what kind of Wheat you have obtained."

Oh, if we garden botanists were in the position of Herr E. I We would wait with full patience the flowering of introduced plants, there would seldom be left any doubts, and everything would be done in the most conciliatory manner, to mutual agreement.

Such is my first feeling when I sit down with twenty dried *Cattleya* flowers before me, two living plants and some notes, all sent by my indefatigable Hanseatic countryman, Mr. F. Sander. They come from some western corner of South America, where nobody has collected before. If I were Herr E. I should say, wait two years: we shall then have fresh flowers in profusion. I am not permitted to write in this way.

Whatever may be the confusion in all the names, phantasy names and nicknames, of the *Cattleya labiata* type, we must regard it as perhaps the most polymorphous and polychromic species of *Orchid*, the variations depending most probably on geographic locality, and not on soil, climate, or exposition. If a very young botanist had time and means to study a fine question, he might do grand work by travelling only for the purpose of studying *Cattleya labiata*.

Our plant is from a totally new place, yet it appears exceedingly near the eldest *Cattleya labiata* of Lindley (*Collectanea*), and of Loddiges (*Botanical Cabinet*). This might be explained by similar geological or climatic circumstances under a widely distinct longitude.

The bulbs are very strong and acinapitous, broad, with a short stipes, and three argute ribs each side. The leaf is very strong, very broad (0.18 x 0.06 m.). There are sometimes remains of two spathe, just as in the best *Cattleya labiata*, Mr. Pescatore's variety. Some specimens boast a rich hue of purple both on the bulbs as on the leaves, mostly underneath. I would like to guess this to be the consequence of a gentle exposition to the sun.

As to the flowers there is no great enjoyment to be derived from them in a dried state. There is, however, an exceptionally well-prepared lip at hand. More than the anterior half is covered by the deepest finest purple. Then there is a small pallid triangle on each side, and the remaining part shows brown stripes radiating and nearly parallel, descending towards the outer side, and interrupted by pallid lines. The interior part is finely crisp and toothletted.

So much for this plant. It may prove a source of great enjoyment. H. G. Rehb. f.

ACROCHLENE RIMANNI, n. sp.*

Mr. Kimann, who is travelling for Mr. F. Sander in tropical Asia, has just sent a very curious *Orchid* which has flowers of the finest lilac-purple, nearly equal to those of *Dendrobium Kingianum*, with a most remarkable lip of the darkest purple, having each lateral lobe semicircular and denticulate. The middle lobe is fleshy and triangular. Sepals oblong lanceolate, the lateral ones connate, bidentate at the top. The petals are short, oblong, denticulate, and make an admirable contrast from purple and blackish-purple, flowers being of clearest white (*see ?*).

Of all known *Orchids*, only *Acrochlene punctata*, Lindl., comes near it. I have, however, not been able to find the content of any author. Had it not been necessary to do so at once, I would have not named and described the plant now. I like much to give it,

* *Acrochlene Rimanni*. — Pedunculo paucifloro; bracteis lanceis acuminatis ovario pedicellato subobovatis; sepalis imparibus oblongo-ligulato acuto, sepalis lateralibus connatis supra nervos medianos subaristatis apice bidentatis; tepalibus oblongis mucis minute denticulatis; labelli basi lata, in lacinis laterales semi-ovatis; denticulatis extensis, lamina mediana carnosa linearis triangula columna gracili apice utrinque intorso undulata. Asia tropica. Rimann, H. G. Rehb. f.

at all events, a specific name in honour of its discoverer, and hope he will find many more curiosities and grand novelties. H. G. Rehb. f.

DENDROBIUM DALHOUSIANUM (Paxt.) var. ROSSIANUM.

I propose this name for a giant-flowered nankeen-coloured variety, with an exaggerated beard on the anterior part of the lip, and very few purple-brown streaks on the stems. In the flower of the genuine type, as represented by Sir J. Paxton (M. L. van Houtte) and Dr. Lindley, the sepals and petals are pale ochre-coloured, richly bordered with light purple, and there are very numerous purple-brown streaks and spots on the stem sheaths. I am sorry I cannot speak about the plant lately represented in the *Illustration Horticolæ*, the book being not at hand, and Director Linden's people having forgotten to send me an extra copy of the plate, which would have been very agreeable both to Herr Linden and to myself. The fine variety before me was sent by Mr. H. J. Ross, of Castagnolo, who may have introduced it from Birmah of Arracan. It is dedicated to this enthusiastic orchidist. L. G. Rehb. f.

PIERIS JAPONICA.*

Our illustration (fig. 120) was taken from a plant recently exhibited at the Royal Horticultural Society by Mr. Anthony Waterer. It is a hardy shrub, with rather thick dark green lanceolate leaves, and long pendulous clusters of white urceolate flowers. Of its value as an ornamental shrub there can be no doubt, though it is rarely seen in gardens; this may arise partly from the fact that the illustrations hitherto published have been very miserable representations, taken from debilitated specimens, or from plants flowering a second time in autumn, so that the true character of the plant has not been shown. The plant is a native of Japan, in the gardens of which a variegated variety with yellow marginal variegation occurs, and also a dwarf variety. The plant is not new either to science or to gardens, since it was described as long ago as 1784 by Thunberg, in his *Flora Japonica*, 181, t. 22, under the name of *Andromeda japonica*, and has been alluded to by many subsequent writers on Japanese plants, such as Miquel, Franchet, and Savatier. Maximowicz gives a careful description of it under the name of *Andromeda japonica*, in the *Mémoires Biologiques*—St. Petersburg, tom. 8, decas xii. (1872), p. 617. The name *Pieris* is here adopted because Don placed the plant in this genus, and his procedure has received the assent of Bentham and Hooker in their standard *Genera Plantarum*, M. T. M.

MAMHEAD HOUSE,

THE seat of Sir Lydstone Newman, Bart., enjoys the distinction of an almost matchless situation, overlooking that portion of the South Devon coast which includes Teignmouth, Dawlish, Starcross, and Exmouth, and a climate remarkable for its geniality and its marvellous influence upon every subject of the vegetable kingdom. Of the many approaches to this fine mansion, that from the village of Kenton, which is but 3 miles distant, and the drive to Dawlish, which is 5 miles off, are perhaps the most picturesque and delightful.

As an introduction to the natural beauties of the place, it may not be uninteresting to quote a portion of a sonnet written under an Oak at Mamhead in the year 1785:—

"Here, Laura, since our wearied feet have stray'd
From the proud obelisk that fronts the scene
Of many a tufted hill, whose border green
The sweet perspective blends in mellow shade,
While sparkling through the stately Fir trees play'd
The burnished hamlets of the vales between,
And while the misty bosom of the glade
Seemed opening to the azure sea serene—
Here, Laura, let us rest our roving eyes,
And near this ever-verdant oak repose,
For to 'unharmonized' joy prospect lies,
And dim discovered views the landscape close.
Yet clearer beauties on the lawn arise
And in full pride the shadowy foliage flows!

(If the above lines were appropriate a hundred years ago, they are even more so now, since the improve-

* *Pieris japonica* D. Don, ex DC. *Prod.*, vii. 2, p. 599. *Andromeda japonica*, Thunb., *Fl. Japonica*, 181, t. 22 (1784); Miquel, *Prodr.*, 91; *Beipage Horticolæ* (1872), 274, t. xxx.; Maximowicz, *Mémoires Biologiques*, t. 8, decas xii. (1872), p. 617; Franchet and Savatier, *Annuaire*, Pl. Japon.

ments effected in recent years have vastly enhanced the character of the landscape, rendering the scene still more alluring ; passing imperceptibly from rich green valleys and verdant hills over forests of trees clad in various shades and tints of lovely green and

all a lover of wild flowers, and can appreciate to the full the romantic scenery of the district. By the hedgerows there are Veronicas, wild Honeysuckles, yellow Broom in any quantity, and Ajugas, or the " Bugle flower " as the old wives call it in

Beech, tender and drooping, and the Hawthorns in full blow, and carpeted underneath with Ivies, how truly beautiful they look !

A stranger in Devonshire should, however, be careful to keep upon the Queen's highway. Having gone

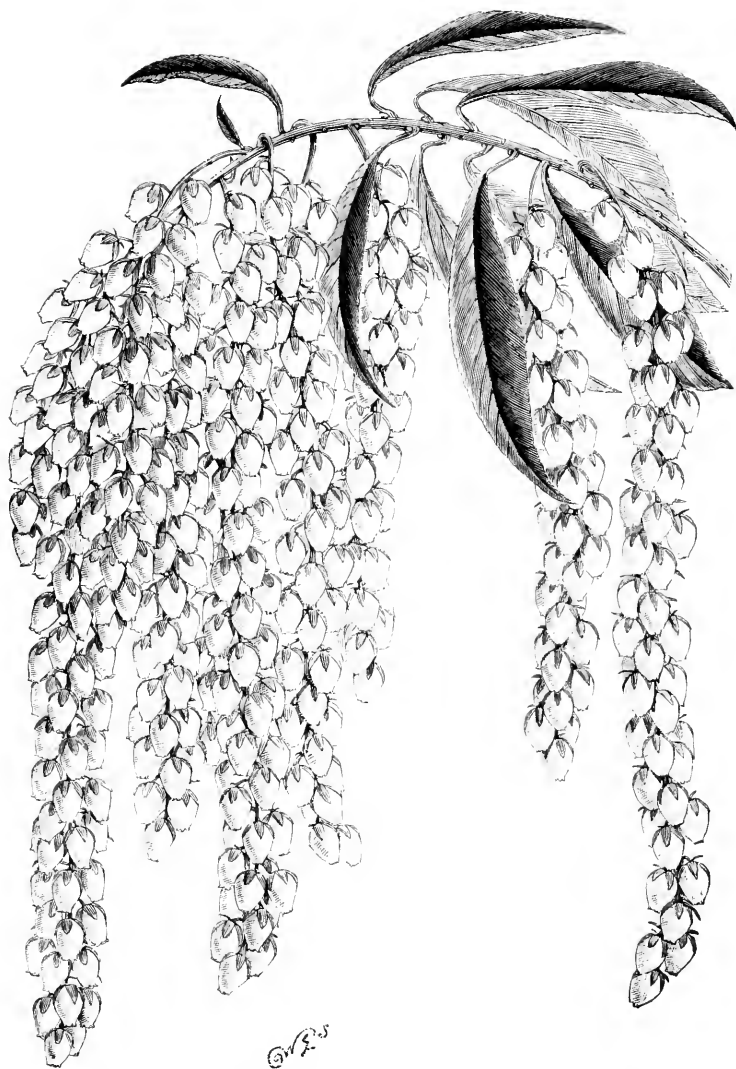


FIG. 120.—PIERIS JAPONICA: HARDY SHRUB: FLOWERS WHITE. (SEE P. 796.)

yellow, to the golden sands of the sea-coast and the deep blue sea itself, calm and tranquil in the distance. The visitor who cares to stray through the Devonshire lanes from Dawlish to Mamhead will be more than compensated for undertaking the journey if he be at

Devonshire: one patriarchal dame indeed stoutly proclaims that she has taken " Bugle tea " for over fifty years, and has never known what it is to pay a doctor's bill ! [Poor doctors !] And the hedges, too, how lovely they are ! The young shoots of the

out of my way a little, and being attracted by an exquisite display of Wistaria upon a farmhouse such as is rarely seen, I begged permission to take a short cut through the farmyard, which was half denied by the only male occupant of the place, who evidently

regarded the stranger with suspicion. But a face attending to flowers at one of the windows nodded assent, proving once more that those who love flowers are both kind and sympathetic to strangers as well as to plants. But I must not dilate upon extraneous matters. I have reached the lodge gates, where there are a great many noble specimens of the Ilex Oak, and in a few minutes more I am hastening to discover the whereabouts of the head gardener—a task by no means unpleasant, considering the extreme beauty, size, and richness of the park, its configuration, which is so varied and pleasing to the eye, and its stock of rare trees, which are among the finest in England. At the bottom of the park there is a gate, and within this gate there is over a score of "gardeners' mouse-traps" fresh set, indicating that the gardener is not far off. Nor is he. For in another minute we are discussing upon the merits of China Roses, hardy Fuchsias, and other flowers, which are here in abundance, and have been more or less all through the winter. The walls are literally aglow with these good old-fashioned Roses, and the borders are bright with *Alonsoa Warscewiczii*, its scarlet flowers looking more brilliant than usual, because there are so few flowers approaching it in colour in the open border at this season. The hardy Fuchsias are immense bushes, growing and flowering with increased vigour notwithstanding they were cut down to the ground after the last severe winter. The fruit and kitchen gardens are in several divisions, and there is more or less of the ornamental introduced into most of them. In the largest division the borders are carefully planted with herbaceous plants, and upon the south wall there is an extensive range of Peach-houses in which there is a magnificent crop. Over 3000 fruits were gathered from this house last season, and the trees are still as fruitful and as healthy as ever. Plenty of rich feeding, and a free use of the syringe daily, by which their foliage is kept thoroughly clean, is the cause of Mr. Harper's great success in Peach growing at Mamhead. In the vinery there is a good show of Grapes, and young Vines, only a year old, are certainly highly creditable examples of Vine growing.

Mr. Harper is an "all-round" gardener, his fruit-houses are crammed with plants as well as fruits, that is, there is a plant wherever there is room for it. Pines are well grown, so are strawberries, and Melons are swelling away rapidly. Azaleas, double Petunias, Begonias, and other plants of a useful kind, are well grown either in the vineries or plant-houses, and the Camellia-house, in the centre of a range of fruit houses, contains a very good assortment of plants and some remarkable creepers, amongst them a *Polygonum*, one of the free-growing seeders, which has travelled a distance of 25 feet. In front of this structure there is an ornamental plot, a description of which will convey a general idea of the variety which characterises the place. There is a rockery in the centre of a green grass plot planted with hardy Ferns and *Salvia argentea*. A group of *Magnolia grandiflora* occupies a portion of the grass plot; they are dotted about promiscuously, and their stems are clothed with China Roses, now in flower. At the bottom of this garden there is a terrace, and beneath the terrace another garden, partly a vegetable and partly a fruit garden, which is divided by a clear running rivulet. Beyond the stream the ground rises rapidly to its boundary—an ornamental hedge, by which there is a row of dwarf Fig trees, which grow and fruit with trifling attention, certainly with little or no pruning. There is one noticeable feature in these gardens, and that is the numbers of *Glaucolili* that have established them-selves about the borders, and are never injured in the severest winters. But the unwary must not be mistaken. Mamhead, as I have before stated, enjoys a climate peculiarly its own, and a remarkable immunity from frosts. It is no doubt owing to its high altitude, natural shelter, and free open soil, that plants survive the winter at Mamhead when they are killed but a few miles off, say 4 or 5 miles as the crow flies. Berding plants very often stand out the whole winter.

The walk through the park to the house will be found unusually interesting to the lover of trees, especially if he take a *déjeuner* to the left by way of the church. One of the Ilex Oaks, for which the park is famous, is over 21 feet in circumference; here also is the largest Cork tree in England, which measures 19 feet in girth at a foot from the ground. The margin of the wood facing the church is brightened up with flowering Chestnuts and other trees now at their

best, which are well intermixed, and are very effective at a distance. If you have a fine Pine at the back of a flowering Chestnut, or *vice versa*, and one is a little taller than the other, and if there is a drooping *Laburnum* in the front and a fine Hawthorn not far off, or a group of them, these are objects that no one will fail to look at during the present month. But I must not dwell at too great length here, for in the churchyard, a few yards distant, there is an extraordinary specimen of the English Yew, which claims respectful notice. It is 3½ feet in circumference at 1 foot from its base, and at about 3 or 4 feet from the ground it has fourteen limbs radiating from the outside of the trunk, leaving a cavity in the centre sufficiently large to accommodate a tea party on a hot summer afternoon. I climbed the tree to see for myself, so I am not overstating the case. It is a huge tree, as pretty in appearance as it is wonderful in size. Between the church and the mansion on the left of the carriage-drive is the remains of the Cedar grove, which was severely injured by a hurricane some years ago, and which still contains many good specimens.

The private grounds are entered by a gate from this side, and the slopes and terraces by which the mansion is completely surrounded are of the most lovely and picturesque description. The flower garden is upon the south side, and consists of four large oblong plots in grass with bold figures in their centres and scrollwork round the margin of the grass. There is a massive fountain in the centre of this group. The next group of figures are laid out in Box, triangular in shape, with the points of the triangles surrounding a sun-dial. Upon the bank overlooking this garden the plants of *Rhododendrons* of various colours, and *Ghent Azaleas* intermixed with *Lilacs*, *Laburnums*, *Prinotia serrata*, and *Magnolias*, are truly beautiful. One tree of *Magnolia* in flower, overhanging by an evergreen Oak, and having a large clump of scarlet *Rhododendrons* for a near neighbour, is particularly lovely. Upon the west side a green slope dotted with trees, and laced round by a thick plantation of Beech, Elms, Chestnuts, &c., and having a dense background of Scotch Firs, have a grand effect in the twilight. The first evening star is peeping through the tops of the dark green Firs, the grass slopes are bathed with silvery dewdrops, and the steep terraces upon the east of the mansion are clothed in sombre green, and grey and red dyes; there are leaves here of such exquisite colour, and of so many various shades, that one almost forgets to notice the stately mansion and the statuary by which it is surrounded. The conservatory is of course in keeping with the architectural style of the mansion, and is filled with very fine healthy *Camellias*, *Palms* in rustic tubs, Ferns, and other suitable plants.

As will be gathered from the foregoing remarks, the carriage front is upon the north side of the house. There is a large circle in grass here, and a broad clump of *Rhododendrons* in its centre. The western boundary is composed of a bank of *Cotoneasters*, hardy *Geans*, and *Escallonias*, lit up with patches of yellow Gorse and the blue *Vincetoxicum*. Beyond the confines of the circle there are noble specimens of the Douglas Fir, *Pinus excelsa*, and stately Cedars; but to do justice to this fine place one might write a book, so I am obliged to bring my remarks to a close somewhat abruptly, not however, before I bear testimony to the industry and energy of Mr. Harper, whose heart is in his work, and who conducts the management of this fine place so creditably and successfully that it is not only interesting but also instructive to visit the garden and converse with the gardener-in-chief. *Devonian*.

THE EXETER NURSERY.

(Continued from p. 796.)

In describing the stock of such a nursery as this it is hard by justice to bestow a word of praise—cultural praise I mean—upon those magnificent specimens which up to a very recent period have been exhibited in various parts of the country. Where there is an *Ixora*-house, a *Croton*-house, an *Anthurium* house, and a *Nepenthes*-house, the ordinary reader will understand by it as representing ordinary stock; but in this instance it is very much more, for many of the plants, especially the *Crotons*, are giants in size, and as perfect specimens as can be found anywhere, and this without making any exception that the writer is aware of. The *Ixora* house is furnished with fine plants breaking away vigorously, many of them

in an advanced state, and having for their companions a few other heat-loving subjects. In the *Nepenthes* house the stock is clean and healthy, such varieties as *Rafflesiana* and *Hookeri* being the most noteworthy. There is no stage in the *Croton*-house, the plants are set upon inverted pots, and every plant is within a few inches of the glass. The largest specimens of *interruptum*, *Johannis*, *Disraeli*, and *undulatus* are 6 feet by 6, and as well coloured as if it was the month of August. Of course they are other varieties in abundance of such kinds as *Earl Derby*, *Macarthurii*, *volutus*, and a stock of *Dipladenias* in very fine trim, which appear to be grown for no ordinary purpose. The collection of *Anthuriums* have been weeded or cleared of all doubtful or spurious varieties, and only those retained that are up to the acknowledged standard of the day in quality. Some of the plants are as much as 4 feet across, and bearing as many as forty fully expanded spathes. Still among the specimens the visitor will find in the "new stove" a very fine collection of *Allamandas*, including *Hendersonii*, *nobilis*, *grandiflora*, and *Cheloni*; also *Medinilla magnifica*, *Stephanotis floribunda*, and a good assortment of stove stock generally. There are two houses filled with *Eucharis amazonica*, several houses of young Vines, and propagating-houses, besides pits and frames filled with bedding-plants, and other nursery stock in variety.

Peach growing is carried on in a lofty range, where trees are trained against a back wall, and large numbers are grown in pots. Grapes are grown in a house 100 feet long, in which the merits of new kinds are tested, and other fruits are grown in greater or less numbers. Leaving the glass department for a tour through the grounds I noticed the Golden Ivy, *Mrs. Pollock*, beautifully coloured, against a wall, and another variety, *atropurpurea*, with the old leaves nearly black, and the young ones a delicate green, growing out a couple of inches from the wall. This variety is worthy the notice of planters. By the main walk of the nursery will be found some unique specimens of the Conifer family and other trees and shrubs. Here are weeping *Hollies*, *Cupressus*, Cedars, *Thuja gigantea*, *Picea amabilis*, the Golden Yew, *Taxus elegantissima*, golden-topped Irish Yews, *Podocarpus chinensis*, the Chinese Yew, and *Biota japonica elegantissima*. The admixture of flowering shrubs has a cheerful effect at this season, or a little earlier when such flowering trees as the lovely *Yrusulus floribunda* are in full blow, and *Mabonias* and *Berberis*. Some remarkable specimens of *Quercus Fordii*, the finest of all the evergreen Oaks, are pointed out, and they are in very truth model samples of their kind.

The variety, form, and colour of so many elegant shrubs and trees grown under such favourable conditions, make a display taken as a whole, and afford instructive lessons to intending planters, which will well repay the trouble of a visit to any one interested in the planting, arrangement, and cultivation of the plants and trees enumerated above. But I have not yet got half through the list of choice things that struck me as being of especial merit. As a bush for a shrubby border, perhaps the beautiful *Eleagnus austro-marginatus* is not surpassed. It goes well against any of the green *Thuyas* or *Cupressus* or *Abies*. Of the latter there are large specimens of *lasiocarpa* and *nobilis*, common English Yews (*trained*), *Cryptomeria elegans*, *Retinospora filifera*, *pumila*, *aurea*, and *squarrosa*; *Biota pendula*, *Pinus Jeffreyi*, *Abies grandis*, *P. cilicica*, *Cedrus atlantica*, and a fine bush of *Cotoneaster affinis*. Threading my way through many broad acres of fruit trees of all kinds—Apples upon the free and Paradise stocks, Pears as standards and dwarfs, and hosts of other fruit trees, in plots, separated by tall Beech hedges—I am again surrounded by a wealth of choice trees and shrubs of infinite variety, sizes, and forms. Amongst them are *Cephalotaxus Fortunei* and *drupacea*, *Taxus adpressa* and *T. adpressa stricta*, a pair of unique specimens of *Wellingtonia gigantea*, *Abies Kämpferi*, the golden Larch, *Araucarias* feathered to the ground, said to be the finest in the country, and a unique specimen of *Thuyopsis borealis*. *Thuja occidentalis Verbeemiana* is also extra fine, and so is *Picea polia*.

These are a few of the most noteworthy specimens, and I will now pass on to everybody's favourites in the herbaceous and alpine grounds, which are furnished with Pinks, Carnations, Delphiniums, Phloxes, Pansies, *Pyrethrums*, *Sedums*, double Wallflowers, *Funkias*, *Penstemons*, *Myosotis*, *Dodecatheon Meadia*,

the American Cowslip, *Primula amoena*, Iris (both German and Spanish), *Achillea umbellata*, *Primula platypetala*, Saunders' dark Wallflower, a very striking variety for borders; *Lithospermum prostratum*, and a famous collection of *Chrysanthemums*. In a nursery of 100 acres one cannot more than refer to the most conspicuous features, and I have therefore omitted allusion to the beautiful "rock garden" to the last. It is a standing monument to the skill and ability of the late Mr. Pince, and there are far too few of such gardens throughout the country, I suppose for the simple reason that people do not know how to set about making them. Be that as it may, the rock garden in the Exeter Nursery is a model work of its kind, that will stand the scrutiny and criticism of generations to come, so elegantly is the work designed and executed. There is something substantial about its appearance, because the designer has not attempted to put Nature in the shade, but to imitate her. The walks through the garden are in strict harmony and proportion to its formation and extent, and the planting arrangements have also been conceived with consummate taste and judgment. Specimen Ferns and Ivies overhang or creep over the rocks, some of which are of immense size, and are so disposed that there is space to grow plants which furnish an appearance at once massive and striking. There are good specimens of *Cupressus Lambertiana*, *Picea excelsa* in-verta, sometimes called *monstrosa*, planted at certain points, and these are supplemented with *Viburnum plicatum*, Bamboos of sorts, and *Torreya mystica*. *Skimmia japonica* also succeeds well, perhaps under it there is a glowing patch of *Saxifraga granulata* or other alpine or rock plants, equally pretty and interesting. The evergreen Beech furnishes a canopy of foliage in summer, and Mahonias and Berberis are in present gay in yellow and orange. In short, the planting is so arranged that go when you will the "rock garden" will always be found furnished with plants and flowers in season, and will probably be remembered when the big specimen plants, Ferns, and Orchids are well-nigh forgotten.

COLONIAL NOTES.

HONG KONG.—From Mr. Ford's report on the Hong Kong Botanic Garden, we learn that the following trees were planted during the year:—

<i>Pinus sinensis</i> , two-year-old plants	144	943
" " size from a foot to 10 feet high		382
" " sown <i>in situ</i>		60,555
<i>Aletris triloba</i> (Candleberry tree)		45
" " sown <i>in situ</i>		1,990
<i>Eucalyptus</i> spp. (Gum trees)		1,537
<i>Cupressus torulosa</i> (Distrib. Cypress)		74
Bamboos		48
<i>Quercus vilcinia</i>		59
" " Hartland		61
<i>Pinus retusa</i> (Banian)		10
" " large trees transplanted		10
<i>Pinus canariensis</i> (Canary Island Pine)		23
<i>Cupressus funebris</i> (Funereal Cypress)		26
<i>Synephea laurifolia</i> (Turpentine tree)		14
<i>Grevillea robusta</i> (Silky Oak)		22
<i>Dammara robusta</i>		21
<i>Stillingia sebifera</i> (Tallow tree)		25
<i>Albizia Lebbek</i>		31
Miscellaneous		23
	211,013	

About seven years ago an experiment was made of sowing seeds of *Pinus sinensis in situ*—that is, small plants, each about a foot square, were dug and levelled on the hill-side where it was intended trees should grow, and on these sites a few seeds were sown. The trees on the plots of ground thus treated succeeded so well, and finding also that the trees reared by the villagers on Chinese territory and on this island had been thus reared, I was induced to prepare and sow 60,000 sites in the same manner. The seedlings on these sites having given sufficient promise of succeeding, a much larger area—viz., nearly 600 acres, containing about 650,000 sites—was selected for this mode of afforestation during 1881. Although the trees reared *in situ* do not grow so vigorously for the first few years as those reared in, and transplanted from, nurseries, still the method has much to recommend it. Taking it for granted that the same amount voted for afforestation during this year will be granted annually until the wooding of the island is completed, we shall be able to accomplish this desirable object in a quarter of the time, by sowing *in situ*, of that necessary under the nursery system. When the trees are large enough to fell for firewood, &c., a financial return for the outlay expended upon them can, it is hoped, be obtained by judicious periodical thinning and felling of portions of the plantations.

LIST OF GARDEN ORCHIDS.

- DEMERORIUM.—(Concluded from p. 775)
- 242. D. *PTILORUM*, Lindl., *Gen. and Sp. Orch.*, p. 77. *Demetrium trilobum*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 331.—Java. Cultivated in the Botanic Garden, Buitenzorg.
 - 243. D. *UNDULATUM*, R. Br., *Prodr. Fl. Nov. Holl.*, p. 332; Benth, *Fl. Austral.*, vi., p. 278. *D. distictum*, Lindl., *Bot. Beech* 1841, t. 52; *Gard. Chron.*, 1841, pt. 279, 687.—Australia, various localities in Queensland. Messrs. Loddiges obtained it in 1838, as was supposed, from Java; but we have no other evidence that it occurs elsewhere than in Queensland. Flowers a mixture of yellow and brown, borne in loose racemes, terminating the leafy stems; remarkable for their curled wavy sepals and petals. Hort. Kew.
 - 244. D. *UNGUICULATUM*, Teijsm. et Binnend., *Nederl. Tijdschr. Ned. Ind.*, p. 259; Miq., *Fl. Nederl. Ind.*, iii., p. 634.—Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.
 - 245. D. *UNIFLORUM*, Teijsm. et Binnend., *Nat. Tijdschr. Ned. Ind.*, xiv., reprint, p. 9.—Sumatra. Buitenzorg Botanic Garden, 1866. Inconspicuous.
 - D. *VEITCHIANUM* = D. *macrophyllum*.
 - 246. D. *VENUSTUM*, Teijsm. et Binnend., *Nat. Tijdschr. Ned. Ind.*, xiv., reprint, p. 4.—Siam. Buitenzorg Botanic Garden, 1865. Flowers greenish-yellow.
 - 247. D. *VIRGATUM*, Linden, Planch., *Hort. Donat.*—Cultivated in the garden of Prince Demidoff at San Donato.
 - D. *VILLOSUM*, Wallich = D. *Jerdonianum*.
 - 248. D. (*PELOIDUM*) *VIRIDIOSUM*, Rehb. l., *Bon. Tijdschr. Ned. Ind.*, xxiv., p. 225; *Idem*, vi., p. 225.—Java or Amboyna? Imported and cultivated by Consul Schiller, Hamburg, about 1835. Allied to *D. secundum*. Flowers rose, tipped with green.
 - D. *VALLICHI*, Hort. = D. *nobile*, ex Planch., *Hort. Donat.*
 - D. *WARDIANUM* = D. *Falconeri* var.
 - 249. D. *WILLIAMSIANUM*, Rehb. l., *Gard. Chron.*, n.s., ix., p. 652.—New Guinea. Introduced by Mr. Goldie for Mr. B. S. Williams. Described as a very fine species, but the colours were not fully known.
 - 250. D. (*NIERO-HIRSUTA*) *WILLIAMSONI*, Day and Rehb. l., *Gard. Chron.*, 1860, p. 78.—Assam, India. Sent by Mr. W. J. Williamson to his uncle, Mr. Day. Flowers similar to those of *D. Draconis*, with some light brown, and a large 3-lobed blood-red spot on the lip.
 - 251. D. *XANTHOPHILUM*, Lindl., *Gard. Chron.*, 1857, p. 268.—India. Imported by Messrs. Veitch. Near *D. longicornis*, having rather small whitish flowers with orange-coloured veins on the lip.
 - 252. D. *ZOLLINGERIANUM*, Teijsm. et Binnend., *Nat. Tijdschr. Ned. Ind.*, xxiv., reprint, p. 9.—Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.

W. R. H.

(To be continued.)

HARDY PLANTS AT EDGE.

Geranium arvense comes up year after year without any visible increase. It grows 2 feet high, with large soft Geranium-like leaves, and large rich dark crimson flowers, resembling those of the old crimson *Petunia*, but smaller. It is decidedly handsome, and requires no cultivation.

G. eriostemon, given to me last autumn by Mr. Bowman from his beautiful garden in Surrey. The flowers resemble those of *G. pratense*, but are larger, earlier, and of a richer blue; the habit of the plant is much dwarfer, and the flowers in far greater number in proportion to the leaves. It seems a great acquisition. I plant all the *Geraniums* in full sun, as their tendency in this wet soil is to become too leafy.

Campanula barbata.—Two packets of seed, one of the blue and the other of the white variety, from Mr. W. Thompson, of Ipswich, in the spring of last year, gave me several hundred plants of each variety, and the colour seems to come true. They are now coming into flower. I recommend the plant to every one with a garden, large or small: no position or treatment seems to offend it, and it may be lifted with a trowel and inserted in any gap up to flowering time. The plants are from a foot to 18 inches high, with leafless stalks bending over at the top and bearing on the curve several elegant drooping bells, 1½ inch long, very open at the mouth, which is conspicuously bearded. Some of the larger plants have five or six flower-stalks. The white of the flowers is very pure and the blue clear and good.

C. nobilis.—This rambling subject, which is apt to throw up flower-stalks anywhere but where it is planted, answers very well, as do other plants of similar habit, when confined in an earthenware hoop 9 inches in diameter, inserted with the upper rim level with the surface of the ground; a plant of the white variety imprisoned in this way last autumn

has now ten spikes 1 foot high covered with long showy bells.

C. glomerata.—Under this name I include several which may be botanically distinct, but from a gardener's point of view are all one. I mention the plant to tell gardeners that it may be cultivated to 3 or even 4 feet high, with large round showy clusters of flowers of rich purple, or light lavender, or white, though the latter variety does not grow so large. Frequent division and rich soil are required.

Ononis rotundifolia.—This very pretty plant, with its abundant Vetch-like flowers, of a clear rose colour, requires a well drained border. It is one of those plants which become shrubby and very brittle where the stems join the single root-stock, and so requires shelter, or tying at the base. Such plants are seldom long-lived, and it is best to keep up a succession from seed, which never ripens here. I find young shoots, though covered with buds, will strike with patience.

Veronica leucurum.—What I have as the type of this very variable species is the best of the genus now in flower; the blue of the flowers, which are produced in long axillary spikes, is very bright and clear. It grows from 1 foot to 2 feet high, according to situation; shade spoils the colour, and chalk or lime improves it; it becomes too leafy in a heavy wet soil. All these *Veronics* should be divided every other year, but not all the plants in the same year, as they are finest the second year after division.

Genm intermedium is thought to be a hybrid between *G. urbanum* and *G. rivale*, being found wild where both these native plants occur; as a garden plant it is far superior to either of its parents, having a longer flowering period, and flowers more open than those of *G. rivale*, and of a bright yellow. It is at home in a damp half-shady corner, where it requires no care when once planted. The side of a stream or tank would suit it well.

Minulus cupressus.—This brilliant little gem is seldom seen, being quite distinct from what is often sold for it. It does not grow more than 3 or 4 inches high, and its large flowers are of the brightest copper colour, approaching to scarlet. It is probably easily lost by either drought or severe frost; at least, a friend in Devonshire who gave it me lost it in the winter of 1880, and got it from me again. It is one of the plants of which I always keep a pair in winter in a frame, and a square inch of it planted in April at the base of a well watered rockery becomes a square foot by the end of June, and attracts great admiration.

Antirrhinum lilastrium succeeds best at the base of a rockery with a western aspect, where it gets shelter, partial shade and moisture. This is a plant of which it would be difficult to have too much; it increases slowly, and I never lose an opportunity of buying a cheap lot of it.

Aquilegia Bartolini, sent to me by Mr. W. Thompson, of Ipswich, in autumn, is one of the very few really distinct-looking *Aquilegias* amongst many new names. It has a very elegant spreading habit, grows about 15 inches high, and has flowers with widely extended pointed sepals of clear bluish-purple and twice as long as the cream-coloured corolla; the spurs are bent and cross one another.

It is just a month since my last notice of rockery plants was sent to the *Gardeners' Chronicle*; only a few of the plants now in flower can be described, and those are selected which are either especially good or are little known. Some of them would grow nearly as well on level borders in open well-drained soils, but here I am obliged to treat nearly all choice plants as alpine.

Onoma tauricum is flowering freely on a dry upper ledge in sandy soil; this plant is hard to keep through the winter, owing to its dislike of damp, but if it retains any life at all till spring it quickly recovers. Two out of three plants here died, and cuttings made, though not hard to strike, are as hard as the old plants to keep through winter, even under cover.

Catharrha villosa bears considerable resemblance to *Meconopsis nepalensis*, but has its flower-stalks more branched, and the flower, with four petals, is intermediate in size and form between *M. nepalensis* and *M. cambrica*. My plant came in the spring of last year from Ware, of Tottenham.

Cerinth alpine, said to be the only perennial of the genus in cultivation, has a pendulous habit, with green and purple flowers. I obtained it last year from Frebel, of Zurich.

Cyananthus lobatus is a well-known gem for a moist sheltered corner or hollow on the rockery. It is difficult either to divide or to transplant; but when established seems perfectly hardy and easy to keep. It is increased by taking off the first shoots in spring when 2 inches long. The flowers resemble those of the blue Periwinkle.

Lycnis Lagasce does best when treated as a biennial. Even it quite hardy against cold, it certainly cannot bear violent alternations of snow, rain, and frost, as it is not a true herbaceous plant, but a soft-stalked shrub. It is better to pot off the seedlings in autumn, and keep them where they can be sheltered from rain and snow, and plant them out late in April. This is a little trouble, but the brilliant little heaps of dark pink which last all through May and June quite repay me. It ripens seed in abundance.

Linaria origanifolia, a half-shrubby species, perfectly hardy and easy to keep, and producing seedlings all round it, has flowers larger than those of the common Ivy-leaved Toad-flax, and of nearly the same shape and colour. In June the plant is very pretty, but later it becomes straggling, and looks better when cut back. It is the most free-flowering of all the Linarias.

L. hepaticifolia, also called *pilosa*, is very close-growing, like a very dwarf and compact form of *L. cymbalaria*. It is well suited for covering the angles of steps or other spots amongst stones, where it will not get overgrown.

L. pallida, sold by Messrs. Backhouse as *L. cymbalaria maxima*, is well worth the room it takes, but it should not be planted amongst choice dwarf alpine, as it runs underground insidiously, and appears in the middle of them, but is easily pulled up. It is better to assign a well-defined space, say a square yard, to it, and to keep it to its place.

L. alpina.—It is usual to recommend that this beautiful and elegant alpine should be allowed to come up from seed where it likes; but in this climate, unless the plant rests on rock, it damps-off in winter. I find it far better to collect the seed, which is ripened in profusion, and sow it in pans, and plant it out in bunches in autumn in suitable spots, reserving a panful in a cold frame for filling up vacant spots in spring. If so treated there is not a more useful rockery plant, as it never spreads far.

Helianthemum.—Besides the endless though beautiful varieties of *H. vulgare*, which are provoking by overgrowing their neighbours, I have two other natives of far more manageable dimensions, both exceedingly free-flowering. They are *H. polifolium*, pure white, from Devonshire, and *H. canum*, bright yellow, from Llandudno, both admirable plants in dry sunny positions when resting on rocks—a most important point with a large proportion of alpine in a damp climate like this.

Dianthus alpinus is decidedly best when grown from seed, and the same may be said of all the Dianthi, and of nearly all alpine; but there are two difficulties, first, to get the seed, which is seldom offered for sale in England; and secondly, to make it grow. However, I raised a fair stock of *D. alpinus* in the spring of last year from W. Thompson's seed, and some of the plants are now bearing a dozen flowers. Nearly all the alpine Pinks require deep sandy soil in exposed sunny level spots amongst the rocks. *D. exissus*, *D. neglectus*, *D. cruentus*, *D. petraeus*, and many others are now in flower, and my advice to those who have rockeries is to grow as many varieties as they can get, as there are few prettier rock plants.

Aphyllanthes monspessulana.—Patience is always a virtue, but especially with this plant, which I planted in the spring of 1880. It has ever since been in constant danger of being pulled up as a seedling of the common Rash, of which there are too many in this garden; but this spring it grew, and is now flowering well.

Delphinium nudicaule flowers freely on the rockery, and is of a brilliant scarlet, but it evidently likes moisture, for it is flowering equally well in a bog bed where I planted it last autumn. I raise it from seed which I save at home. It sown early the plants flower late the first year, and early, but continuously, the second and third. However, its duration of life is not long, the tuberos root seeming to find difficulty in breaking into growth after two years old, though it continues to live for some time without energy.

Orobus formosus rotensis is a plant of which I do not know the history; but I bought a packet of seed

from Mr. Thompson two years ago, and raised only one plant, which is now in flower. It is about 6 inches high, very bushy, with stiff leaves, reminding me of a *Thalictrum*, and flowers of the size of *Orobus vernus*, of a uniform rosy-crimson: it well deserves its second name.

Astragalus.—A collection of this genus is a very large order in more ways than one, and those who intend to grow them must be careful to know the dimensions of each, and to put it in its right place. Having grown them indiscriminately from seed, I found that *A. alpeuroides* grew upwards like *Jack's* beanstalk in the fairy tale, and was useless for ornament. *A. galeiformis*, though 4 feet high, is a very elegant and well formed plant, well worth a place where there is room for it, but not on a rockery; *A. hypoglottis* and *A. h. alba*, on the other hand, rise hardly an inch from the ground, and are really good rockery plants; but the best are *A. vaginatus* and *A. monopessulans*, especially the former, which produces in abundance large flower-heads of deep rich purple, but being of procumbent habit they must be planted so that the flowers do not drabble on the ground, and the edge of a ledge where they can hang over the rock is the place for them. Others highly recommended are *A. pannosus* and *A. assurgens*, both of which I raised last year from seed, and they are now in flower, but I do not think they are likely to supersede those mentioned just before them.

Viola montana, with large flowers of pale blue,

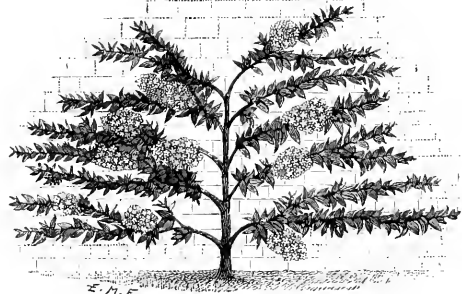


FIG. 121.—DIAGRAM OF ORDINARY TRAINED CHERRY TREE ON WALL.

forming a neat bush from 9 inches to a foot high, and flowering through June, is good and distinct.

Stachys corsica, growing quite close over the rock, with abundance of pure white *Salvia*-like flowers, with a most curious irregular outline, is well worth growing, and is one of many things of which I keep some in reserve pans, as it has the character of not being very hardy. These reserve pans of alpine are of the greatest use in keeping up one's stock of rockery plants. In September or October a few seed-pans, a foot square and 4 inches deep, are filled with doubtful subjects of this sort—often two or three kinds in a pan—and are kept exposed all winter, except in rain or snow or very severe frost, when a light is drawn over them. Any old boards fastened to posts make the frame, and the pots stand on sand or coalsashes. Beware of the turf frames sometimes recommended, which harbour slugs and vermin without end.

For the purest white, *Silene alpestris* is now unsurpassed, and for abundance of flowers, lasting from spring to autumn, those who admire a bush of Daisies should grow *Erigon mucronatum*, formerly called *Vittadenia triloba*. It will bear cutting and clipping into any shape, and still flower as freely as ever, and is a great favourite here. Any piece will root, and it grows readily from seed.

Lastly, for an annual to flower in bare sunny spots through June and July, *Leptosiphon hybridus*, which has now been waiting a week to see the sun in order to open its flowers, is never out of place in the choicest parts of a rockery, at least in those parts of the kingdom which are blest with sun. *C. Walley* Do!, *Edge Hall, Malpas, June 9.*

TO PRUNE, OR NOT TO PRUNE?

THERE can be no doubt the time, mode, and extent of pruning have often been made too much matters of mere routine. We have pruned because we were taught to do so, or because our fathers did so, or better reason still, inasmuch as our past prunings have proved tolerably successful. Now it is shown that neither of these can be held to be very valid reasons why we should continue to prune, for the necessity and extent of pruning must ever be largely dependent on such physical and other conditions as site, soil, climate, constitution, age of plants, desired form, area to be occupied, &c. Now as few of these conditions seldom or ever repeat themselves, it follows that our methods of pruning must be widely varied as the conditions, if they are to prove efficient. A grave and more vital question often needs to be asked and answered, viz., whether any pruning at all is needed? We have, most of us, been too much in the habit of taking the latter for granted, forgetting, apparently, in our haste to better Nature's instructions and practice, that she knows nothing of the knife, and yet trees left wholly to the moulding and management of Nature are by no means lacking in beauty of form or profuse fertility.

True it may be retorted that Nature has at least a twofold set of severe and at times savage pruners. Ruminant animals browse on the tops, and the crowded struggle for room and life in the soil, crowd out, eventually cut off, many roots from their supplies

of food. Still fruit or other trees are often planted in favourable conditions as to soil, site, and area, and these, left to Nature afterwards, not seldom rival in form and fertility those pruned on the most scientific principles.

It has been said, indeed, that the first lessons in pruning were given by a donkey, and it must, we fear, be admitted that in no department of horticulture can so many true successes of this long-lived and long-earned quadruped be found as in its many pruners past and present.

However, a great change for the better has come over this department of horticulture within the last few years; growers of fruit generally prune less than they did, and gather more fruit in consequence. The old barbarous practice of hacking off the heads of trees has given place to improved methods of moulding growth, not only into form, but also into fertility. Hence walls are now covered with flourishing fruit trees in less time than it took to start a few horizontal or leading branches in the olden time. One of the maxims of pruning and training—and it is one that holds good for all time—was, Form the base lines of your trees well, and the upper portions will furnish themselves. True, most true, if no pruner with his sharp knife prevents them, as has so often happened, to the weakening of the tree, the forcible restriction of its size, and the serious loss of time and produce. Close planting is doubtless chargeable with a great deal of the slashings and cuttings of fruit trees in gardens. The object in many cases seems to be how to get as many trees as possible on to a given space rather than the reaping of the heaviest crops from a given area. The general

testimony of experience, however, seems to show that more fruit may be gathered from a few large trees left very much to Nature than from many small ones over-pruned.

As an illustration in point, I enclose diagrammatic sketches of two Cherry trees on walls, one pruned and trained in the usual way (fig. 121), the other simply backed up against a wall, and not pruned (fig. 122). Both are the same age, planted in the same soil, at the same time; they are also growing against or on the same wall—so that as near as can be the physical conditions are identical. What difference there is against the larger tree, for it is near to a door that is often open, and which creates a sharp draught. As to the relative yield of the two trees, it is no exaggeration to say that the full grown Cherry gives pecks of fruit to the other's pints; the quality and size are well-nigh equal, and this extraordinary fertility continues year after year. There may be objections to treating all trees in a similar manner in our climate. Further removed

state of freedom after a course of severe pruning and training on and off walls, are sufficient to show that Mr. Hudson's practice is likely to prove successful. That, however, by no means shows that pruning is likely to become an obsolete practice. In case of wall trees it may be needful to prune for form, to limit their area, and to keep them close to the wall, thus to obtain a better climate and more warmth. Peaches and Nectarines will generally need pruning in the open air for the above reasons.

As I cultivate cordons, and not a few pyramidal Pear and Apple trees, some may retort that I hardly practise what I preach. But the inconsistency, if any, is more apparent than real. Few cultivators can prune less; the secret of quickly fruitful cordons, even, I consider to be the masterly inactivity of giving them their heads, and leaving them entirely alone. They are never cut back, but laid in full length as maidens, and the results have been most satisfactory. The pyramids have any excessive growth checked by

Orchid Notes and Cleanings.

WORK IN THE HOUSES.—By this time the greater part of the *Odontoglossums* will have passed through the flowering stage, and those that have not been weakened in the process ought now to be starting away again freely. Any plants that are slow to move, and show a disposition to take a short rest, should be watered a little less freely than those that show by their free growth that their roots are active and healthy. The "breaking" season of the plants is always an interesting one, as the practised eye quickly discerns whether the plants will improve on their present condition, or go in a retrograde direction. Any plants in small pots that show a disposition to make growths out of proportion to the size of pot they occupy may be safely transferred to pots one size larger, but in carrying out the operation of potting at this season the plants ought not to have their roots disturbed, but should be transferred with their ball of roots entire. If the plants are in the condition they ought to be—with a mass of healthy roots coiling round the old ball of soil—they will take hold of the new compost at once, and the new growth will soon show the benefit of receiving nutriment from the fresh compost. Most plants, whether deciduous or evergreen, prefer a moister atmosphere when commencing new growth than at other seasons, and the *Odontoglossums* are no exception to the rule, as a dry atmosphere continued for any length of time or even intermittently will tell seriously against the full development of the now advancing growths. Any plants that have been removed from the cool house while in flower should at once be returned when their beauty is over. One of the best summer-flowering cool Orchids is *Epidendrum vitellium*, and where a good stock of plants exists a long succession of blossom may be had, as it will bear being gently forced without injury. It is one of the brightest and most lasting Orchids we have. The *Phalenopsis* will now be on the move, and a night temperature of 70° must be maintained, and the day temperature should range from 75° to 90°, according to the state of the weather. When once growth has commenced they should never be allowed to suffer for want of moisture at the root, as drought would tell seriously against the full development of the foliage. It sometimes happens that with the first flush of growth flower-spikes will also appear, but if the plants are expected to make the most of the growing season these should be removed as soon as they are seen, as it is too much to expect to have good growths and a crop of flowers on these plants simultaneously; and if the strength of the plants is reserved they will give much greater satisfaction when their natural season for flowering arrives. With the temperatures given above a very humid atmosphere should be kept up, and the evaporating pans on the pipes may be filled with liquid manure, or a handful of soot may be put into the pans occasionally, which will assist in keeping the atmosphere in a condition agreeable to these plants, and, indeed, the whole of the plants, of whatever genus, in the East Indian-house. The *Stanhopes* should now be occasionally sponged over to keep them free from red-spider. The material round their roots should be kept moderately moist while they are developing their spikes, and any that require it may be rebasketed soon after flowering is over. *Sobralia macrantha*, when well grown, and the plant kept dwarf, is one of the finest summer Orchids. As soon as the plants go out of flower, or before, if the new growths are starting, they should be repotted in rough fibrous peat. It likes a liberal root-run, and will stand feeding with liquid manure. This is sometimes given the heat of the East India-house, but the temperature of the Cattleya-house is most suitable, as the growths get better ripened, and the plant flowers more freely. *J. Roberts, Gammersbury.*



FIG. 122.—DIAGRAM OF FREE-GROWN CHERRY TREE AGAINST A WALL.

from the wall, their local atmosphere would be colder. And yet, singularly enough, the Fig, which perhaps needs more heat to ripen it than any other fruit we grow in the open air, thrives and fruits well backed up against a south wall, and allowed to grow without pruning. One of the finest Apricot trees ever grown by the writer was allowed to run semi-wild in the same manner. It was planted on the lofty gable end of a stable and hay-loft; the roof projected over the end wall 18 inches. The Apricot was allowed to grow as a half-standard, and the yield was prodigious—in fact, more from the single tree than from a whole Apricot wall besides in a garden where Apricots did well.

Last year, too, the writer visited the Peach-house of an amateur where little or no pruning had been indulged in. The young shoots were literally bent down with their burdens of foe Peaches, as closely packed together as ropes of Onions, and the crop finished well, and the same trees promise to repeat themselves this season.

These examples, as well as others which might be cited of Apples and Pears being allowed to run into a

root pruning and summer pinching once in July—so that little or no winter pruning is necessary. With larger trees in fruit quarters they are allowed their heads, as Mr. Hudson has done with his two Pears. We have found, however, the *Bon Chrétien* needs more than its head to make it fertile, that is, root-lifting or pruning.

I also heartily endorse the editorial view, that as our prunings become more scientific they will become more special, till almost each variety of fruit tree will be subject to much, little, or no pruning, as its habit and constitution may require. What would be thought of the surgeon who treated all his patients in the same manner, and subjected all to the same operations? Almost equally pedantic, cruel, and mischievous is the horticulturist who prunes all trees alike, no matter what physical differences may surround them, and what constitutional peculiarities may exist among them. *D. T. Fish.*

CARTER'S FAIRY QUEEN VIRGINIAN STOCK proves to be a very desirable acquisition at Chiswick, where it is now in full bloom. The flowers are light rose, or rose-pink, and are produced with remarkable freedom. It is quite a gem.

CATLEYA GIGAS.—Sir Trevor Lawrence's grand specimen of this fine Orchid is now flowering at Burford Lodge, and bearing the splendid total of five dozen and two blossoms. Sir Trevor has also a magnificent variety in bloom which is distinguished by the name of *Burfordensis*, and which is much larger in all its parts than the type, with an even more highly coloured lip. It was shown at Kensington on Tuesday. A fine plant of a beautiful dark

variety is also blooming with Mr. B. S. Williams. This form has rosy-lilac sepals and petals, with two yellow eyes. The plant has two spikes. *C. gigas* is generally supposed to be a shy flowering species, but both Mr. Spyers and Mr. Williams appear to have discovered the way to make it bloom.

ORCHIDS AT MESSRS. VEITCH'S, CHELSEA.—There is now a fine display of flowering Orchids in all the sections in the Royal Exotic Nursery. Amongst the *Vandas* there are fine forms both of *V. tricolor* and *V. suavis*. The *Vandas* are well furnished to the bottom with healthy green leaves, the result of admitting more air and light to them than has been usual previously either here or elsewhere. The spikes are very stout, and average quite a dozen blooms to each. There are some good spikes and good varieties in flower of the handsome long-spiked *Aerides Fieldingii*, one of the best of the species. The *Cattleya*-houses contain some handsome specimens, which are producing a richer profusion of flowers than we have ever previously seen here. The recent importations of *Laelia purpurata* are producing some very fine varieties, and there are few grander Orchids than a large well-flowered specimen of this good old species. Scattered about in the various houses are numerous flowering examples of *Cattleya Mendelii*; this fine species will (if it has not already) become a universal favourite; it is a more choice and beautiful species than *Mossii*, and does not seem to be more difficult to grow. Varieties of *C. Mossii* are very numerous and very good. It is so well known and so easily cultivated, that nothing more need be said about it. Amongst *Cypripediums*, the hybrids raised in this nursery now in flower are very handsome. One of the very best is *C. selligerum* and a major form of it, raised by crossing *C. larbatum* with *C. levigatum*; the flowers are quite distinct and much larger than either parent. *C. superciliosa*, of which there is a handsome specimen with numerous flowers, would make a fine plant for exhibition; it looked at first sight like a fine dark form of *C. Veitchii*, but has been raised by crossing that variety with *C. larbatum*. As seen here in flower it is a first-rate *Ladies'*-slipper. *C. Domini* is also very fine.

MASDEVALLIA.—Mr. Chas. Walker, of Brettenham, Kent, has now in flower the true type of *Masdevallia Harryana* which I named "Bull's-blood." This is a most remarkable variety in point of size, form, colour, and substance. Once seen it and no Orchid grower will ever forget it. Its limbs join each other like a florist flower, its substance looks like leather that we could cut, and its colour is of that deep sanguineous cast that captivates and charms. There are none of its fellows in the numerous lot, well managed here by Mr. A. McGregor, that can at all be compared to it. *James Anderson*.

USEFUL DENDROBIUMS.—This genus of Orchids contains several species that ought to be grown in every garden, because they are amongst the most beautiful flowers in existence, and are so easily grown. I am not sure whether *Dendrobium nobile* ought not to be placed first on the list. The large specimen exhibited by me in London twice this year was placed in my hands seventeen years ago, and was easily potted in a small 48. From that plant we have now about a dozen specimens in various sizes—some in 12 and 13-inch pots. I do not know any other Orchid that could be propagated to that extent and be so easily grown. Then there is no difficulty in having them in flower for six months in the year. The plants are now making their growth, and should be encouraged to do so in a stove temperature of from 65° to 70°. The plants should not want for water at the roots, and may be syringed overhead with tepid water once a day in hot weather. *D. Wardianum*.—Many persons would class this higher than second, but I put it there because it is not so generally useful as *D. nobile*, nor has it proved itself to be so easily increased; but it may also be had in flower during six months in the year, and its flowers are certainly more strikingly beautiful than those of *nobile*. Every grower ought to possess a dozen plants of it, and if he does not yet possess it now is the time to purchase, as there are plenty of plants in the country recently imported, and it never can be cheaper. The plants should be placed in teak baskets or small pans, and be suspended near the glass in a warm house; they will start into growth at once, and as soon as new

roots start from the base of the young growths they require a good supply of water. *D. crassinode* must certainly be placed second to *D. Wardianum*, but it is a very fine species, and differs from the other in having peculiar nodes at each joint in the stem. The flowers rather resemble those of *D. Wardianum*, but they are not quite so large. It requires very similar treatment. The principal point in the culture of the above is to get a good growth during the season, and then give them a good rest, by keeping them dry at the roots and in a cool house. *D. formosum*.—This is a very fine and distinct species, with large pure white flowers with a yellow blotch on the lip. Many good growers have failed to keep this species in health for a long period, but I find it does well suspended from the roof of our plant stove in baskets; the roots are not much disturbed as long as the baskets remain sound. There are a few other varieties and species of Orchids well worthy of culture, but the price is too high at present. *W. Douglas*.

MAKING-UP ORCHIDS.—This question seems to be frequently cropping up, and I was interested in reading Mr. Anderson's remarks at p. 770. I do not think that, if "making-up" was stopped, that Orchid exhibitions would be less interesting. It is true, as Mr. Anderson says, that, owing to the undefined limit in making up, many good and interesting species of Orchids are not now found in competition. I have talked this matter over with exhibitors and judges, but find very few of them take the same view of the matter that I do, and yet it seems a commonsense one. Take, say, a class of Orchids. The schedules say—"Twelve Orchids, distinct." Now I hold if an exhibitor shows more than "twelve Orchids, distinct," he infringes the rule of the schedule, and ought to be disqualified. I find in some collections in the South, when twelve Orchids, distinct, are asked for, that eighteen or twenty varieties are staged. Why is this allowed in Orchids and in no other class of plants? There must be some definition made in the schedules else the number of exhibitors will decrease instead of increase. There are some Orchids that do best in small pots, and cannot be grown into large specimens without parting them asunder, but such are not numerous; perhaps *Cypripediums* and *Masdevallias* would be the only two genera. *Cattleyas*, which are usually made up in the South to the extent of six or more distinct varieties in one pot, ought not to be allowed to be made up. It is injurious to the plants to tear them out of the pots, as the roots of *Cattleyas* cling to the sides as firmly as the limpet clings to the rock. Years ago specimen plants of *Cattleyas* were to be seen at exhibitions, of large size; now all that is needed is a host of young plants, and the man with the big battalions has the best chance. Let a clause be inserted in the schedule to this effect, and I think it would answer every purpose—"All Orchids to be exhibited in the pots or baskets in which they were grown, except *Cypripediums* and *Masdevallias*." *J. Douglas*.

SEEDLING DENDROBIUMS.—In answer to "D. B. C." I may say that it is not an uncommon thing for *Dendrobium* seed to produce plants with two leaves in three months after sowing. I sowed some crossed *Dendrobium* seed on Dec. 29, 1879, and it produced plants with two leaves by March 18 following. The *Laelia* anceps seed-pod, that is changing colour when it opens, will be found to contain mostly chaff—that is my experience of it. The greater portion of Orchid seeds take from ten to sixteen months to ripen, but, of course, there are many exceptions. *Disa grandiflora* ripens its seeds in eight or ten weeks, and produces plants in four weeks; and *Coleogyne cristata* takes two years to ripen, and produces plants in eight weeks. *T. Hyles, Lambert's*.

CATTELEYA SANDESIANA.—We have before us a cut spike of four flowers of this superb *Cattleya*. The flowers measure upwards of 8 inches across; the sepals, rosy-lilac, rather narrow, especially at the base; the two side petals the same colour, broader, oblong, wavy at the edge; the lip folded at the base into a tube; the disc expanding into a nearly semi-circular lobe 3 inches across, deep rosy-lilac, with numerous small pale spots, the edges curled; the throat and interior of the tube golden-yellow, with numerous radiating stripes of an orange brown colour. It comes from the collection of Mr. W. E. Brymer, M.P., and was also exhibited at Stevens' Rooms on Thursday, when many plants of it were sold.

The Flower Garden.

HERBACEOUS PLANTS.—When the bedding-out and the planting of all the auxiliaries of various sorts necessary to the complete furnishing of the beds and borders in the flower-garden is finished, attention must be given to the herbaceous borders, the plants in which have grown very much during the recent rains, and require regulation. Most of the sorts must be timely supported with stout stakes, which if possible should be applied before the plants actually require their help, because then the growth is more natural, and helps to hide the supports, which ought not to be conspicuous at any time. These borders should now afford a considerable display of mixed colour, contriuted by the tall and dwarf Oriental Poppies, the Rose Campion, the double scarlet *Potentilla*, the tall and dwarf *Crocket*, *Fœnias*, and many minor sorts advancing; and more than all, those very useful and showy plants the double and single *Pyrethrum*. These should be extensively planted, and will be found most desirable plants for cut flowers, being very durable. Stakes should also be placed to the strong-growing *Michaelmas Daisies* and *Larkspurs*, strong enough to support them as they advance in growth. The *Funkias Sieboldii* and *purpurea* are very useful, as is also the *Veratrum nigrum*. Whatever vacancies are openend out during these regulating processes may be filled up with any spare plants of annuals or biennials, such as *Antirrhinum*, *Canturley Bells*, *Sweet William*, &c., and as a finish, a narrow hoe should be passed through the whole of the surface to loosen the soil and leave all neat.

BEDDED-OUT PLANTS.—The attention required by bedding plants will not cease with planting out, because as they advance into growth they will soon require a periodical attention to pegging down, and otherwise regulating, so as to keep them all within their proper bounds; particularly where they form part of a geometrical pattern; and another thing, as soon as the hoe has been used, to loosen and level the soil, a mulching of some sort should be laid over the surface to prevent a too rapid evaporation of moisture during the great heat we may expect in the approaching dog-days; and, if the colour is not objected to, the most cleanly, as well as the best material, for keeping down seedling weeds is cocoa-fibre refuse; but where this is objected to I have found a fair substitute in leaf-soil passed through a fine sieve. Coarse dung is not neat, and however much decomposed is objectionable on account of the havoc caused by the birds in their search for grubs.

HARDY FERNERIES.—These are very apt to become over-crowded where they have been established for some time, and will require frequent regulation, so as to keep the sorts tolerably distinct, without which much of the interest is lost. Some sorts increase very much faster than others, witness the *Oncoclea sensibilis*, a very beautiful North American hardy Fern, but it is apt to become a nuisance owing to the tendency to spread itself by the roots in all directions, and choke up everything near it. This can only be remedied by entirely keeping down the creeping-rooted runners from the parent plant, which may with great advantage be transferred to sheltered corners in the woods. In like manner the *Polypodium phegopteris* (the Beech Fern), and *Dryopteris* (the Oak Fern), are apt to spread themselves very rapidly in good soil, and should be kept in proper bounds. This regulation often includes much disturbance of soil, and consequent untidiness, which may with great advantage to the established Ferns be corrected by a good mulching of cocoa-fibre; the Ferns like it, and it is soon hidden; and besides, it keeps down weeds.

RESERVE GARDEN.—This is a very necessary adjunct to the flower-garden in any case, but is quite indispensable where spring gardening is carried out to any extent; and although there is a great pressure of work just now, it must not be neglected on any account, as the spring display depends entirely on the attention now paid to the plants required for it. For example, all the old plants brought from the beds a few weeks ago must have been kept sufficiently

watered, and as soon as leisure will serve the whole stock must be examined and regulated. Cuttings of many sorts will be required, division of roots must also be resorted to, and of scarce sorts seeds may be sown, such as Pansies, &c., so that all may be in readiness for the autumn. An early opportunity must also be taken of dry weather to clean and store away, secure from mice, the bulbs which were laid in sand some time ago. *John Cox, Redleaf.*

Grapes and Vineries.

In the earliest vinery, from which all the Grapes have been cut, it will now be better to let the laterals ramble about within reasonable limits, only taking them out to prevent excessive crowding. If the wood is well ripened dispense with fire-heat, but if not continue to use a little in the daytime only, with abundance of air; give the foliage a good drenching overhead with the garden-engine occasionally in the evening; and water the borders with clear water when dry, which will keep the foliage healthy and clean. If red-spider has been troublesome use the engine every evening until it disappears. The outside border will be better mulched over with short manure about 4 inches thick, which will prevent the drought penetrating into the border; and then, as a rule, outside borders require very little water besides the natural rain; but in dry summers, like last, a good soaking to the outside borders is sometimes required. Succession-houses containing ripe fruit should be kept as advised in my last Calendar. Those that are colouring must now have the evaporating-pans kept dry, and the damping done in the early part of the day. Keep a little air on the back and front ventilators night and day, but do not use much fire-heat in the night, only sufficient to keep the air circulating and dry. Turn on extra heat in the early part of the day, giving more air as the temperature rises. Water the borders when dry with clear tepid water; but if the border was thoroughly done when they commenced colouring it is generally sufficient. Such kinds as Foster's Seedling and Madresfield Court, if thoroughly watered when they are about half-coloured, have a greater tendency to crack, and the watering must be done at that time with great care, and if the soil is fairly moist defer watering for a short time. Those that are swelling their fruit keep in a moist growing atmosphere, giving good supplies of tepid manure-water at the roots when required; close the house early in the afternoon, allowing the temperature to be 90°, after closing with bright sunshine and plenty of atmospheric moisture. Admit air early in the morning on the back ventilators, and increase it as the temperature rises. The latest house will now be partly thinned, and when this is completed give the inside border a good soaking of tepid manure-water; but if the roots are all outside they will be wet enough for the present. On bright days no fire-heat will be required, but on dull days it is better to turn a little on in the early part of the day. Muscats that are nearly ripe can be kept in a drier atmosphere, but must not be allowed to get at all dry at the roots. Clear tepid water will now be best. Leave a little air on the back ventilators night and day; those in succession-houses can be kept at a night temperature of 70°, with a rise of 10° by day. Give air early in the day, and close the house early in the afternoon, damping the paths and borders with tepid water at closing-time, and on bright days the thermometer may rise up to 90° to 95°, and then they do not require much fire-heat through the night. Give abundance of tepid manure-water at the roots. Late varieties of Grapes for keeping through the winter will be better kept at a night temperature of 65° to 70°, with a rise of 10° by day. On cold dull days they will be better with a little fire-heat on all day. Houses in which Lady Downe's or Golden Queen are growing will do better with a little air left on all night, and a drier atmosphere than for other Grapes, or else they are liable to scald as they finish stoning; afterwards treat them like other Grapes. Newly planted vineries must have plenty of heat and air, to make the growth early and short-jointed, giving them abundance of water at the roots. The earliest pot-Vines that are the required length, and stopped, will now take liberal supplies of tepid manure-water at the roots, and stop the laterals as they require it. On bright days give them a good syringing overhead at closing time in the afternoon, and admit air early in the morning. *Joshua Atkins, Lockings Gardens, Wantage.*

The Hardy Fruit Garden.

EXTENSION shoots of Peaches and Nectarines will now require to be nailed in; also commence laying in the more forward of the shoots in the interior of the trees, and at the same time see that no more growths are being retained than are really necessary. Much crowding and confusion frequently result from timorous treatment in disbudding, and it cannot well be too often repeated that, only by allowing every leaf room for free development, can we hope for perfectly ripened wood on the open wall even in the best of seasons. The breastwood of Pear trees on walls and espaliers will now require attention. Let the shoots be pinched in to three or four leaves on varieties of medium growth; but others may require to be cut back more or less closely, according to the vigour of the sort. Trees that are already well furnished with spurs may require the principal part of the growths broken out, rather than pinched back to form spurs that will be too much crowded, retaining only those that are requisite for forming fresh spurs, either for filling up weak places, or for taking the place of older spurs which it is considered desirable to remove at the next pruning. Preserve the balance of the trees by proceeding with the removal of growth from the higher portions, in advance of the same operation on the lower branches in cases where the growth is seen to be disproportionate. In some instances it may be found of advantage to allow a little more extension on weak branches, and on the e disadvantageously placed as regards position for commanding the flow of sap; and to adopt proportionately close pinching for the shoots of the upper and more vigorous branches. Keep a sharp look-out for the first evidence of the Pear leech, and destroy by dusting with hot lime before it succeeds in destroying the appearance and usefulness of the foliage by its rapid operations; repeat the application of quicklime if the first prove insufficient, or in the event of successive broods appearing. The crop of Pears are so generally a failure this year that those who have much thinning of fruits to do may consider themselves particularly fortunate, and any set about the work will the greater care and attention on such trees as require this operation; for a plentiful supply of good Pears does not seem to be a likely thing in most gardens this season. It will be desirable to take as full a crop as is likely to be brought to perfection by any trees that are fortunately fruitful, even should the bearing power of the tree be too severely taxed to respond to a call for fruitfulness on a following year when other trees may possibly well supply individual deficiency. Cherry walls will require frequent attention in keeping down the black aphid. Apply water often with such force as to allow no chance of the fly establishing itself; but when once it secures a footing it may be necessary to remove the points of all affected shoots, also any curled leaves that afford a secure lodgment where the force of the water can scarcely reach the insects. Finish the removal of any breast-wood that may have been neglected up to this time, and see to the preservation from birds of May Ducks and other early Cherries that are commencing to show colour, securing the nets tightly at the top and bottom of the wall, and supporting them away from the fruit, to prevent the birds from reaching it, by stocks of suitable length thrust against the wall, and holding the netting in position by being cleft at the top. Where small birds are found to be troublesome, it may be necessary to protect the fruit by using a double net, which will generally be found to effectually baffle even the smallest of the daring little depredators. Nets will now be required to preserve the Strawberry crops, which promise to be heavy, and it will be well to see in time that a sufficiency is in stock for the various crops for which they will shortly be needed. Grafts will require to be attended to in securing the advancing growths firmly to some sufficiently stable supports, to prevent danger of being broken out by winds; all tight ties that have not yet been unloosed ought to be seen to at once, and it will be advisable to again re-tie for a season, to prevent any chance of the opening of the newly-formed tissue. Continue to keep Raspberries within bounds by frequent use of the hoe, to remove unnecessary and widely rambling suckers, and see to the removal of suckers generally from wall and other trees, as frequently as they make their appearance. *Ralph Crossling, St. Fagan's.*

The Pine Stove.

WE prefer the system of cultivation in pots to that of planting out, as when plants are in pots they are better under control. It is true that plants growing in beds do not require the same care and attention that plants in pots do, the roots not being so liable to suffer from drought or neglect of watering; but against this advantage may be set the economy of space that results from the former system. Where the planting out system is adopted, the bottom-heat must be supplied by hot-water pipes, this being the only medium that can be depended upon. With plants in pots the task is different, as they can be worked or placed according to altered conditions. To prepare beds for planting out, the bottom-heat pipes should be covered over with thin slate about 1/4 to 1/2 inch thick, and the brickwork should be pigeon-holed, to allow the bottom-heat to circulate freely under the slates. Over the slates only about 1 inch of drainage is required, then the turf or loam put downwards, and over this about 15 inches of good turfy loam, with about one 18-inch potful of ground bones and bone-dust in equal parts, with a little charcoal. Although the planting-out system is not so general as in pots, yet there are many places where this is carried out. The advantage of the pot system is that so much soil is not required as when planted out in beds. It is thought that Pines planted out in beds having a larger body of soil to grow in bloom more vigorously and produce larger fruit, but this is not the case. Another point of considerable importance is, that plants in successive stages will fruit prematurely when planted out even under the best management. When this happens it is difficult to replace them, as it is not an easy matter to keep duplicate plants exactly the same size to fill up the gaps thus made. Even when the places are filled up of plants that bolt, those established plants that grow on in a proper and satisfactory way take the lead, which gives the houses or pits an irregular appearance. It is seldom also that plants when planted out start and ripen at the same time, and this is a disadvantage. When plants are grown in pots these defects can be remedied, as the empty spaces can be filled up at any time to suit circumstances, or the whole may be mowed if they are required. Directions given still hold good for temperatures, watering, and ventilation for the present. All young stuff should be well taken care of, so that the plants do not become drawn in early stages. Saturate the atmosphere with moisture in all the pits or houses, to promote and assist rapid growth. *D. Wilson, Castle Hill, Devon.*

The Orangery.

IT may not be amiss to repeat what I must have said before—that to grow Orange trees well enough to produce fruit of superior quality to place upon the dessert-table there are a few essentials that cannot be dispensed with. It seems necessary to urge the following points, because one seldom sees the trees doing so well as they ought to do. In the first place peaty soil, such as imported trees are potted in, will not do. Good turfy loam, enriched with some stable-manure and bone-dust, is the best material to support the roots. In putting the compost should be pounded in rather firmly; the pots to be well drained; and as the trees may be two or three years—or, in the case of large specimens, even longer—in the same pots, some fibrous loam, free from dust, should be laid over the drainage. Cleanliness is next in importance. The Orangery is often infested with scale, and mealy-bug will also get on to them. There is no better plan than to wash the trees with strong soft-soapy water, washing leaves and stems thoroughly. They may then be kept clean by thoroughly washing them with the syringe every day. Temperature is also of vital importance. Oranges will become yellow, the hue of ripeness, and they will grow to a large size in an ordinary greenhouse, but they will not be eatable. To have them of good flavour they must be grown in a stove temperature. Then the varieties must be selected; varieties usually imported from France will not answer. Tangierine, Maltese Blood, St. Michael's, and Plata, or Silver Orange, are the best. They should now be grown on in a high temperature, with a moist atmosphere; but if the fruit shows any sign of cracking, keep the trees rather dry at the roots. *J. Douglas.*

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, June 21.—Flower Show at Burton upon Trent
 THURSDAY, June 22.—Royal Botanic Society's Evening Fete
 Flower Show at Chiswick.

WELLWISHERS OF THE ROYAL HORTICULTURAL SOCIETY are looking with some anxiety as to its condition and prospects. The state of affairs is not so bad but that it might be worse, the prospects at present are, however, it must be admitted, far from bright. Nevertheless there is so much vitality in the Society, as evinced among other things by the large numbers of new Fellows, that we are far from taking a pessimist view of the situation. One of the most serious causes of apprehension is the falling off on the part of those exhibitors who have hitherto so staunchly supported the Society. If this decadence were confined to the larger shows we should not think so seriously of it, but when it begins to affect the smaller committee-meetings it is clear that one of the most useful features of the Society is imperilled. There is a marked tendency of late on the part of the great trade exhibitors to establish private exhibitions of their own, and it is obvious that from many points of view this may be more convenient to them than to send away van-loads of delicate plants from their houses at the very time when visitors may be expected to be most numerous at the nurseries. But as one main object of the trade exhibitor is to secure publicity, it is at least doubtful whether that is so well secured as at an exhibition to which the public come in numbers, and which is more or less fully reported in all the gardening journals, and more summarily even in the ordinary newspapers. At the same time the abstention of the larger London exhibitors should prove the opportunity of the smaller provincial ones, who hitherto have had a poor chance.

Be this as it may it is clear that a great change is in progress as regards exhibiting, and it behoves the Society's officers to watch the turn of events and shape their course accordingly. For our own parts we think the multiplication of large shows—one the mere replica of the other—a mistake in many ways. It is a mistake, inasmuch as horticulture is not particularly advanced by premiating the same plant of *Cycas revoluta* or *Erica Cavendishiana* every year. This is not only costly, but futile, so far as the advancement of horticulture is concerned. What is learnt, what advance is made by these perpetual displays all over the country of the self-same stove and greenhouse plants, or, if not the same, their brothers? It may be argued that these are requisite to make an effect at a large show, and that is true. But the question we would like considered in the present pecuniary state of the Horticultural Society is—Are large shows desirable? They are very costly—they fail in attracting the London public, and they do not promote the object of advancing horticulture in any degree proportionate to their great cost. We believe it is a fact, that the Whit-Monday visitors who paid 2s. a head simply for the privilege of visiting the garden, and for whose entertainment little or no extra expense was incurred, were by far more profitable visitors than those who come to the big shows. In considering, therefore, what must, what can be done to place the Society on a satisfactory basis, the question of the large shows and the large sums paid to trade and professional exhibitors must, we think, have a foremost place. We do not advocate the entire abolition of these great displays—far from it; we would only restrict their number and reduce the sums paid to what we may term professional exhibitors—that is, to those who quite legitimately make a business of exhibiting apart from any desire of advancing horticultural progress.

Then there is the question of the South Kensington Gardens and their maintenance.

It is certain that some portion will shortly be required by the Commissioners, and we cannot but hope that they will require and will take off the Society's hands the greater portion, leaving only such portion as may be necessary for the Society's meetings, offices, library, and for occasional large exhibitions. We do not know what proportion of revenue is derived from lawn tennis and other objects of a non-horticultural character, but we are prepared to believe that a considerable reduction of income might at first be expected if these were abandoned. On the other hand, the expenses of management would be lessened, and a further saving would be effected by curtailing the large shows, as we have suggested.

We would develop the strictly horticultural element as far as possible. We would continue and improve the fortnightly meetings, introduce some much needed reforms to prevent the multiplication of certificates to plants of no special interest except commercially, and to secure that plants of real interest (apart from mere trade considerations and fashionable caprice) shall receive recognition proportionate to their merit. We would encourage the exhibition on the part of amateurs and others of instructive series of specimens, representing certain groups—such, for instance, as those of the Rhododendrons exhibited by Mr. MANGLES this spring.

The publications of the Society, which have of late years conferred little lustre upon it, chiefly on account of the long intervals that have elapsed between successive issues, should be reorganised and issued promptly. It is true that the gardening Press must always have the advantage in the matter of early publication, but there are many valuable reports and comparative statements which would be strictly within the province of the *Journal* of the Society, and for which room could not be found in the gardening newspapers. Who that reads the elaborate reports of the American Pomological Society, for instance, but must blush for the reports issued by our own Society! While writing of this matter, the report on the influence of the recent winters on vegetation comes to mind, and we can but regret that the finances of the Society are such that what we believe, when properly edited, would be a most comprehensive and valuable document, is still unpublished, and, for aught we see, is likely to be so; and all the time money is being spent for the benefit of lawn-tennis players, and the funds and resources of Chiswick most unworthily taxed for the decoration of a conservatory of no use whatever to horticulture proper.

The object of the Society is to advance horticultural progress—the promotion of what we may term recreative or decorative horticulture, as well as of commercial horticulture, should be merely secondary or incidental: neither require the assistance except occasionally, and on a limited scale, of a great society. Each is perfectly well able to take care of itself, independently of any aid the Society can give; and the funds now expended on those departments might more wisely be spent on the advance of horticulture proper. We know the argument held is, that if the subsidiary adjuncts are discarded the Fellows would fall off, the funds would decline, and the Society would be worse off than ever. We admit that a large proportion of Fellows might fall away: well, they would not be the element we most wish to retain. We admit that the finances would fall correspondingly, but on the other hand the expense—much of which at present is quite uselessly incurred as far as horticulture is concerned—would be much lessened also. Again, when the Society wakes up to its duties, and makes its influence felt for good in every village and every allotment

garden in the country, its finances would improve as its influence extended; and we might look forward to a real national horticultural society looking to horticulture proper, and to the country at large, and not to mere fashion and tennis-playing at Kensington, for its support.

— FRUIT PROSPECTS.—At a sale of the fruit produce of numerous orchards which took place in West Middlesex recently, a fair indication was given of the comparative condition of the orchard fruits in that district. In some instances the bids made by experienced buyers did not reach by one-half the reserve price, in others not more than one-half was given for orchards than has been given in some previous years, and in the majority of cases the lower or bush fruits were the chief stays of the crop, that above being lamentably thin. Here and there were some fairly good Cherry orchards, which sold very well, the prospect of comparative scarcity in many kinds naturally enhancing prospectively the price of the fruit. Cherries, however, are uncertain fruits, the birds manifest for them special longings, and will, ere the unwary proprietor is awake, often play havoc with his crops. The Bigarreaux, too, even if they escape the feathered thieves, are specially liable to crack and bruise should rain and wind come at a critical moment; and then, not least, Cherries are such easily transported fruit that with none other perhaps is their storage competition in the market. One man who purchases a large orchard of these delicious yet uncertain fruits needs considerable courage. The grand bloom seen on the Pears last April has proved peculiarly deceptive. It has nearly all dissolved and left hardly a trace behind. Here and there upon Hessele and other fairly hardy Pears there is a mere sprinkling of fruit, and that is all. With Apples it is even worse, for these present but a miserable promise, and indeed we may prognosticate one of the poorest Apple seasons known for years. Of Plums there is a sprinkling here and there in well sheltered orchards, but even of these many fruits have failed to cross the stoning rubicon. The mainstay of the market fruit growers this year will have to be found chiefly amongst bush fruits and Strawberries. Gooseberries generally are plentiful, and Currants are fairly good. Raspberries promise a fine crop, as also do Strawberries, but both are contingent upon warmth and sunshine. If these fall just now fruit growers will have little cause to rejoice over the season of 1882.

— PEOPLE'S PARK, GREAT GRIMSBY.—At a recent meeting of the Grimsby Town Council, the prize of £50 offered by the Corporation for the best design for laying out the new park was awarded to MESSRS. WILLIAM BARRON & SON, Elvaston Nurseries, Borrowwash, near Derby. There were twenty-four competitors. The site of the park was presented to the town by E. HEANEAGE, Esq., M.P., and comprises 27 acres. The accepted plans provide for an ornamental lodge at the entrance, cricket ground, bowling green, archery ground, lawn tennis ground, a piece of ornamental water about two acres in extent, refreshment pavilion, band stands, shelters, &c.

— PELARGONIUM BELLE DE JOUR is one of a batch of M. LEMOINE's interesting seedlings now in flower at Chiswick that well deserves the attention of those who have to meet a demand for cut flowers. It belongs to what is now generally recognised as the "decorative" type, and has pure white semi-double flowers, borne on stiff erect stems. The plants give a great crop of flowers, but only one or two trusses seem to open together, and it is this continuous as distinguished from the simultaneous habit of blooming that renders Belle de Jour so desirable a novelty.

— WEATHER ASPECTS.—If June be the first month of summer then the present opening of that acceptable season is not a propitious one, neither does it indicate that warmth and brightness so essential to the welfare of crops of every kind. It is not at all a pleasant sensation to find the body shivering with cold in the middle of June, when we should rather be like the traveller in the fable, casting off our winter garments under the powerful influence of the sun's heat. We rather have to gather the folds of the winter's cloak once more closely round us, to shelter the body from the pitiless rain and the cold north-westerly blast. If humanity—stealed against unseasonable cold by years' experience to wintry winds and frost—finds it thus so hard to endure the now unusual low temperature,

how much more badly must tender vegetation fare?—for that the larger portion is like the exotic bird of passage. It opens out its luxuriant foliage and lovely flowers with the advance of spring, and retires again into its natural shelter and repose at the approach of winter. If, because of cold winds and cloudy skies now, the tender leafage should become blighted, cankered, and withered, how can we feel surprise? The weather as we write is rather that of advancing winter than of the coy smiles of summer. The haymaker is in tribulation, for with one of the best crops of grass seen for several years, the unpropitious weather seems about to snatch the hopeful draught of prosperity from his lips. A week's sunshine and warmth means wealth and happiness to him, whilst a week of storm and clouds only brings failure and disaster. The market grower and the seed grower sees his large breadths of Peas making abnormal growth, a development of haulm and leafage that is far too robust to promote a profitable crop. They, too, sadly need warmth and sunshine. Potato growers—and they are legion—are in grave trepidation

in question differs from those called knaurs in the absence of adventitious or latent buds. We have frequently met with similar malformations, as in the Cedar of Lebanon, the *Taxodium distichum*, &c., but we are by means clear what are the circumstances which favour their production.

—THE UTILISATION OF ANTS IN HORTICULTURE.—Professor RILEY contributes the following note to a recent number of *Nature*.—"Dr. C. J. MACGOWAN has sent me, from Hanchow, Province of Hainan, China, a little paper on the 'Utilisation of Ants as Insect Destroyers in China.' It seems that in many parts of the Province of Canton the Orange trees are injured by certain worms, and to rid themselves of these pests the inhabitants import ants from the neighbouring hills. The hill-people throughout the summer and winter find the nests of two species of ants, red and yellow, suspended from the branches of various trees. The 'Orange ant breeders' are provided with pig or goat bladders baited inside with lead. The orifices of these they apply to the entrance

now, measures at 5 feet from the ground only 2 feet 8½ inches, though it is about 82 feet high.

—A PEACH TREE AT BEARWOOD.—A truly remarkable example of a Royal George Peach may be seen in one of the Peach-houses at Bearwood. It completely fills the interior of the roof of a lean-to house 20 x 14½ feet. The tree is in the best possible condition; it could not well be more vigorous in growth and healthy in appearance, and the stem is in proportion to the tree, and of the same thickness throughout. The crop of fruit, now rapidly reaching on to ripeness, is very large, and individually the Peaches are of splendid development. It is a crop much above the average, but the tree is in such perfect health, and so robust in all its parts as to be able to carry it to a most successful issue. Mr. TEGG wins high honour over the management of this splendid tree, and the achievement well deserves a record. It is when one looks on to the tree through the glass from the outside that the amount of the crop is realised. It may be added that the

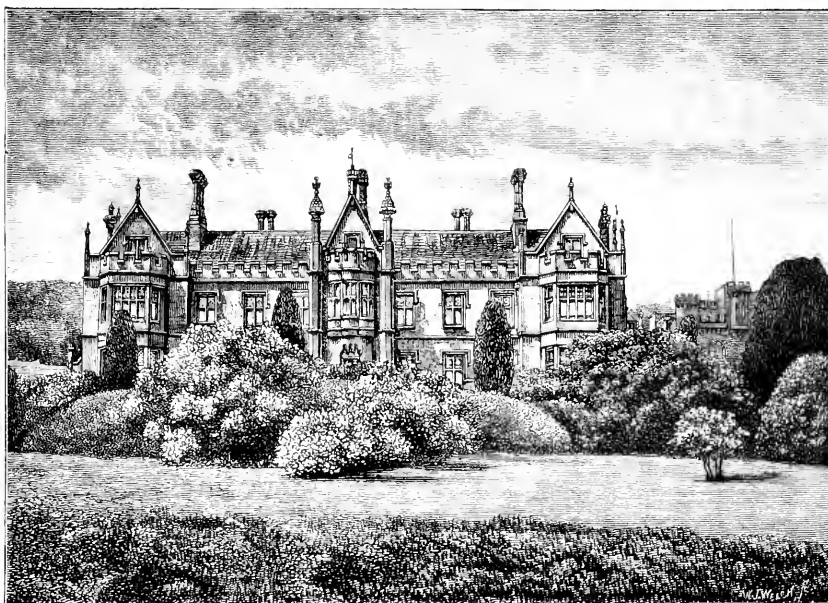


FIG. 123.—MAMHEAD HOUSE, DEVONSHIRE. (SEE P. 796.)

as to the effects of the cold rains and cloudy skies upon the tender foliage and stems of their too sensitive crops, and already dread, if they do not actually see, the approach of the terrible fungus. Even the farmer whose corn breadths now look so full of promise, scans the sky anxiously, and pronounces for sunshine and fine weather, is apprehensive. It would indeed, when so much looked so bright and promising, be a bad misfortune were our recent mild winter to be compounded for by a succeeding cold summer.

—ROOT TUMOUR ON SPANISH CHESTNUT.—The Rev. L. BLOMEFIELD kindly sends us a memoir of his, illustrated by photographs, representing a smooth globular tumour on the root of a Spanish Chestnut. The tree had been planted about fifty years, and in the autumn of 1881 one half of it appeared to be dying, the other half being still vigorous. On examining the roots, on one of them, on the same side as that half of the tree that was dying, was found this callosity at a distance of about 8 feet from the stem of the tree. The growth measured 2 feet 6½ inches in circumference, 10 inches in length, and 9½ inches in diameter. The growth

of the bag-like nests, when the ants enter the bladders, and, as Dr. MACGOWAN expresses it, 'become a marketable commodity at the orangeries.' The trees are colonised by placing the ants on their upper branches, and Bamboo rods are stretched between the different trees, so as to give the ants easy access to the whole orchard. This remedy has been in constant use at least since 1640, and probably dates from a much earlier period. This is certainly a new way of utilising ants, which, as a rule, are deservedly considered a nuisance by the horticulturist. Professor RILEY would like to learn from any reader whether the facts communicated have before been known in Europe, and, if so, whether the species of ant has been determined."

—*PIETHECOLOBIUM SAMAN* (THE RAIN TREE).—A specimen of this in the garden of the Agri-Horticultural Society of Madras, supposed to have been planted in 1873, measured in October last 10 feet in girth at the ground level, 6 feet 6 inches at 3 feet, and 6 feet at 5 feet. It is said to be a "perfect tree for sandy and alluvial soils in tropical countries." A *Casuarina* tree standing alongside, about ten years old

Early Grosse Mignonne is regarded by Mr. TEGG as the best early Peach in cultivation.

—THE DISPOSITION OF FLOWERING SHRUBS.—Those who excel in the art of flower gardening are, generally speaking, men who are methodical in their ways, and who are gifted with the power of observation to notice the right and wrong of things in proper season. The flower gardener knows to a nicety months beforehand what kind of display he may expect from a given quantity and variety of plants. When the flower garden is at its best he notes defects and takes means to remedy these defects another season. Can as much be said in the case of flowering shrubs? Unfortunately any judgment formed upon actual observation proves the reverse. There are many beautiful shrubs now in flower which will enable any one who is disposed to improve matters in this respect to take note of such changes as are likely to lead to improvement another season. What is wanted is a succession of bloom and something like an artistic blending of colours, which is as necessary in the case of flowering shrubs as in the arrangement of the

choicest plants in the flower garden or parterre. Take for example a dense background of green and introduce at certain points a tall plant of *Halesia tetraptera* (the Snowdrop tree), or a plant of *Pyrus malus floribunda* or *Weigela rosea*, or a good specimen of *Deutzia crenata fl.-pl.*, and a transformation is effected which will charm the eye of any one who is not totally oblivious to the beauty of well disposed trees and shrubs. Many changes for the better have taken place in our ornamental gardens of late years, but there is something still left to be accomplished in our manner of disposing ornamental and flowering trees and shrubs.

— AMERICAN GARDENS.—It is by no means certain whether, with all the zeal that is professed by a certain section of the community for hardy plants, that full justice is done to the American garden, or rather to the plants of which such gardens are composed. A good collection of so-called American plants, tastefully arranged, would bridge over the gap that undoubtedly exists between the show of spring flowers and what is commonly accepted as the bedding season. Choice groups of *Rhododendrons* intermixed, *Ghent Azaleas*, of which there is no end of variety, and *Kalmias*, are sufficient in themselves to make a display, extending over several weeks. Of *Ghent Azaleas* alone a fascinating display may be made by grouping the different shades of yellow, buff, scarlet, crimson, and orange together. Enclose, or partially enclose, a *Copper Beech* with a deep band of these plants, and you have an effect during the month of May which is not exceeded at any other period of the year. Have a group of white and purple *Rhododendrons* a little way off by way of variety, or have a deep strain of yellow *Azalea* next to the purple *Rhododendron*, or a bush of *Deutzia crenata fl.-pl.* next to the purple, and a rich effect is also produced. Many gardens are spoilt by planting things higgledy-piggledy together, instead of having substantial groups of the same species of plants planted *en masse*. There is still plenty of room left for medley beds and borders of single specimens, which are also necessary, but the massing system must predominate if there is to be an imposing effect.

— FRUIT PACKING PRIZES.—The useful and instructive competition promoted by Messrs. WEBBER & Co., fruit salesman, Covent Garden, with a view to bringing about a wider knowledge of the best methods of packing fruit for market, again takes place in the Royal Horticultural Society's Garden, at South Kensington, on the occasion of the Pelargonium Society's Show, June 27. The details of the competition will be found in another column.

— FUCHSIA FRENCHENSIS.—Since hardy *Fuchsias* have come into vogue again every one seems to want big bushes, as if—hardly though they be—they can be grown by magic. Even the fastest growing *Fuchsia* wants time to grow into a giant. But why not have *Fuchsias* in masses where the climate is favourable? A whole bed of *Fuchsias*, 12 to 18 inches high, is surely as pretty and as graceful as a bed of *Verbenas* or *Pelargoniums*. The variety under notice will make a permanent bed: you have only to cut down the shoots close to the ground in the autumn, and they grow away the following spring without further trouble. The cost of a dozen plants is less than the price of a dozen of the commonest bedding plants, and once planted you have something to look at nine months out of the twelve. The colour of the leaves and shoots is dark, which adds to its utility for bedding purposes.

— PALMS AT THE SHEEN NURSERY.—Within the memory of many who are not yet overburdened with years *Palms* were scarcely to be met with in this country beyond those that were to be found at Kew and the isolated examples in a few public gardens. Plants that did not produce flowers of a showy description were not thought worthy of room; form without bright colour was little appreciated. Now all this is changed, and *Palms* are required by the million of all such kinds as will thrive without a constantly high temperature, and that can be kept in a healthy condition without occupying too much room. To meet the demand nurserymen are not slow in providing an adequate supply. Mr. KINGHORN has several long houses principally filled with *Palms*, and recently an additional span-roofed structure, 50 feet by 18 feet, has been built. It is a very substantial

good-looking house, constructed as the trade now almost invariably build, to admit the greatest amount of light, with nothing near to obstruct or diminish this essential element. It is filled with all the best kinds, including a large proportion that will thrive without much heat. It would be difficult to imagine anything in the shape of an assemblage of these plants in more beautiful condition than the stock in this and the other houses devoted to them, showing at once the advantages of good light quarters and clearly attentive cultivation. The way *Palms* are often treated by many, who grow them in dark houses, huddled together, and in anything but a cleanly state, tends to the supposition that they will do with any sort of treatment, but a glance at a well-grown collection like the Sheen plants quickly dispels this. Where the growth is made under favourable conditions the leaves, independent of their better appearance, will last fresh twice as long as where grown in semi-darkness.

— A CURIOSITY IN SALE CATALOGUES.—All the world knows that Dundee is famous for its "interest" in the vegetable kingdom, *i.e.*, big flower shows, Horticultural Associations, jute and marmalade, and the Dundee School Board has the pleasure and profit of being presided over by a most estimable gentleman, who is also an "eminent horticulturist," but if we may judge from a catalogue before us, of a collection of plants sold by auction last week, the great "interest" of the town has but a very slight bearing upon the education of its auctioneers' clerks. We cannot pretend to notice all the eccentricities of this curiosity, but add a few, to show auctioneers and their clerks the desirability of calling in professional aid when dealing with things that they know nothing about. *Cycas Revoluta* is described as "a gorgeous showy plant," other departures from the usual are found in such things as *Adiantum Trapeziforme*, *Asplenium Dalbifolium*, *Pendulis Vechi*, *Physacanthis Rutilanda*, *Coleus*, *Francia Lakifolia*, *Sellegonella*, *Nephrrolepis*, *Hibiscus-Pakern*, *Pentradina-Rosea*, *Acrochordus Immersa*, *Croton Cuddiatum*, "a lovely plant," and *Pendulis*, "a very valuable showy *Palmy*."

— THE METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following papers will be read:—"A New Metal Screen for Thermometers." By the Rev. FENWICK W. STOW, M.A., F.M.S. "On the Effect of different kinds of Thermometer Cribbs and of different Exposures in estimating the diurnal range of Temperature at the Royal Observatory, Cape of Good Hope." By DAVID GILL, LL.D., F.R.A.S. "Account of a Cyclone in the Mozambique Channel, January 14—19, 1880." By CHARLES S. HUDSON. "Rainfall of Freetown, Monrovia, East Coast of Africa, 1875—81." By R. H. TWIGG, M.Inst.C.E., F.M.S.

— RHODODENDRONS AT COOMBE WOOD.—The complete collection of *Rhododendrons* in Messrs. VEITCH'S nursery have flowered splendidly this year, and the amphitheatre-like form of the grounds surrounding the extensive dell where they are grown gives an opportunity for the wide expanse of varied colours being wholly seen at once, presenting a sight such as few positions similarly planted afford. Soil and situation alike favour luxuriant growth; the stock collectively is in the finest possible condition, and contains all the best varieties, old and new, that are in commerce. Standard and bush-shaped plants alike presented an even sheet of bloom that almost entirely hid the leaves. Where every variety grown may be set down as possessing merit such as to make them deserving of a place, it is somewhat difficult to particularise; yet, apart from any consideration of the variety being old or new, or taking into account excellence in form or marking in the flowers, there are a few that stand out so markedly for distinction in shade, combined with profuse habit of blooming, as to make them conspicuously effective. Of such are *Lord John Russell*, pale rose, finely spotted; *Fommosum elegans*, glowing pink, the flowers having a peculiar pretty shade; *Old Port*, deep plum colour, one of the most distinct; *Everestianum*, lilac, amongst the freest of the tree; *Michael Waterer*, rose-scarlet; *John Waterer*, vivid crimson; *Madame Mielan Carvalho*, pure white; *Mrs. John Clutton*, white: this and the last named are most telling

kinds; *Purpureum grandiflorum*, bright purple; *Crown Prince*, bright rose; *Joseph Whitworth*, lake; *Pastuosum flore-pleno*, mauve, large truss; *Caractacus*, crimson, shaded purple. The profuse disposition to flower, and distinct telling colours possessed by the above, make them distinguishable even at a long distance—amongst a host of others, comprising every shade through the wide range of colours that these unequalled hardy evergreen shrubs afford. In new sorts are two, raised by Messrs. VEITCH, that from their distinct character and general excellence will doubtless become favourites—*Duke of Teck*, bright magenta, shaded with rose; on the upper petal is a well-defined white blotch with orange-brown spots, the edges of the petals prettily fringed; *Mrs. Cameron*, extremities of petals deep bright pink, paler towards the base, well-defined orange spots.

— Messrs. JAMES CARTER & Co. ask us to call the attention of our readers to the fact that they are this season offering prizes of various amounts for varieties of Peas sent up by them at the exhibitions to be held at Chiswick, South Kensington, Richmond, Bagshot, Twickenham, and Oxford. For further particulars see our advertising columns.

— KALMIA LATIFOLIA AT BEARWOOD.—This has been well denominated the "king of the species" comprehended in this genus, and a visit paid to Bearwood, Wokingham, just now would enable one to realise this fact. There can be seen in plenty enormous bushes of *K. latifolia*, planted years ago, and which, in common with the *Rhododendron*, have in course of time, and being in suitable soil and a congenial situation, grown into enormous size, and are this season blooming in wonderful profusion, throwing up thousands of trusses of flower in happy plenteousness. Year after year these giant plants bloom freely, and to keep themselves within reasonable bounds a little pruning is necessary, but it is sparsely done. It is to be noticed that the flowers of some of the plants are a little darker than others, and perhaps situation may have something to do with this, or it may be the plants were seedlings, and some variation would naturally present itself. At Bearwood there are huge clumps of *Rhododendrons*, with which are mingled *Kalmia latifolia*, and the margins are lit up with fine plants of the richly hued American *Azaleas*. This is a combination of surpassing beauty, and quite in harmony with the extent and general character of the pleasure grounds at Bearwood, and the admirable manner in which they are kept does the greatest credit to the gardener. Probably owing to the high and dry character of the situation and soil but little harm was done during the severe winter of 1880-81 to the fine collection of coniferous plants growing at Bearwood. They are this season, in common with most trees and shrubs, making a very free and generous growth; and some of the specimen *Coniferae* are almost unrivalled for symmetry and handsome proportions.

— THE COOMBE WOOD NURSERY.—Among flowering plants in the Coombe Wood Nursery is *Frenontia californica*, growing on a low wall in one of the plant-houses, where it is quite at home, and producing freely its singular flowers, which in form are not unlike those of *Anemone japonica*, but shorter and more pointed in the segments, golden-yellow inside, deeply tinged with red on the outside. *Magnolia Soulangiana nigra*: This is one of the most distinct of all *Magnolias*, and has the valuable property of beginning to flower early in spring and keeping on for a length of time. It is perfectly hardy, having here withstood the recent winters quite uninjured without any protection. The flowers are large, the outside of the petals deep claret, inside much paler; they keep appearing in succession. It is one of the finest of the family. Fine as the old *Guelder Rose* (*Viburnum Opulus*) has been this year, it does not come up to *Viburnum plicatum*. In the borders here the lower branches have been literally weighed to the ground with their long wreaths of flower; as many as fifteen of its big snowy bunches have been counted on eighteen inches of shoot. It possesses a purity of colour such as few white flowers can boast of, and it makes one of the best wall plants, keeping on flowering down to the bottom after its branches have reached far away. *Cistus purpureus*, one of the densest flowering of the genus, forms a low spreading bush, 4 feet across, by 2 feet high,

clothed so thickly with its white petalled golden anthered flowers that there is scarcely room for them to open. *Ulex nana expansa*, is a pretty Furze that deserves a place everywhere, especially where a profuse blooming plant is wanted that takes up little room, for it is so close in habit as to look as if clipped over with a pair of shears, and its yellow flowers are so profuse as to hide the wood. *Cydonia Maulei* is a fine kind, not nearly so often seen as desirable; its bright red flowers are produced freely, and it keeps on blooming for a long time: it was in flower here up to June. Those who are only acquainted with the old Weigela rosea, and one or two others of the better known sorts, have little conception of the beautiful colours which some that have more recently made their appearance possess; they now range from quite white to the deepest crimson-red, presenting in themselves enough variety to lighten up a shrubbery during the time they are in flower. Beyond the quantities of shrubs in bloom, the numbers of shrubs and trees that have just donned their new garb present an endless variety of colour and shades, which are more than usually brought out this year, such as assume a yellow hue being extremely bright; the golden varieties of the Lawson Cypress, *Retinosporas*, *Ivies*, *Eucynmus*, *Dox*, *Privet*, of which the golden oval-leaved variety is one of the most telling of all yellow-leaved plants, combined with quantities of other things with bright young foliage. The Japanese Maples alone are a study in their shades of colour, from the softest Tea-green to the deepest ruby-purple. Somehow or there appears to be an erroneous impression abroad amongst those who are not fully acquainted with trees and shrubs of recent introduction, that most of these Acers are not hardy. Big vigorous growers that reach the dimensions of timber trees they are not, neither is it by any means desirable that every species of plant cultivated in a garden should attain such dimensions; and if these elegant miniature trees were large growers they would lose half their charm. The majority of them are as hardy as anything need be—so far, at least, as the southern portion of the kingdom goes, and they may be equally so in the north, at least we know they are so at Borrowash. The numerous kinds planted out at Coombe Wood were no more affected by the cold of the recent really severe winters than the Oaks in the neighbouring woods.

ECONOMIC PRODUCTS OF PEKNAMEBU.—Writing on the trade of Pernambuco Mr. Consul BONHAM says the chief products are sugar and cotton—the former being grown on all the lower lying ground and in the valleys, while the latter is chiefly grown in the distant interior. Coffee is grown in small quantities, and in former years a little was exported, but it has not been found to answer since owing to the climate. It does not produce fruit at any regular season, but does so more or less all the year. This is found to be a great hindrance to growing it in large quantities, though for private consumption a fair amount is produced. It is stated that there is land in the interior, where the climate is somewhat cooler, which is well adapted for the cultivation of Coffee. Eventually, when the interior is opened up, it may be found to succeed and become an important product. On the subject of Cocoa it is stated that attempts are being made to introduce its cultivation, and large plantations are in course of formation. It is probable that it could be cultivated successfully, and in future years it will most likely rank amongst the staple products of the country. Large plantations of the Coccolut Palm exist near the sea, but the nuts are not exported in any quantity; some, however, are sent to the south of the empire. A large trade might be done in this article. Tobacco is grown in the province, but not in a sufficient quantity to meet home requirements, since much is imported from Bahia. There is no reason why the cultivation of this article should not be immensely increased, as the country is well suited for its growth, and it is very surprising that it is not more extensively planted, not only in sufficient quantity to meet home requirements, but also for export. The Castor-oil plant (*Ricinus communis*) is described as growing very luxuriantly, but it is not cultivated to any extent; some of the oil is, however, prepared and used in lamps.

WALL PLANTS AT THE SHEEN NURSERY.—If free habit of growth, combined with dense foliage that with little training makes a perfect wall-

covering, and along with this a profuse flowering disposition, constitutes a good wall-plant, why is it that the best of the Ceanothus are not more largely used for this purpose? Simply, we suppose, because they are insufficiently known. Such kinds as the old *C. azureus*, with its varieties, and *C. dentatus*, are common enough, but in the character of the flowers they produce they are nowhere beside some others, such as *C. Gloire de Versailles*, *C. Arnoldi*, and *C. Leon Simon*. These are in beautiful condition on Mr. KINGHORN'S house at the Sheen Nursery, blooming profusely every summer; their large spikes of flower, almost as big as an ordinary Lilac, hanging gracefully from the wall, give an effect for a lengthened period that few plants can afford. The first-named is the most decided shade of blue, *C. Arnoldi* is paler, *C. Leon Simon* has a greyer tint, but each is deserving of all that can be said of it. Associated are two such examples of *Clematis Jackmanni* and *C. rubella*. The latter charming variety loses in estimation through the unusual popularity of *Jackmanni*. Excellent in every way as this fine sort undoubtedly is, it has a worthy rival in *rubella*, the habit of which is similar, except that it flowers a little earlier than *Jackmanni*, thus prolonging the reason of bloom. Its splendid claret colour is most effective when in the luxuriance of Mr. KINGHORN'S example. Near these is a plant of the Oak-leaved *Hydrangea quercifolia*—not by any means common, but a distinct and effective species. With these is *Eleagnus marginatus aureus*, covering some 10 feet by 10 of wall. This plant is doubly valuable for wall covering, on account of the length of time the leaves retain their bright yellow variegation.

LATHYRUS SATIVUS (AZUREUS).—Why is it that this pretty blue annual Pea is not more grown? It is so easily cultivated, and supplies so many pretty blue flowers—flowers of an unusual hue of blue—that it can scarcely fail to be a favourite with gardeners who grow flowers for cutting from. The flowers are borne singly, and on fairly long slender stems as to be well adapted for buttonholes and other purposes. The blossoms, unlike those of the Sweet Pea, are destitute of fragrance; and yet they are blue in colour, and in this respect quite unlike any one of the Sweet Peas. This *Lathyrus* does well sown as an annual in the open ground.

THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending June 12, issued by the Meteorological Office, London:—The weather during this period has been dull, cold, and showery, while over England several thunderstorms have been experienced. The temperature has been below the mean in all districts, the deficit over central England being as much as 4°. The thermometer was generally highest on the 7th, when it rose to 69° at Ardrossan, Mullaghmore, and Geldston, and to between 65° and 68° at many other stations. On the 12th the maxima were below 60° in almost all parts of the kingdom, and at Nairn the temperature did not exceed 47°. The minima were as low as 37° at Silloth, 39° in the east of Scotland, the north-east of England, and the north of Ireland, and between 40° and 43° elsewhere. The rainfall has been more than the mean in all districts, the excess being greatest in the eastern and western parts of the country. Bright sunshine shows a considerable decrease in duration in Scotland, the north-west and east of England, and the west of Ireland; but elsewhere an increase is reported. The percentages ranged from 20 in "Scotland, E." to 44 in "Ireland, S.," and 53 in "England, S.W." Depressions observed:—During the first few days of this period pressure was highest over France, while a series of small depressions passed in an easterly direction over our more western and north-western coasts, causing moderate to fresh south-westerly to westerly winds. By the morning of the 7th, however, conditions had changed, and from that date till the close of the week the barometer was highest to the westward of Ireland, and lowest in the eastern part of our area. Northerly winds consequently prevailed at all our stations, and though moderate or fresh generally, increased to a gale at times in the north and east of Scotland.

GARDENING APPOINTMENTS.—Mr. A. HAMSHIRE, formerly Gardener to Sir W. H. SALTS, Bart., Naplewell, Loughborough, has been engaged as Gardener to E. COPE, Esq., Lenton Firs, Nottingham.—Mr. C. STURGES, Foreman to Mr. GILMAN of Ingestre, has been engaged as Gardener to J. YOUNG, Esq., Oakfield, near Gateshead.

RHODODENDRON FORTUNEI.

R. FORTUNEI has excited some discussion since it was shown at the Royal Horticultural Society's meeting the other day, and now it appears to be more commonly in cultivation than I supposed. The finest plant I have seen grows in Captain Rogers' garden at River Hill, Sevenoaks, on the north side of a wall, in which position it blooms fairly every year. The blossoms from that plant were first-rate. Mr. Farrant possesses a grand bush in the Isle of Man, he tells me, but I have not seen the flowers. Judging from his description, and the foliage, however, I should think his plant undoubtedly genuine; for it is well to caution purchasers that many shams are in circulation. As far as I know, the species has been twice introduced from China—first by Fortune (whose plants were sold at Stevens' in 1859), and secondly, and recently, by Maries, the collector for the Messrs. Veitch, who have very kindly given me plants of the second importation. For botanists much interest attaches to this species. Its occurrence in China, among Rhododendrons of a very different type, is curious and unexpected. Its resemblance in many respects to the distant *R. Griffithianum* of Sikkim is undoubted; but what distinguishes it from its neighbours, and from the Himalayan Rhododendrons, is the arrangement of the lobes of the corolla and the stamens in sevens. It appears to be a wild plant in China; otherwise one might have supposed it to be a result of cultural modification by the Chinese, who have probably been curious gardeners for thousands of years.

Information may possibly, however, be derived from another quarter. If we travel further east, we light upon a Rhododendron in Japan, *R. Metternichii*, which has not only the lobes of its corolla and its stamens, but also the divisions of the ovary, generally in sevens. (See Sieb. et Zucc., *Fl. Jap.*; Franchet et Savatier, *Enum. Plant. Jap.*; and Maxim., *Rhod. Asia Orientalis*.) This Rhododendron is very scarce, I fancy, and I have never seen the living plant; but, with the kind assistance of Mr. C. B. Clarke, I found the alleged arrangement in sevens verified by an examination of the specimen in the Kew herbarium. This plant has been confounded and compared with *R. maximum* of the North American continent, which fact suggests a very large and important botanical discussion, which I will not enter on. The principal object of this note is to ask your readers kindly to bear in mind my desire to see a living specimen of *R. Metternichii*, for the purpose of comparison, and, if possible, of experiment. Mr. Bull used to sell the plant, and Mr. Elwes has frequently mentioned it to me.

I have said that I was inclined to think that *R. Fortunei* might be, not a normal, but a cultivated form, possibly a hybrid, but the extreme potency of the pollen as applied to certain species (details of which I will give you later on) has not confirmed such a view. No one, however, ought to dogmatise on *R. Fortunei* without a full knowledge of *R. Metternichii*, which latter may itself be a manufactured form, for it is related to be a chief ornament of Japanese graveyards, and especially of the tombs of Japanese Emperors. It is very interesting to mention that Kempter, at the beginning of the last century, observed and recorded the division into seven of this flower. *J. H. Mangles, Valewood, Haslemere.*

PLANT PORTRAITS.

ÆRIDES LOEBI, Williams' *Orchid Album*, t. 21.—A form with very long dense flower-spikes, the flowers an inch or more in their longest diameter, segments ovate oblong, violet spotted, lip larger, somewhat three-lobed, white, with a central deep violet blotch.

ANGULOA RUCKERI SANGUINEA, *Orchid Album*, t. 19.—Flowers 4 inches in the longest diameter, hooded sepals and petals ovate acute, convex, creamy-yellow outside, deep blood-red within, lip 3-lobed, lateral lobes broadish, central lobe smaller, acute—all crimson. Native of Colombia. Hort. Boddaert.

BURLINGTONIA CANDIDA, *Orchid Album*, t. 18.—Flowers 2 inches in their longest diameter, segments broadly ovate acute, white, lip larger than the other segment, and with a central yellow stripe. Demerara. Hort. Williams.

CALANTHE VEITCHII, *Gard. Chron.* 1859, p. 1016; *Orchid Album*, t. 31.—A well-known winter-flowering Orchid, with lovely rose-coloured flowers. Garden hybrid.



HOME CORRESPONDENCE.

The Gardeners' Royal Benevolent Institution.—The Lord Mayor of London will preside at the 30th Anniversary Banquet on the 29th inst. During the time the Lord Mayor has been in office he has brought his influence to bear in every possible way to assist the various charitable institutions of this metropolis, and among others he has not forgotten the Gardeners' Royal Benevolent Institution, as the accompanying letter, which has been widely circulated, will show; and I trust it will have a very good result. My committee are using their best efforts to secure a success both socially and financially; and in their endeavours they are ably seconded by the following gentlemen, who are canvassing their friends to obtain subscriptions, viz.—E. J. Beale, Esq., Messrs. J. Carter & Co., High Holborn; George Bell, Esq., Messrs. J. & G. Bell, Covent Garden; James Boyd, Esq., Messrs. Boyd & Son, Paisley and London; George Neal, Esq., Messrs. Weeks & Co., Chelsea; Robert Hogg, Esq., LL.D., *Journal of Horticulture*; Edward Holmes, Esq., Whittington Nursery, Lichfield; Benjamin Maller, Esq., Burnt Ash Nursery, Lee, Kent; W. J. Nutting, Esq., Messrs. Nutting & Son, seed merchants, Barbican; Francis Robinson, Esq., Messrs. Dickson & Robinson, Manchester; E. W. Serpell, Esq., seed merchant, Plymouth; Nathaniel Sherwood, Esq., Messrs. Hurst & Son, Houndsditch; Charles Turner, Esq., Royal Nursery, Slough; B. S. Williams, Esq., Victoria Nursery, Holloway. The Court of the Fruiterers' Company, I have every reason to believe, will be fully represented. The Sheriffs have intimated to me their intention of being present, and I am informed that a number of foreign horticulturists will be visiting London at that time will also be present. Under these circumstances my committee have every reason to anticipate a successful meeting. But while the committee are thus working, should we not have the aid of those men for whom the Society is established? It is in their power to assist most materially, and that is by contributing, with the sanction of their employers, some fruit for the dessert. Experience has shown us that if the subject is brought before the notice of employers, permission would in nearly all cases be most readily given. I do trust that the gardeners will rally round the committee, and assist them to the best of their ability. *E. K. Cutler, Secretary.*

In my capacity of chief magistrate of the city of London, I have consented to preside at the ensuing anniversary of The Gardeners' Royal Benevolent Institution, to be held on the 29th inst., and I have done so with peculiar gratification, having been connected with the Institution for some years, and being much devoted to gardening pursuits. The Institution, which has for its object the relief of old and distressed gardeners (men that have in their younger days contributed very materially to our pleasure and enjoyment), I conscientiously recommend to your kind and earnest consideration. As the Chairman of the anniversary, I am naturally anxious that the interests of the Institution should not suffer in my hands, and I look with confidence to those who take pleasure and delight in their gardens for support and aid upon the occasion, and I trust to receive from the Secretary such a report as will prove to me that this appeal to your charity and sympathy has not been made in vain. Any communication addressed to the Secretary, 14, Tavistock Row, Covent Garden, W.C., will meet with prompt attention. *J. Whitaker Ellis, Lord Mayor of London.*

Seed Crops.—At p. 775 reference is made to the prospects of the Swede crop, and it is spoken of as likely to be poor, the plants having canker on the leaves. Middlesex is not usually classed amongst seed-growing districts, but near here there is growing in several patches some 25 acres of Swede seed, and I have never seen any so better. The grower (John Odell, of Biggleswade) has a large extent of land here under cultivation, and Swedes always form an important seed crop; but this year his crop is larger than usual. The bloom is fast disappearing, and the seed produce should be immense. I do not know what the kind is. Seed is sown early in the autumn, and the young plants are dibbled out at intervals of some 10 or 12 inches each way during open weather in the winter and early spring. The price paid for dibbling per acre is, I believe, 20s. As Mr. Odell cultivates market crops also he is thus enabled to vary the cropping of his soil more thoroughly than can be the case where seed crops are almost exclusively grown. A large breadth of that excellent Onion, the Bedfordshire Champion, is also grown,

and the seed crop from old bulbs promises this year to be an excellent one. Picklers are strong and thick. As Onions are doing so well this year, and so far little is heard of the Onion grub, which was so destructive last year, there is reason to hope that the crop will be remarkably good, but there has been quite enough of rain for these pickler breadths, and more may cause the bulbs to be large and coarse. Market Onions prove almost invariably a very remunerative crop. The soil must be well enriched with manure, but Potatoes may follow, and after that corn of some kind with that one dressing, and yet fine crops result. Many of our market gardeners vary their rotation only in Peas and green crops, and Potatoes and green crops, and it is not to be wondered at if in a few seasons complaints are rife that the soil is vegetable sick. *A. D.*

Conservatories and Hothouse Building.—The construction and quality of horticultural buildings ought to be of interest to all your readers, and I am pleased to see the remarks of "T. T." (p. 767) and his friend the builder (though I have no idea who either of them may be), but I should like to add a little thereto. While agreeing as to the scamping and his condemnation of the "contract system"—so far as that applies to the choosing of "the lowest of twenty-five tenders"—I would remind them that ninety-nine out of a hundred of the purchasers will have a contract and a quite right one. The effect of a gentleman leaving it to a tradesman to build just what is roughly described to him will generally be that a house expected to cost £100 turns out to be nearer £200, and so the next time anything of the kind is required he rushes to the other extreme of inviting a dozen firms to compete, with the result of "jerry work," even when he has employed an architect to prepare plans and specifications. It is not merely a question of the "skill and honesty" of the chosen tradesman—but is he used for this class of building? Horticultural building is a special and distinct thing, and it is scarcely possible to get "five-and-twenty tenders" from those engaged exclusively in the trade. The secret of the jerry building so justly complained of is getting outsiders to tender who are not trained to this work. There are always plenty of jobbing builders (especially in the suburbs of large cities) who will "undertake" anything from a cradle to a conservatory, and who, to secure the job, will quote a price that another would have to pay for materials only, trusting to "extras" to make up. Architects, too, are so seldom engaged in the details of this work that they do not know the class of timber best suited for hothouses, and will specify certain high-class deals used in dwelling-house work, which are as unsuitable for the purpose required as the common qualities patronised by the jerry builder, and will often describe or plan a method of construction equally useless for erecting work of this kind. I could fill pages with instances of what I say, but will only give two as specimens. Eleven years ago a London architect of good position called on a firm of horticultural builders with plans, and obtained tenders from them, but not liking the price or the deals in use at the works, thought he could do better and more cheaply himself. Four years ago he asked me to go and see his place, where I found men pulling down a rotten old conservatory, as I supposed, and pleasantly remarked, "It was time that came on." "Time?" he savagely rejoined, "that was only put up six years ago at greater expense than your firm estimated, as I selected all the timber myself from the yard and watched the whole construction of it." A few weeks subsequently I saw at a country-house a gentleman admiring some vineries he supposed were new (but only just repainted), which were built by the same firm thirteen years previously from same class of deals rejected by the architect. Last year four firms tendered for erecting a range of plain glasshouses—two outsiders, and two in the trade; one of the latter, having nothing else in hand, and to keep his trained men at work, put a specially low price, making sure of the contract, only to find that the builder of an adjoining dwelling-house was 12 per cent. lower; this was owing to his having his men and plant on the spot, and a quantity of timber left that would just cut up without waste. While that was progressing, plans were prepared for a conservatory of elaborate design, and an immense firm tendered privately; the result was that the previous lowest was now the highest, about £400 (it was difficult and special work he was not used to); three other outsiders were next in order; then three in the trade, between £240 and £215; the two lowest being £160 and £155 only! An extraordinary difference this, not easily to be accounted for. But it turned out that the £160 one had overlooked a certain item costing £55, while the lowest accepted price was from a firm of plain glasshouses, and was met in by the architect, and who had obtained from his clerk the lowest figure, and so sent in just below it. When the £160 man explained his error three days after, the other also claimed it next day as an oversight and got £50 more. This is one of the demoralising effects of the competition contract

CATTLEYA GUFFATA LEOPOLDI, Orchid Album, t. 16.—Racemes terminal, many flowered. Flowers nearly 4 inches across, orange-brown spotted with crimson, lip 3-lobed, the side lobes erect, rolled over the column, violet, the mid-lobe magenta-purple, stalked with a transversely oblong bilobed limb. South Brazil. Hort. Shaw.

CHERRIES, Florist, t. 558.—The varieties are:—1. Bedford Prolific, a seedling from Black Tartarian and much harder than it, but less highly flavoured; 2. Bigarreau Gros Cœur, an old Cherry, with fruit of large size, oblate spheroid.

CELOGYNE MASSANGREANA, Rehb.f., Gard. Chron., vol. x., p. 684; Orchid Album, t. 29.—Sepals and petals light buff, sides lobes of lip erect, yellow, central lobe roundish, spreading, smoky-brown, with a narrow creamy-white edge. Assam. Hort. Massange.

CYPRIPEDIL LAWRENCEANA, Orchid Album, t. 22; Rehb. f. in Gard. Chron., x., 748.—Flowers 4½ inches in longest diameter, upper segment broadly ovate acute, white, with broad purplish stripes along the veins, lateral segments strap-shaped, greenish, tipped with rose, and with several hairy warts on the ridges below the centre. Borneo. Hort. Pollet.

DENDROBIUM AINSWORTHII ROSEUM, Orchid Album, t. 20.—Flowers nearly 3½ inches in their longest diameter, sepals and petals tinted with magenta-rose, lip purplish-crimson.

DENDROBIUM SUAVISSIMUM, Orchid Album, t. 13.—Racemes many-flowered, flowers 2½ inches in diameter, golden-yellow, lip roundish, yellow, with a horse-shoe shaped purplish-brown blotch. Burmah. Hort. Williams.

LÆLIA ELEGANS ALBA, Orchid Album, t. 30.—Sepals and petals pure white, lateral lobes of lip erect, white, tipped with violet, central lobe spreading, wrinkled, rich violet. Hort. Williams.

LÆLIA PURPURATA WILLIAMSII, Orchid Album, t. 9–10.—Flowers very large, 4 inches in diameter, sepals and petals delicate rose, veined with a darker tint of the same colour, the lip is broad, yellow at the base, the fore part rich magenta. Coll. Baron Schroeder. S. Brazil.

LÆLIA XANTHINA, Orchid Album, t. 23.—Flowers 4 inches across, segments oblong, rich golden-yellow, lip trowel-shaped, yellow at the base, the fore-part flatish or recurved, white, with red stripes. Brazil. Hort. Williams.

MASEDEVALIA HARRYANA COERULESCENS, Orchid Album, t. 24.—Flowers 6 inches across, upper segment narrow linear, lower deflexed, broadly oblong, magenta-crimson. New Granada. Hort. Percival.

ONCIDIUM GARDNERI, Orchid Album, t. 12.—Flowers panicle, segments yellow, thickly mottled with brown, lip transversely oblong, bright yellow, with a marginal line of brown spots. Brazil. Coll. Vanner.

ONCIDIUM HEMATOCHILUM, Orchid Album, t. 32.—Panicles many-flowered; flowers 1½ inch in diameter, outer segments ovate oblong, greenish, with brown bars, side lobes of lip short, violet, central lobe stalked, transversely oblong, brownish-purple, edged with yellow.

PSEUDOCYBE KLABOCHORUM, Orchid Album, t. 17.—Flowers 3 inches in the longest diameter, segments oblong acute, white deeply tipped with magenta, lip trowel-shaped, its disc covered with styliform papillae, and marked near the base by a vertical frill. Ecuador. Hort. Williams.

PHALÆNOPSIS AMABILIS DAYANA, Orchid Album, t. 11.—The sepals and petals are pure white, the lip is marked with yellow blotches, and reddish-crimson spots and bars. Malaya. Coll. Lee.

RHIZOPHILA SUAVIS ALBA, Orchid Album, t. 14.—Flowers racemose, 4 inches across, with narrow white segments and a large trowel-shaped obtuse lip, with a few yellow stripes at the base. Central America. Coll. Boddart, Ghent.

VANDA PARISHII, Orchid Album, t. 15.—Racemes many flowered, flowers 2½ inches across, yellow, with brown spots, lip smaller than the other segment, violet. Burmah. Coll. Chamberlain.

VIOLA ALTAICA, Gartenflora, t. 1071.—One of the parents of the garden pansy, the other being *V. tricolor*; blue-yellow and white forms are figured. A beautiful hardy perennial, which we should be glad to see more frequently.

WISTARIA SINENSIS FLORE-PLENO, Florist, p. 557.—The double-flowered variety of this lovely hardy creeper. It was introduced from Japan. Hort. A. Waterer.

system. What course, then, is the intending purchaser to adopt between accepting the lowest competitive tender and giving *carte-blanc* to a tradesman? Is he may not feel himself compelled to decide whether a price is really high, or too low for a good article. I show, say, several particulars as possible of what is wanted to two or three recognised house builders who confine themselves to horticultural work, and ask their prices without informing each that another has been applied to, but giving an idea of the amount to be spent if it is limited, and then choose from estimates or sketches submitted. It is astonishing that gentlemen will not see that a professed horticultural engineer, who has spent the greater part of his life in this work, must be more competent, and, in the end, more economical, than a local "Jack-of-all-trades," who, after all, has to send to the despised London for most of his material, paying a higher price for the small quantity he wants (and its carriage), besides a great amount of time in writing or travelling specially to get it. One reason for the vast number of flimsy greenhouses is the fact of the purchaser having only a seven years' lease, but must have "something at your very lowest price" to put his plants in, not caring what the thing falls to in the next couple of years. Another is, that the "speculating" builder finds that a conservatory (save the mark!) will enable him to sell the house (and its buyer) for £50 to £100 more, while costing him only one-fourth that sum by using up the cuttings from his house timbers, and adding some bits of coloured glass and curious tints of paint to make it look pretty in the ladies' eyes. In country places and old gardens where these reasons do not apply, it is the fact of getting a London firm in, judging that everything from there must be extra cheap because, forsooth, they advertise, and that a local man must be cheaper with the gardener's advice to keep him straight. Recently, a gentleman 50 miles away had a greenhouse erected for £180, which he thought decidedly reasonable, as the men had been at it over twelve weeks; but as he wanted a larger one built, a knowing friend induced him to describe the house to a London firm, and ask price and time required. The reply was £152, and five weeks' time, and yet I doubt whether the London man would get as good a profit as the London one, because he was not used to it, and spent all his time putting up to pull down again, altering here and starting there, for want of proper setting-out at the start. I must, however, if you please, refer to one thing that deters many from applying to firms that advertise, and that is the false—well, say misstatements in the advertisements of some people. I am reminded of this by the remark, that if none of the patent joints are air-tight, and yet I read that one system "takes less heating power than the old system;" at the same time "full play is allowed for expansion and contraction"—self-evident contradictions in the case alluded to. Another advertised, "100 per cent. saved in repairs;" not content with the 80 per cent. claimed by a rival; another, that "no painting is required;" another, giving ridiculously low prices, says, they are "glazed complete," but the glass is set loose, and even so. "T. S." says "the only system of [good] glazing without putty is the old English lead glazing, which is not applicable to horticultural buildings;" but at the implement exhibition now on at the Horticultural Gardens may be seen a little greenhouse so glazed, one of many similar ones, and, if all the Press reporters are right, it received the only award for glazing; at any rate its exhibitor is down for the only medal in that class. Z.

The Fruit Prospects in East Anglia.—I hope other counties have been more fortunate, but in this neighbourhood the fair, full promise of abundance is left but a mere skeleton of embryo fruits on Apples, Pears, and Plums. This is most unfortunate, because, after all, are the three most valuable fruits of the season. Peaches, Nectarines, Apricots, and Cherries promise a full crop. Though late, Cherries are as yet more or less uncatenated, many of them having fallen during the late droughts and trying east winds. Still, on the whole, Cherries promise to be a full crop. Small fruits, as they are called—Gooseberries, Currants, and Raspberries—are a capital crop. Strawberries are a little uneven, but on the whole, a good crop. The almost complete failure of the Apple, Pear, and Plum crop is the more provoking, as it can hardly be attributed to any extreme severities of weather. Drought, east wind, and a plague of maggots seem to have been the more potent causes of failure. Seldom has so good and full a promise been more provokingly wrecked by what seems to me inadequate causes. And, writing broadly, these three fruit crops are gone, and in place of them, but of fruit we have, on the Apple especially, quasi forests of skeleton trees. Plums and Pears can hardly be said to have failed through any plague of insects. The trees are tolerably clean and healthy, but of fruit there is little or none. Plums, that promised to be the great fruit crop of the season 1882, are nowhere. The Gages, which were as white as a sheet with bloom, are well-nigh fruitless. In reference to my last report on fruit

prospects, I will endeavour in future never to prophesy unless I know. Seldom has the disparity between prophecy or promise and fulfilment been more widely and disastrously divergent than this year. D. T. Fish.

Fruit Prospects in Yorkshire.—We have now arrived at that period of the year when we can ascertain with tolerable accuracy the actual state of the fruit crops. I regret I can only report unfavourably of them. Notwithstanding the prospects of fair fruit crops were rather promising in the early part of spring, the fruit crops of 1882, here and in this neighbourhood, are the worst there have been for some years. Plums were early in bloom, and the great profusion of bloom led many to think the crop would be a heavy one, but with the exception of some Victorias, and a few of the common kinds, there is very little fruit, and the trees have been covered with insects. The late heavy rains cleaned them a good deal. Pear trees showed a fair amount of blossom, but very much of it was small, weak and imperfect, and fell off without setting. The crop is a complete failure, or nearly so; standards, pyramids, and wall trees are alike—there is very little fruit on any of them. Cherries had a great abundance of blossom, but the crop is light, and some of the trees have suffered from caterpillars. The Apple crop is a light one, notwithstanding there was a good deal of blossom. Some trees here that had but little fruit last year have a fair crop, but the greater part of the trees have very little or no fruit. Apricots, when the trees are good, are a fair crop. Peaches a moderate crop, when the trees are healthy; Gooseberries, which promised to be a heavy crop, are very light in general. Black Currants are very light, and the trees have suffered from frosts, cold winds, and insects. Strawberries are looking well everywhere, and promise to be fine and abundant. Taken altogether the fruit crops of 1882 are very discouraging, more especially after the bad crops of the last four years. M. Saul, *Stourton, Yorkshire.*

Improved Fence.—The engraving (fig. 124) shows a novel fence lately patented by Mr. Levis

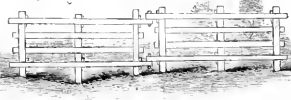


FIG. 124.—SELF-SUPPORTING FENCE.

McNall, of Allegany, N.V. It is an improvement in self-supporting wooden fences, and requires no posts set in the earth. The independent panels are connected so that they may be readily detached one from the other. Each panel is composed of three vertical parallel posts, two longitudinal rails, one at the top and the other at the bottom, and two boards attached to the posts between the rails. The rails are made sufficiently thick to ensure the strength and rigidity of the panels, and have three mortises for receiving the posts, which are secured in the mortises by means of wedges. The panels are set zig-zag, like a rail fence, and the ends are secured together by pins passing through holes in the projecting ends of the top and bottom rails of each panel. It will be seen that this fence is entirely self-supporting, and that the expense and trouble of digging post holes are entirely avoided. *Scientific American.*

Potatos: Autumn and Spring Planting.—Reports of the "flower shows" give me long-span-out, and crack-jaw names of all the floral exhibits, explaining away so-and-so's wonderful culture to the utmost; tolerable information about the fruit and vegetables, but much foreshortened information in regard to the Potato, that it would be impossible to curtail "So-and-so exhibited round, and 'other kidneys, and the biggest won!" or in other words to that short effect. I made an apology I remember in the last recondite composition I sent you, excusing myself, as it was only about Potatos; but you did not print it. An old friend of mine—he seldom writes about Potatos now—some fifteen years ago advised me not to allow myself to appear in print again. "For," said he, "at the end of ten years such subjects become exhausted, and one merges into a mere *caecætes scribendi*." He still continues to fill long spaces in your columns! and I am more deeply involved than ever in trying to keep ahead in the march of progress of our noble tuber. I find it, too, a much harder task at the present day than it was between thirty and forty years ago. Well, the young ones do not like to be told that they

are rising from the old one's shoulders. But practically, in regard to myself, I am run to the end of my tether; and the Potato is not now in existence that I could cross my seedlings with to give me better results in improving breed and flavour, and I will add crop. I could easily gain size, but not worth an otherwise, I think, the result of "in-and-in" crossing would prove. At this time of the year the chief part of the study in raising new seedlings is feature, and this can now be well learnt in the trial farm of our enterprising Reading firm—the Messrs. Sutton & Sons. There is a long parallelogram of Potatos planted the middle of last November, with an opposing spring-planted plot of the same length, having two rows of the same varieties exactly opposite each other. Many years ago I contracted this autumn-planting plan, and gave the results through the horticultural Press against it; the late Rev. W. F. Kadclyffe entered into the trials at the same periods, and his opinion proved the same. Here, at the Messrs. Sutton's, the spring-planted tubers have certainly won the day. The majority of those autumn-planted bear a premature stunted look, Sutton's Early Border only showing equality in robustness of haulm with its spring-planted counterpart. Fenn's Graf Hybrid gives evenness and the peculiar autumnal ripeness of foliage, and so do many of the others, without the evenness, but "gappy," and decidedly unpromising comparatively with those spring-planted. The Messrs. Sutton deserve the thanks of the public for this *exposé* of autumn-planted Potatos. I think it sufficient to settle the question forever; but we will wait for the digging and the result of the crop to come. When in haulms can look better and more promising than those which were planted in the first week in April. Amongst the large number of varieties grown to be proven and upon trial for merchandise, I have singled out some of the newest varieties which appeared to me to be most worthy of notice, with names ad without, viz., Early Cluster, Cosmopolitan, Crump's Seedlings; Anneford's Potato, a seedling from Wrexham; Golden Multiplier, Albert Edward, sport from Rector; Lady's Fingert, a sport from the latter, and Clive's No. 2 (both seedlings crossed from Magnum Bonum and Woodstock Kidney). A gentleman has sent to the firm natural seedlings from Woodstock Kidney, curiously "harking back" into types of many of my old crosses. Others send Snowflake-looking seedlings, "a seedling of a deeper colour than Bountiful," a red round seedling, Emerton's Advance, a red Potato from Belfast, Empress, "a beautiful white round, but miffy;" Ross's Magne, Dux, and Sir Walter Raleigh, Gaius's Seedling, Princess, Beatrice, Barlow's Seedling, Pomme de Terre No. 9, a seedling from France; Dean's Early Purple, Wheeler's Safeguard, White Mountain, Queen of the Valley, American Magnam Bonum, Early Vectis (a very dwarf type of Ashleaf), Fenn's new white kidney, Prizetaker, Standard, Sutton's First and Best, Filbasket, Rev. W. F. Kadclyffe, Worthington G. Smith, Fitzfloyd, Reading Russet, Fenn's Early, and the latter, Fenn's Annie, Argonistis, Improved Bountiful, &c. These are American seedlings, and if they turn out like most of their predecessors we may have to exclaim "Handsome is as handsome does." Other parallelograms of ground are in vicinity for testing the samples from the different growers. It is curious to witness the strength that some sorts have over others of the same variety coming from different counties and soils, those from Islip, in Oxfordshire, showing remarkable extra robustness. Again, there are squares of some one hundred new or popular varieties, a peck of seed being devoted to each square; these will appear by-and-by very instructive. And again skirting the Great Western Railway are plots of ground planted with bushels of tubers, in varieties, an inspection of which causes me to exclaim, "I do not know, and I do not suppose a Potato connoisseur could visit any trial ground where he could gain more instruction in this particular, and let me add any other researches in the ways of seed growing, than in the trial grounds of the Messrs. Sutton." These visits always afford a great treat to me, and the few cursory observations I have now been led to make I propose to be a mere preliminary to a severer scrutiny of my favourite esculent to follow. Opposite the Messrs. Sutton's grounds stands the well-known entrance to the Royal Agricultural Society's show grounds, which now affords a busy scene in its career of progress—wards completion. I think the Royal Agricultural Society may be congratulated this year upon their site. *Robert Fenn, Cottage Farm, Sulhamstead Abbotts, Reading, June 10.*

Bedding-out.—Some hints were recently given on bedding-out, and the effect that might be produced by certain combinations and admixtures of plants, and a very good one is that of Abutilon Thomsoni and Salvia patens, which blend splendidly, the lovely deep blue of the flowers of the latter showing up in the most pleasing contrast with a beautifully soft yellow spotted leaves of the former. To give the Salvia fair

room to respond and send up its spikes of bloom, the Abutilons should be planted thickly, and the *Salvia* dotted regularly over the ground amongst them, and if the branches of the Abutilon are pegged down a bit the *Salvia* will be able to push its way well up above them. Another mixture almost if not quite as telling, is that of the above-named Abutilon and *Verbena venosa*, as the latter, being of spare habit and having tall wiry stems, distributes itself thinly over the bed, and quite lightens it up with the many soft coloured heads of blooms which it bears. The Abutilon itself may be used in a variety of ways, and asson-ingly well with the deep copper leaves of *Ricinus Gibsoni*, with which it may either be mixed or planted as an edging, and the same with the dark foliaged *Cannas*, but being of similar form to the *Ricinus*, the Abutilon looks most at home in its company. Dotted here and there in the shrubbery or herbaceous border in the foreground of *Delpiniams*, equally well with the very striking, and forms a noble object of itself in the autumn, by which time it attains a respectable size, as in good soil it is of very quick growth. The thing in grouping or mixing plants is to make choice of those of kindred character, and so arrange them that there is no stiffness, and in a way that they look normal, which they will if their habit is similar, as may be seen when Palms and Ferns and such like foliaged plants are brought together, with which there is no incongruity. *7. S.*

Lycnis vespertina, fl.-pl.—While admitting the difficulty of propagating successfully this still rare old-fashioned plant, which Mr. Dod alludes to p. 746, I would say that he has been misinformed respecting its propagation being confined to foreign sources, since I propagated nearly one hundred plants of it last year. It is by no means readily increased, however; much patience is requisite, and in many cases that patience is not substantially rewarded. Spring is the best time. Where strong plants exist in the open ground (which by the way is not an everyday occurrence), select some of the strongest shoots to peg down, when they will produce young shoots from each joint; when they are about 2 inches long strip them off by the heel, and without dressing the cuttings in any way insert them in pots in the ordinary way, then place them in a cold frame or under a handlight for seven days or so, when they may be introduced into very gentle warmth, under which influence the cuttings will soon commence to grow. When of sufficient length the tops may be taken off, and inserted in other cuttings-pots, taking care to cut off close to the joint; these generally root in about three weeks or a month if carefully attended to—the original cuttings taking much longer. Should Mr. Dod's plants be small ones, I would advise his planting them out in good rich loam, when they will soon push into vigorous growth; if the plants can be covered with a hand-light so much the better, young slender cuttings will soon be produced. To those who may perchance have the clumps of this plant I would say, lift them in October or November, and strip off from the rootstock all available shoots, and stick out under a hand-light; these will root by the following spring, and always make good plants. I have also tried this from layers and root cuttings, but without success; in the case of the layers they generally callus readily, but afterwards canker and decay; the root cuttings usually retain vitality for several months, and then turn black. The synonymous name for this *Lycnis*, viz., *L. dioica*, is used by nurserymen for *L. diurna*, syn. *L. sylvestris*. I have never found *L. dioica* with red flowers in a wild state, and should be glad to learn if any correspondent of the *Gardeners' Chronicle* has. *L. vespertina* generally inhabits cornfields, and seems to all outward appearances distinct, and does not commence flowering as a rule till July; while *L. diurna* flowers early in May, and does not grow as tall by some 13 inches as the first-named plant, the general habit of each being most distinct. I should be glad of an expression of opinion on this point. *E. Fenkins.*

Flora Danica Dinner Service.—There is now being exhibited in one of the courts of the South Kensington Museum, an admirable collection of objects illustrative of Scandinavian antiquities and art from barbaric almost down to the present times. The examples illustrating the newer stone age and the ancient bronze and iron periods are very remarkable, and as regards the first (which are reproductions) nothing comparable with has probably ever been seen in Britain. The whole of the exhibition is extremely valuable and instructive. Amongst objects of recent date is a dinner service of seventy-six pieces, of the Danish (Copenhagen) porcelain from Rosenborg, painted (says the label) with the "floral forms" of Denmark, and known as the "Flora Danica Service." The different pieces, some being very large, bear painted reproductions from the famous coloured plates of the *Flora Danica*, and inside, or underneath each piece, the name of the plant represented is painted, with a reference to the volume and number of the plate.

A remarkable thing is, that the dissections of the flowers are painted as well as the general habit, and such scraps as a calyx, corolla, pod, or even seed are given. Large roots are in several places painted. Not only are flowering plants reproduced, but Mosses, tails, seaweeds, Liverworts, and even fungi, are given on this service. A centre piece is a basket containing a large group of well-modelled and painted flowers. The service is very handsome, and contains some curious pieces and curious subjects; but there are curious people, it is clear, even amongst botanists and horticulturists. One plate, possibly for dessert (say *Blan. mange*), has a large lump of slimy dry-rot most lovingly painted; a gray-boat has a piece of rotten wood with several sticky fungus attached, cleverly portrayed at the bottom; another plate has a very "loud" group of the venomous *Agaricus fascicularis* painted to the life, the moist tops and poisonous green gills being cleverly reproduced. *W. G. S.*

New Vegetables.—In my opinion enough of justice is not done to these. At many shows we find prizes given for the best seedling fruit or plant, but I know of no instance where a prize was either offered for or awarded to a new vegetable. Special shows, such as the International Potato one, do sometimes offer prizes for seedlings; but the greatest gatherings, such as our International Horticultural Shows, do not give the slightest attention to the subject. No doubt the greatest event of this year will be the International Show at Edinburgh, and here £7 is offered for "Seedling Grapes not in commerce," but not a half-penny is offered for any seedling vegetables. No one, of course, can object to this liberality, but why confine prizes of the kind to Grapes? There are many other products of our gardens, the improvement and introduction of which would benefit the general public far more than Grapes, and would it not be well to encourage their production and exhibition of such? New plants not in commerce have frequently their classes, but good useful every-day vegetables, in which everybody is interested, are kept in obscurity. True, they may always be exhibited at shows, "for the opinion of the judges," but in cases of the kind they are seldom acknowledged according to their merits, being generally placed in the odd corner, to be hurriedly looked at after all else is judged. If a special class were devoted to them this would not be so, and I would respectfully suggest the introduction of a separate class and good prizes for any new vegetable not in commerce at all shows of any importance. I am glad to see from your advertising columns that Mr. Gilbert and others are going to have a show of seedling Potatoes, and I hope that they or others will give this matter their attention and support. If it is not too late to introduce a "new vegetable" class at Edinburgh, I venture to assert that it would be both well filled and highly interesting. *7. Muir, Margam.*

Stephanotis floribunda.—In your issue of June 3 I noticed remarks on a *Stephanotis* with seven segments to the corolla. We have here a plant which has flowers with seven and eight, and it has flowered three years true to character. It is unfortunately over now, or I would have sent you a truss. *H. Howard, Castle Malvern Gardens.*

Honey-Dew.—Bee-keepers will rejoice greatly at what they regard as honey-dew, the deposit of which is very heavy this year, as aphids are more than usually prevalent, the undersides of the leaves of Limes, Sycamores, Cherries, and most other trees, being quite covered with them, and, as a natural consequence, the foliage below is heavily coated with their excreta, which they exude in such quantity as to form a glutinous paste, and varnish the leaves quite over. Many look on this so-called honey-dew as a sort of distilled sweetness brought down from the atmosphere by the influence, and never dream of aphids, or think it of no discharge from any insect, else they would not be found, as I have seen them, licking the nectar off, and appearing to enjoy it, till they knew from what source it came, when they soon showed disgust, and a violent fit of expectorating seized them. Hop-growers, and those connected with gardening, know only too well what honey-dew means, and when they see it are well aware that the enemy is at work, and the vital energies of the plants, and crippling the growth. What is wanted now is a good down-pour of rain to wash the foliage, and cleanse it of the parasites and honey-dew; for though the latter may be good for the bees, and go far towards assisting them to fill their hives with honey, it stops the pores of the leaves, and prevents free respiration, and thus interferes with their health. Whether extra electricity in the air has anything to do with the destruction of aphids I know not, but I have often noticed, immediately after a thunder-storm, whether accompanied by much rain or not, that trees are much free from them; and it would appear, therefore, that in some way it brings about their destruction. *7. Steppard.*



ROSES AT THE OLD NURSERIES, CHESHUNT.—Seasons are few and far between when there would be much to say about Roses at the end of May, unless the observations were confined to the appearance of the tender shoots and leaves. But this remarkable spring, Roses, and not a few, were in bloom; whole rows of some kinds, on the Manetti stock, were sufficiently out to give a forecast of what the season's flowers promise to be. As a matter of course, there is the most interest attached to the newer kinds, particularly those that have come out within the last year or two, and which have not yet been fully proved. Amongst those that are evidently early bloomers is Madame Montet, a beautiful warm pink, with enormous shell-like petals, measuring near upon 23 inches wide by 2 inches deep, most lovely in the half-petalled flowers; Guillaume Gillemot, bright rose-carmine—this will also be an early sort, and, as here seen, promises well—it is a big flower, with very large even petals, extremely vigorous, the foliage unusually large, some of the shoots so early had reached 4 feet in height; Alfred Dumesnil, an even cupped Rose with good petals, carmine, with a violet shade. Catherine Souper, a rose-peach Jules Margottin, is very handsome and extremely vigorous. The Tea-scented Madame Chedane Guinoissaine is lovely in the bud state, deep lemon-coloured. Glory of Cheshunt is here the earliest of the red Roses, and well maintains all that has been said of this fine variety. Of this year's new Roses may be named May Paul, Tea-scented, which bids fair to be a fine addition to the class to which it belongs—climbers of the Gloire de Dijon type, the outsides of the petals are red, paler inside. If it turns out as free in growth and flowering as Gloire de Dijon it will be everybody's Rose. Etiole de Lyon, a beautiful yellow Tea, not unlike *Etiole Sauvage*, but a strong grower. *Violette Bouyer*, H.P., white, with the slightest dash of flesh colour when open, will be liked by the Rose loving public. Madame Jules Grey, H.P., delicate peach-colour petals like La France. White Baroness: this sort quite maintains the high character first formed of it, as free from the defect in Mabel Morrison not coming full enough. Regarding new Roses, Mr. Paul is not by any means in a rest-and-be-thankful mood, as the long bed, with hundreds of this year's seedlings that are now well above-ground, testifies; amongst them it is not expecting too much to look forward to yet more that will gladden the growers of this universally favourite flower.

In the sheltered nook far from Mr. Paul's house, almost wholly occupied by Tea Roses, with a shelter line of cordon Pears surrounding, the Roses have now had raised beds prepared for them, and are in a most vigorous condition, many being already in flower. The mild winter, succeeded by a spring which has given them no check, has favoured healthy early growth. The beds have deep alleys between them, like the old method of growing Asparagus, the object on this strong soil being to keep them as dry in the winter as possible; a selection of all the best Teas are here planted. By the way, the Pears on the cordon, which include most of the best kinds, have set such a crop as to require quantities thinning off—a state of matters that, we fear, will not occur in many places this season. Nothing finer could be wished for than the appearance of the Roses collectively, which only require a continuance of favourable weather to give a remarkable bloom. The influence of the Manetti stock in exciting early growth is this season to be seen at Cheshunt more than usual; most of the newer sections of Roses are grown in two rows side by side, one on the Manetti and the other on the Dog, the former in every case being near upon a fortnight earlier. This is a gain from a general garden point of view, in so far lengthening the Rose season in localities where early growth is not liable to be injured. In places more than ordinarily subject to spring frosts, it points to the non-desirability of using the Manetti.

A collection has been brought together of two very interesting descriptions of Roses, including all the

striped kinds, of which the old York and Lancaster is best known; and also of the most distinct single varieties, which have a refined beauty of their own, and will doubtless be admired and grown by many who now can see beauty in a flower although it may not be double, and whose ideas are not so far fixed as to look on the admission of single Roses to careful cultivation as either a want of taste or inability to appreciate the work that has been done by those whose patience and perseverance has brought the Rose, as now approved, up to its unquestionable standard of excellence.

Notices of Books.

The Agricultural Depression and How to Meet It. By Alfred J. Burrows. 1882. Reprinted from the *Journal of Forestry and Estates Management*. London: William Rider & Son.

Our contemporary, the *Journal of Forestry*, has enlarged its plan. It is now a *Magazine about Trees and all Subjects connected with the Management of Estates and Rural Life*, and the present volume, by a Kentish land steward, reprinted from its pages, is a good omen of success, being a thoroughly practical volume, full of concisely written information on farming subjects. The table of contents includes tithes, rents, pastures *versus* corn growing, high farming of arable lands, increased production, middlemen, stock, market garden and fruit growing, tenant-right, &c., and all the other familiar topics which make up the sum total of what is called the "agricultural question." All these subjects are treated with much intelligence and sound sense, as, for example, in the essay on "Small Farms and Peasant Proprietors," the science and machinery of the large farmer are relied on for England rather than the spade of the little freeholders; and at the same time the merits of small holdings, when cultivated after the manner of market gardens, as in some parts of this and other countries, are admitted. The author is unbiased, and has the rare merit of showing more care for presenting to his readers knowledge and facts than for indoctrinating them with a particular theory, even when dealing with such vexed questions as the land laws and the tenure of land. Most of us lean in sympathy towards that admirable person who conserves and strengthens—*the small proprietor*; and Mr. Burrows remarks that the enormous growth of kitchen garden produce in France is rendered possible by the subdivision of the land. It is certainly rendered impossible here by the system of large farming, and it is a question of much interest to what extent an improved diet, including more "vegetables," and, we may add, more milk and more of the minor products of agriculture, might be encouraged by the growth of small farming.

Mr. Richardson says, in his work on the rural economy of France, "It is clear that these small holdings, worked by a man's own family, do pay; and considering how largely agriculture is likely to become an affair of kitchen gardening, will continue to pay more and more. The growth of kitchen garden and fruit produce in France is so large that it quite ceases to be in the category of small undertakings; the returns of 1873 show that a million and a quarter of acres grow green vegetables." Here, too, the minor products would be best attended to by small farmers and their families, and we, like Mr. Burrows, have no fear of the uniformity which the prevalence of that class, or any other class, would establish. We expect to see it increase simply because it can, when training and education are not wanting, grow some things more cheaply than they can be produced by large farmers. We cannot vie with France in some products. As Mr. Richardson points out, the Grapes of Thomery, the Broccoli of Roscoff, the Asparagus of Argenteuil, the Melons of Vaucluse, where 8000 grow on every acre, are found in their season in all the capitals of Europe. The sun does more for France than for us, but we can beat the world, Mr. Burrows thinks, in Gooseberries, Osier-growing, and basket-making, and also in the manufacture of jam.

Some Kentish gentlemen have resolved lately on making jam in factories of their own, and whether they succeed or not (and that will depend solely on management) there is no doubt the Kentish growers already excel in small fruits. *Small Farms and Fruit Growing*, formed the subject of a little work by a clergyman, the Rev. William Lea,

who grew the following weights on two acres, and hopes to do better:—

Green Gooseberries	lb.	2,497
Black Currants	1,603	
Coloured Plums	2,710	
Pershire Egg Plums	6,972	
Strawberries	359	
Apples	830	
Pears	674	
Quinces and Medlars	59	
Filberts	47	
Total produce of two acres	15,047	

As Mr. Burrows observes, in these days of enormous jam manufactories nothing need be lost of the produce of fruit gardens, even windfalls may be utilised. Our author gives abundant reasons for reliance on self-help in agricultural as in other practical affairs, and, for the sake of the very large amount of information his book conveys on the methods of improved culture, we cordially recommend it. In other departments which we have not noticed—such as the improved breeding and management of live stock, and the better cultivation both of arable land and pastures—Mr. Burrows enters the special province of the large farmer, the grazier of Northamptonshire, or corn grower of the Eastern Counties or other districts. He tells us, for example, of an improved breed of sheep which gave an average increase from birth of 4 lb. of mutton per week each up to forty weeks old—a maximum result no doubt; but one which stock farmers may aim at, nevertheless, both in the production of beef and mutton, remembering, moreover, the adage that "the more meat the more corn," on arable land. Examples are also given of the profits of pasture as well as arable, and of the kinds of soil adapted for each. The author never suffers from prejudice, and is, therefore, able to explain the rationale of particular systems, and to discuss such subjects as tenant-right or local taxation without exaggeration. It is hardly necessary to add that he recognises the causes of depression, and while giving a "proper place to every sound plan of improvement, political or practical, he acknowledges that "genial seasons, more than all other causes, must be relied on to restore prosperity."

The Crops of the Farm.

This is one of the series of real Handbooks of the Farm now in course of publication by Messrs. Bradbury, Agnew & Co., under the general editorship of Mr. J. C. Morton. The titles of the chapters will suffice to show the scope of the work. They are devoted to (1) Permanent pasture, (2) Rotation of crops, (3) Grain crops, (4) Root crops, (5) Forage crops, (6) Lying down land to permanent pasture, (7) Exceptional crops, (8) Weeds. We are glad to see that the practice of the market gardener is held up for imitation. By superior tillage, abundance of manure, and plentiful labour, he gets many crops off the same land within the year, paying but one annual rental. Of course the circumstances and conditions of the farmer are often different, still the general principle followed by the market gardener is one which the farmer should endeavour to adapt to his exigencies. There is room also for more progressive improvement in the hybridisation and selection of cereals and other farm crops. Every farmer should have his own trial ground for experimental purposes, and he should learn to be wary of those monstrous roots which seedsmen display at their exhibition stands; they are for display at exhibitions rather than for practical utility. This is a thoroughly practical little book, which may be confidently recommended.

— *The Laboratory Guide*.—We are glad to notice the fifth edition of this very clear and useful work, by Professor Church. Though intended primarily for agricultural students, it is perfectly well adapted for horticultural students also, and, indeed, forms an excellent introduction to practical chemistry for any class of students. Mr. Van Voorst is the publisher.

— *The Journal of Forestry* for June appears under new editorship, viz., that of Mr. Francis George Heath, who succeeds to a task of great responsibility, the editorship of his anonymous predecessor having been so uniformly good. We are glad to learn that the character of the *Journal* is not to be altered. A valuable table in the present number gives the prices realised per cubic foot of various kinds of timber in several of the counties of England and Scotland in the season 1881-1882.



Florists' Flowers.

SEASONABLE NOTES: AMARYLLIS.—The very latest to bloom of these are now over, but the Amaryllis more than many other bulbous plants must not be neglected when the flowering season has passed. If any seeds have been saved they will also be ripe, and should be sown immediately. In the first place, as to the old plants, keep them in a temperature of 65° at night, and if they can be afforded a bottom-heat of 85° that will help to stimulate root action, for the plants now make plenty of roots. The leaves are also sometimes attacked by thrips, but they must be cleaned by washing them or fumigating the house. If the plants are grown on freely for two months longer the bulbs will become very much larger, and will be matured so that they will be sure to flower well the following seasons. The young seedlings soon appear above-ground after the seeds are sown, and when the plants have made some growth they should be pricked off into other pots, and still keep them growing on gently during the autumn and following winter, as the object is to get them into bloom as soon as possible. The plants, even when not in flower, do not like too much exposure to the sun, and should be shaded in hot weather.

AVALEAS.—The early-flowering plants should now be pushed on in a high temperature and rather moist atmosphere, so that the flower-buds may be formed at an early date. They should also be placed in a light house, and not be crowded too closely together, because if the young wood has to be formed where it does not get sufficient light and air it will not develop a plentiful crop of large well-formed flowers next season. As other plants go out of bloom remove the decayed flowers and seed-pods at once, as they have a tendency to exhaust the plants. They should also be removed to a forcing-house to make their growth, if it is possible to do so. Sometimes it is possible to keep the greenhouse a little warmer, and also to syringe Azaleas and Camellias when they are making their growth. See that the plants are kept free from thrips and red-spider. If they are clean the syringing helps to keep them so, but if they are infested with insects they must be dipped in a tobacco-water solution. If any plants are to be kept as late as possible for any purpose they should be placed in a late house, and have plenty of air admitted. There are late sorts that, with good management, may be flowered in July.

CINERARIAS.—These plants do not like the hot weather in June and two following months. I find the best place for them is in a cold frame, or a pit with a north aspect. The plants intended to flower early should have been potted off some time ago; ours are good-sized plants in large 60's. They will soon want potting off in good soil, of which a fourth should be rotten cow-manure and as much leaf-mould. Greenfly is very troublesome during hot weather, but it should be destroyed at once. Thrips also attack the leaves; fumigating with tobacco-smoke is the best way to destroy both of them. Propagate stock of all that it is intended to perpetuate in that way. Some of the new double varieties are greatly admired, and the new single varieties raised by Mr. Cannell, of Swanley, have carried us very much forward in the path of progress. The named varieties can readily be increased by cuttings or offsets from the base of the old stems; they should now be put in round the sides of small pots, using fine sandy soil to pot them in.

FELARGONIUMS.—The show section of these should now be in full beauty, and no other plant is so easily grown, and at the same time so well adapted to furnish the greenhouse and conservatory with beautiful flowers. If the plants have been kept free from greenfly up to the time of flowering they will not suffer from its attacks until the bloom is over, when they can be removed out-of-doors to be ripened off preparatory to cutting them down. If good cuttings can be obtained now they should be inserted singly in thumb-pots, and be placed on a shelf in the green-

house; they will soon form roots, and grow into good flowering plants for next year. What is termed the "decorative," and also the fancy section, require much the same treatment. The zonal Pelargonium we find most useful to begin flowering when the other sections are over, and for this purpose we have plants potted into 6-inch and 7-inch pots; these will continue to produce flowers until October, when a fresh batch of plants, which are also now in preparation, will take their place; this last lot are from cuttings taken off in April. They are yet in large 60-sized pots, but will be potted off as soon as all the bedding plants are cleared out of the way. *J. Douglas.*

THE HERBACEOUS CALCALARIAS.—Of late several notices of collections of these have appeared in the columns of the *Gardeners' Chronicle*. That fine strains of Calceolarias are being grown is a fact no one will deny, but one is sometimes disposed to ask, in the work of improvement does the habit of the Calceolaria receive as much attention as the flowers? Thirty years ago, when there was as much activity among the raisers of Calceolarias as there is in the present day, and when it was customary to name new varieties and propagate them by means of cuttings, it was strongly insisted upon that habit should have as much attention as flowers. The time soon came when the practice of naming flowers was discontinued, and seedlings were depended on entirely, and then it was that the production of flowers received more attention than habit, and a deterioration of the latter characterised more or less the finest strains. It was owing to this that Mr. James and others attempted to work something of the sturdy habit of the shrubby varieties on to the large-flowering type, and we had to some extent size of flower in combination with habit, and thus an important stage was reached. Since then signs of deterioration have manifested themselves again. We have now flowers of great size; but what shall be said of their form? All the fine properties of form and outline that were so strenuously contended for by the last generation of florists appear in danger of being altogether forgotten, and we have now, generally, a heritage of large, flat, angular, illshaped flowers that have nothing but their size and showy colours to commend them to public notice. There are exceptions to this, but they are few. At the great Whitson show at Manchester several collections of Calceolarias were staged; but, with the exception of the 1st prize lot, the quality of the flowers was scarcely in advance of those shown twenty years ago.

We raise a new department. If the material on which raisers are now working does not yield satisfactory results, let them hark back to first principles of form and habit and start afresh. It is often advantageous to do this with flowers, and the act carries with it no necessary sense of failure. In the great heart of Nature there lies an infinity of form, colour, and the other characteristics of a fit beauty, waiting till the touch of the patient worker shall call them forth and transmute them into the precious metal of realised facts. There can be no real pause in the development of any flower. The possibilities in Nature are as infinite as the starry heavens above, and they stretch away into a space so vast that generations very remote will not have cause to fold their hands and say, "We have discovered all." There are deteriorating as well as improving influences at work, giving tone and direction to the efforts of the raiser, and it is necessary he should, as far as in him lies, seek to reduce the first to a minimum, and impart added decision of attainment to the second. Floriculture, pure and simple, needs something like a revival in our midst; and it may be that new men are coming forward to tread the old paths by which so much of floral renown was won in the past. *R. D.*

CALCEOLARIAS AT READING.—Only a few weeks ago a fine and interesting trial of these were on view at the London Road Florists' Seed-grounds of Messrs. Sutton & Sons at Reading. A large number of plants grown in the fine style peculiar to this firm fitted a lean-to house of considerable dimensions. Among the plants were many that comprised, in a happy union, size and form of the flowers with brilliant colours, and a short-jointed, robust habit of growth. It is only just to Messrs. Sutton & Sons to say that, having noticed the faults of form and sparseness of habit that characterised some of the prize strains of Calceolarias, they have resolutely set themselves to work to improve both, and they have succeeded in a remarkable degree. The most patient and persistent crosses have been attempted, and not

only have the shape of the flowers and the habits of the plants undergone substantial improvement, but new and striking shades of coloured flowers, especially in what may be termed "barred" flowers, are noticeable. Such a strain produces rare exhibition plants, as would be reasonably inferred from the character of the specimens grown by Messrs. Sutton & Sons.



Reports of Societies.

Royal Horticultural. *June 13.*—The falling-off alluded to in a recent number was again apparent on Tuesday, and the committee meetings, as well as the evening *file*, were, as a consequence, of a less interesting character than they should have been. For the latter event, always looked forward to with a great amount of pleasure, the weather was unfortunately as unfavourable as it well could be, a drizzling rain commencing about 6 P.M., and continuing throughout the night with but slight intermissions. Outside promenading—always the most enjoyable feature of an evening *file*—was of course out of the question, and the result was, to some extent, a crush in the conservatory and arcades, which were well illuminated with the electric light, except perhaps the conservatory, which was not a success, the lights being very unsteady. The arcades were nicely decorated by Mr. Barron with large collections of Pelargoniums, Gloxinias, Begonias, Fuchsias, Mignonette, and a large assortment of other well grown plants from Chiswick, aided by capital collections from B. S. Williams, Messrs. Veitch & Sons, and Messrs. Rivers & Son, whose pot Nectarine and Cherry trees, well laden with fruits, were very much admired. Cut flowers of a bold and effective character were contributed by Messrs. Barr & Sugden and Messrs. Hooper & Co.; and Mr. C. Noble contributed some grand bushes of his very fine Rhododendron, which has been christened in his own honour. In the eastern arcade there were several table decorations, but none which call for comment on the score of novelty or unusual excellence.

SCIENTIFIC COMMITTEE.—Rev. M. J. Berkeley in the chair.

Hollyhock Fungus.—Rev. M. J. Berkeley showed *Hollyhock Fungus* unusually severely affected with the Puccinia Malvacearum. A species of Fusisporium was also present. Mr. Berkeley considered it possible that the spores were introduced with the seed.

Red-stained Timber.—The Rev. M. J. Berkeley showed pieces of timber taken from mid-walls of old cottages in Northamptonshire—the timber rotted and stained with a Sphaeria, *S. rhododaphna*.

Hybrid Dipladenia.—Mr. Wattie, gr. to T. Cordes, Esq., Bryn Glas, Monmouthshire, sent flowers of a very lovely pale pink Dipladenia, concerning which the committee were anxious to obtain further information.

Diseased Cabbage-leaf.—Dr. Masters showed a leaf of a Cabbage, the under-surface of which showed numerous pustules. The first appearance presented was that of a small shining pimple springing from the nerves of the leaf, and very frequently from the knots where the smaller secondary nerves interlace. Ultimately the pimple becomes an open, longitudinal pustule, averaging about one-tenth of an inch in length, with a central slit, and everted, dry, somewhat corky edges. Microscopic examination showed the cellular tissue generally much enlarged, with a deficiency both of chlorophyll and of starch. The wood-cells and vessels were also enlarged, and deficient in thickening matter. It was supposed that the injury was due to a mite.

Tumours on the Branches of Abies amabilis, &c.—Dr. Masters showed specimens of shoots presenting irregular smooth oodose swellings, such as cause such unsightly deformities in the case of *Abies nobilis*. The swellings in question are caused by an insect allied to that which causes the American blight on Apple trees. The alterations of structure are similar to those described by Trilieux in the case of the Apple, and briefly consist in the enlargement of the cells of the inner bark and of the outer layers of wood, the constituent cells of both being enlarged, altered in form, and comparatively destitute of the thickening substance in the interior. The ordinary flattened or oblong brick-like cells of the herbaceous bark containing chlorophyll are also much enlarged, and their flattened form replaced by a globular one. The wood cells were not only enlarged but dis-aggregated, causing the spongy appearance noticed when the tumours are cut into. Purplish discolorations of the wood are also seen. On the whole, the changes consisted in the modification of the ordi-

nary tissues, not in the formation of any new ones. It was generally thought that there was no remedy for this deformity—at any rate, it was but rarely any attempt was made to combat it; but Mr. Barron, of the Elvaston Nurseries, Borrowash, has succeeded in killing the insect by means of Fir-tree oil, and healthy growth subsequently ensued.

Thuya Lobbi and *T. gigantea*.—Hon. and Rev. J. T. Boscaewen showed figured specimens of these, to show that the two were different. The specimen called Lobbi had been recognised by Lobb himself as the true Lobbi. The specimens were referred to Dr. Masters for examination and report.

Iris Fungus.—From Mr. Lynch, the Botanic Garden, Cambridge, came specimens of Iris leaves affected with the *Iris Puccinia*, together with notes thereon by Mr. Berkeley and Mr. Lynch. The specimens were referred to Mr. W. G. Smith for further examination and report.

Plants, &c., Exhibited.—Dr. Masters showed from Mr. Barron's nursery at Borrowash cones of *Pinus contorta*, a Californian species, remarkable for its curiously twisted branches and deep green leaves. The cones were between 2–3 inches long, ovoid-conical, the umbo of the scales prolonged into a long awl-shaped point. Dr. Masters also showed a branch with cones of *Ficea ajacis* (probably the variety described as *microserpa* of Lindley, and the var. *japonica* of Maximowicz). The plant is fully described in the *Gardeners' Chronicle*, January 24, 1880, p. 115. It is often confounded with *P. Alcockiana*, which, however, has more needle-like, less flat leaves than in *P. ajacis*, in which also the apex is abruptly acute, not gradually so, as in *P. Alcockiana*. The difference between the two is clearly observable in the young growing lateral shoots of the year, which in *ajacis* are flattish on one surface, convex on the other, while in *P. Alcockiana* they are more perfectly cylindrical.

From the same nursery Dr. Masters brought specimens of a Pine under the name of *P. tabuliformis*, which he considered might be the true *P. Massoniana* of Lambert; also of *Larix leptolepis*, a Japanese Larch.

Acacia salicifolia was shown from the same nursery. This shoots are greenish striped with silver, the shoots of the year and the petioles pale claret-red. The glabrous leaves are palmately 3-lobed, lobe deltoid, acuminate, doubly dentate. The samaras are in long pendulous racemes, the pedicels slender, appressed, about $\frac{1}{4}$ inch long, young samaras measuring $\frac{1}{2}$ inch across, wings divergent, obliquely oblong. From Mr. Kinghorn's nursery at Richmond came specimens of the bark of *Pinus Bungeana*, the white-barked Pine of China, in which the bark flakes off as in the Birch and Plane, leaving the uncovered bark of a pale whitish hue. From Herr Kirchoff, of the Royal Gardens, Donaueschingen, came a fine plant of *Tilandsia Furstenbergii*, an acaulescent species with tufted glaucous leaves, dilated at the base, linear-lanceolate, channelled on the upper surface, and finely toothed at the margins. The flower-spike is erect, thickly beset with beautiful lanceolate rosy bracts, powdered over with whitish meal.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. Veitch & Sons were the largest exhibitors of new plants at this meeting, their contributions including *Aerides formosum*, hort., a partly supposed hybrid between *A. larpentae* and *A. odoratum*; *Nepenthes Mastersiana*, which was figured and described at p. 749, vol. xvi.—a very vigorous growing seedling from *N. sanguinea*, itself not one of the easiest to cultivate; *Adiantum Legrandii*, a garden variety of the *A. gracillimum* type, but having imbricated segments; *Rhododendron balsamiflorum*, quite a novelty, the flowers being very double and salmon-pink in colour; *Sarracenia porphyoneura*, with erect pitchers with large circular lids, which, as well as the upper part of the pitcher itself, is traversed by purple-coloured veins; *Impatiens Sultanii*, a dwarf species, from *Zanzibar*, with lanceolate, deep green, shining leaves, and rose-crimson flowers of moderate size; *Gloxinia Robin Hood*, intense blood-red, with the margins of the segments of a paler shade; and *Gloxinia Garibaldi*, a fine pure scarlet. Herr Kirchoff, Royal Gardens, Donaueschingen, Baden, sent a flowering plant of *Tilandsia Furstenbergii*, noticed under the head of the Scientific Committee. From Sir Trevor Lawrence's garden Mr. Spyers brought up a magnificent variety of the grand *Cattleya piggas*, named *Purfordensis*, and which is entirely new in all its parts, the petals the type, and most richly coloured; *Zygotium* expansion, a species remarkable for its tall spike of flowers, and its broad purplish-lilac lip; and under the name of *Masdevallia Harrayana striata*, the fine variety described as *M. Harrayana versicolor* in our number for September 3, 1881, p. 306, as having made its appearance with Mr. Stevens at Trentham in an imported batch. A well grown specimen of *Cattleya Warneri*, with fifteen flowers, was sent from Mr. & Mrs. Salter, gr. to J. Southgate, Esq., Streatham; and a small plant of *Masdevallia tovarensis* with fourteen flowers, which had been grown in a cool-house, came from the Chairman's collection. A very pretty form of *Odontoglossum vexillarium* named

Cobbanium, in which the labellum is pure white, and the upper sepal and two upper petals shaded with rose-lilac; and a strongly grown piece of Epidendrum vitellinum majus came from W. Cobb, Esq., Sylvendale Lodge, Sydenham. From Messrs. Vervaeck & Co., Ghent, came flowering plants of *Bollea caelestis*, and *Odontoglossum nebulosum*; and Messrs. John Laing & Co. sent a very large scarlet-flowered tuberous Begonia, named after the Hon. and Rev. J. T. Boscawen. From Chiswick came, amongst other things, one of M. Lemoine's seedling Ivy-leaved Pelargoniums, *Comtesse Horace de Choiseul*, a very fine double pink. Mr. W. Hugh Gower, Tooting, showed a new curled leaf Golden Feather; and Messrs. J. & J. Hayes, of Edmonton, a new decorative Pelargonium, named Gold Mine, a pretty variety, with flowers of clear scarlet, with a dark blotch and light centre. *Viola Champion*, a fine free-flowering white variety, came from Messrs. Heath & Son, Cheltenham; and a free-flowering dwarf perpetual Carnation, named Charles Page, and having fine reddish-crimson blooms, came from Mr. Duffield, of H. K. Mayer, Esq., Winchmore Hill. Mr. Gray, of Eggsgrove, showed a pale variegated Birch; and an Mr. T. S. Ware, of Tottenham, came a choice assortment of hardy plants, including a fine variety of *Lilium elegans*, called robustum; strongly flowered spikes of *Orchis foliosa* and some of its varieties, the pretty little *Bomarea oculata*, *Tropaeolum polyphyllum*, &c. From Swanley Mr. Cannell brought up an excellent display of cut blooms of double-flowered Petunias, &c.

First-class Certificates.

- To Messrs. James Veitch & Sons, for *Adiantum Legendarii*.
- To Messrs. James Veitch & Sons, for *Acerides formosum*, hort.
- To Messrs. James Veitch & Sons, for *Nepenthes Miersiana*.
- To Messrs. James Veitch & Sons, for *Rhododendron balsamiflorum*.
- To Messrs. James Veitch & Sons, for *Gloxinia Garibaldii*.
- To Messrs. James Veitch & Sons, for *Gloxinia Robin Hood*.
- To Sir Trevor Lawrence, Bart., M.P., for *Cattleya gigas Burfordiensis*.
- To Sir Trevor Lawrence, Bart., M.P., for *Zygopetalum eximium*.
- To M. Lemoine, for Ivy-leaved Pelargonium *Comtesse Horace de Choiseul*.
- To Mr. T. S. Ware, for *Lilium elegans robustum*.
- To Messrs. J. & J. Hayes, for Pelargonium (decorative) Gold Mine.
- To Messrs. John Laing & Co., for Begonia Hon. and Rev. J. T. Boscawen.
- To W. Cobb, Esq., for *Odontoglossum vexillarium* var. *Cobbanium*.
- To Mr. Duffield, for Carnation (perpetual) Charles Page.
- To Messrs. Heath & Son, for *Viola Champion*.
- To Messrs. Wood & Ingram, for *Lobelia punila* Ingrami.

FRUIT COMMITTEE.—John Lee, Esq., in the chair.—Mr. Farr, got to Mrs. K. Sturges, Gibbons Grove, submitted to the judgment of this body very fine samples of Sir J. Paxton Strawberries and Brown Turkey Figs; and Messrs. Sutton & Sons sent heads of their Late Queen Broccoli, a very good late variety, but out of condition as shown here. From Messrs. Carter & Co. came examples of the true Fern-leaved Parsley, and a well-cured variety named New Perpetual, of which it is reported that it stands for three or four years before it runs to seed.

Edinburgh Botanical: June 5.—The Society met in the Royal Botanic Garden class-room, Dr. Cleghorn, Vice-President, in the chair.

The following communications were read:—
 I. "Notice of the Death of Joseph Decaisne," Member of the Institute, Honorary Fellow. By Andrew Taylor, Assistant Secretary.
 II. Report of the meeting of the Scottish Alpine Botanical Club at Dalwhinnie and neighbourhood at the close of July and beginning of August, 1881. By William B. Boyd, Esq., of Faldenside. The Club were fortunate enough to rediscover the rare *Menziesia cœrulea* on the Sow of Athole. The plant was first found here by Emeritus Professor Balfour, but few subsequent observers have done so. *Empetrum nigrum* and *Azalea procumbens* both grow plentifully on the mountain sides, and are to an unpractised eye exceedingly like it; but a few accidental late flowers of *M. cœrulea* were at last come on. Along the side of Loch Erioch were got *Utricularia intermedia* in flower, also nice tufted varieties of *Blechnum boreale*, and *Pinguicula vulgaris* in flower on the ascent to Ben Lawers. The Club collected, amongst other things, a nice variety of *Aspidum lonchitis*, with perfectly smooth pinnæ; and at the summit *Saxifraga cœrulea*.
 III. Mr. Taylor exhibited recent additions to the University herbarium. These included fungi sent by Joseph Bancroft, M.D., from Australia; also dried plants from Eilatrye, Central Africa, sent by John Buchanan, Esq.; likewise dried plants from Karam Valley, &c., Afghanistan, collected by Surgeon-Major Aitchison in 1880. Living plants grown from seeds and bulbs from the above African localities were also exhibited.

These included *Streptocarpus caulescens*, and several Leguminosæ.

IV. Professor Dickson exhibited a specimen of *Polemonium coriandrum* from the garden of G. H. Potts, Esq., Fettes Mount, Lasswade. It had a broadly fasciated stem, with thickly clustered flowers along its edge-like extremity. This form seems to be permanent, as it has now come up for the second season at Mr. Potts'.

V. Professor Dickson also showed two exhibits sent by Mr. Brown—one a specimen of *Cheiranthus Cheiri* var. *gynanthus*; the other a profliferous Rose, where the second flower, instead of springing from the organic extremity of the floral axis, i.e., the bottom of the hollowed out receptacle, springs from its margin in the neighbourhood of the insertion of the corolla and stamens.

VI. Mr. Sadler exhibited a lithograph of a peculiarly branching Silver Fir grown at Conshead Priory, Cumberland, giving at the same time measurements of girth, &c.

VII. The following plants in flower were exhibited from the garden:—

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|------------------------------------|-----------------------------|
| <i>Aciphylia squarrosa</i> | <i>Gentiana ornata</i> |
| <i>Delphinium nudicaule</i> | <i>Silene quadridentata</i> |
| <i>Allium oreophilum</i> | <i>Lewisia rediviva</i> |
| <i>Orchis maculata</i> Burch. | <i>Artemisia repens</i> |
| " <i>maculata alba</i> | <i>Veronica Lyallii</i> |
| <i>Dianthus alpinus</i> | <i>Polemonium humile</i> |
| <i>Androsace ciliolata</i> | <i>Polygonum capitatum</i> |
| <i>Androsace rotundifolia</i> var. | <i>Goodyera repens</i> |
| " <i>macrocalyx</i> | <i>Saxifraga propaginea</i> |
| <i>Primula horridula</i> | " <i>mutata</i> |
| <i>Erius</i> | " <i>Guthrieana</i> var. |
| <i>Erdraianthus caribæus</i> | |

Nottinghamshire Horticultural and Botanical.—The monthly meeting of the above Society was held on Monday evening last. There was a large attendance of members and their friends, and Mr. James Booth, of Fern House, Mapperley Road, occupied the chair. Mr. C. P. Pearson, of Chilwell, read a long and interesting paper on the "Pelargonium and its Culture," dealing with the plant from the first hybridisation of the common wild variety by the celebrated Donald Beaton down to the present beautiful varieties now in commerce. The reader illustrated his paper by exhibiting the different forms or stages of hybridisation by living specimens. A discussion followed, and a vote of thanks was awarded the essayist. There was a large show of cut flowers and fruit, especially noticeable being a very fine collection of named *Vitifructus* from Mr. Pendry, of Car Colston, and a very fine netted Melon from Mr. Swanwick, of Sherwood Lodge. Mr. German, of Malvern House, brought some fine blooms of *Cattleya atrina*, *Cypripedium Parishii*, and *Andrium Andreamum*, all of which were very much admired. The different exhibitors and the Chairman were accorded a hearty vote of thanks.

Foreign Correspondence.

A TRIP TO MALACCA: *Tapioca Cultivation*.—As *Tapioca* is now one of the principal articles of export from the Straits Settlements a few notes made during a flying visit I recently paid to Malacca regarding the mode of cultivation and the primitive and modern modes of manufacture there employed may not be uninteresting to some of your readers. During a six years' residence in the Straits I was never fortunate enough to have sufficient time to spare in Malacca to go far beyond the limits of the town, yet when one reflects on what Griffith, Thomas Lobb, Maingay, and others have unearthed from its jungles it has become to the botanist and naturalist the most interesting part of the Straits Settlements, and while driving along its country roads or traversing its jungle paths and reflecting on the work done by those lovers of Nature, one feels that he is on classic ground so far as botany is concerned.

It was, therefore, with no little satisfaction that I accepted an invitation from Mr. J. M. Lyon, who is the head of an engineering firm in Singapore that has acquired considerable local renown for its inventions for manufacturing Tapioca, to accompany him on a short trip to Malacca before leaving for "the land of the white elephant."

Leaving Singapore at 4 P.M. on September 14 by the steamship *Mayflower*—which, by-the-by, is not the same craft which conveyed the "Pilgrim Fathers" from the shores of Old England "converted"—we arrived in Malacca (locally known as "Sleepy Hollow") at 9 A.M. next morning, and at once called on some of the principal Tapioca planters.

Before starting for the plantations we were treated to a surfeit of Malacca fruits, which at the time of our visit were abundant, including delicious *Dukus* (*Lansium domesticum*), the *Tampui* (*Hedycaurus malayanus*), which, I think, is much to be preferred to the *Mangosteens*, of which, of course, we saw plenty, and splendid *Chikos* (*Sapota Achras*), which, although it is not an indigenous fruit, thrives and fruits to perfection in Malacca.

Before noon, however, in company with two of the

most extensive and energetic planters in the colony, Mr. Chea Hoon Bong and Mr. Koh Hoon Boh, we were en route to their plantations.

To the estate of the former gentleman, which is about 10 miles from Malacca, the drive was very enjoyable, the sides of the road for some distance being mostly overshadowed with Cocoa-nuts, while underneath the *Rambes* trees (*Picardaria dulcis*) were loaded with long hanging racemes of fruit, while large clumps of *Salak* (*Zalacca edulis*), *Licalas*, *Bauhinias*, *Poinciana pulcherrima*, *Ixoras*, &c., served to diversify the vegetation. Some fine native-grown Coffee was passed, laden with ripe fruit, and further on a thriving Nutmeg plantation was passed through. Further on, where the jungle road begins, there was little to interest—*Rhodomyrtus*, *Grewias*, *Mussaenda*, and *Melastoma* forming the larger part of the vegetation.

The mode of cultivating *Tapioca* in the Straits varies but little on different estates, whether owned by Europeans or Chinese. If jungle composed of large trees is to be cleared the trees are cut down at some height from the ground, the stumps remaining in the ground and the whole set on fire, the charred remains of the trees being generally allowed to lie where they fall until the first crop is being cleared off, when they are utilised for fuel. After the ground has been dug over and the soil put into a friable condition the cuttings of *Tapioca* are planted in rows from 3 to 4 feet apart and about 9 inches or a foot in the rows. The cuttings are lengths about a foot long of the stem of the matured plant. These root easily, and in less than two months the ground is covered with a carpet of green almost a foot high. From this time to the time the crop is lifted, beyond weeding and slightly banking-up, nothing is done to the crop, although on some estates the tall stems are sometimes cut down to about 4 feet from the ground, which must evidently keep the plants in a growing state, and prevent the proper storage of starch. On some estates I have known the crop lifted nine months after planting, with good results; but the Chinese planters in Malacca usually keep the roots in the ground sixteen or even eighteen months. Perhaps each has its advantages, but it has struck me that tubers kept in the ground over a year develop a large amount of woody fibre without increasing the quantity of starch, which is evidently a disadvantage to the machinery. The general mode of lifting the crop is to cut off a certain portion of the tops, and pull up the tubers, the broken pieces being dug out afterwards. Of course, on land that has previously carried a *Tapioca* crop, manure should be used, which by some planters is applied previous to planting, and by others after the young plants have started into growth. In Malacca, however, cow-shed refuse is a scarce article, and the cost of carriage would be considerable where estates are distant from the base of supply and roads in many instances steep and bad.

On one estate in Singapore under European management a green crop is grown with the *Tapioca*, consisting principally of *Arachis hypogæa*, various *Crotalaria*s, principally *C. striata*, &c., which is dug in with lime, &c., while green, for the next crop, but the plan does not appear to find acceptance with other planters. The root of the *Tapioca* it is hardly necessary to describe here, but I may state that while in Malacca I saw some specimens over 2 feet long, and weighing between 6 and 7 lb. The roots being laid in heaps are carted to the manufactory, and the sticks laid in stacks for supplying cuttings for the next crop.

The estate first visited in Malacca was Bukit Bruang (literally Bear Hill), and here we found J. M. Lyon & Co.'s patent machinery in full working order.

Of course steam is the motive power, in fact the most primitive styles of preparation seem unable to do without this, as I will show later on. The roots being first divested of their woody tops, are thrown into a large revolving drum, in which pipes are so arranged that constant jets of water play on them as they are turned over and over, and gradually they reach the farther end of the drum perfectly clean, and empty themselves into a rasping machine, where they emerge in the form of a fine pulp, which is thrown direct from the rasper into another cylinder covered either with stout muslin or brass-wire gauze, through the sides of which jets of water are continually passing. By this process the starch is separated from the pulp, the starch passing through the muslin or gauze

into a tank beneath, where further supplies of water send it off through gutters to vats prepared for its reception, while the pulp is discharged from the drum into baskets and thrown into heaps either for cattle feeding or manure, for either of which I imagine it is little suited.

After the starch in the vats has been allowed to subside the water is gradually drawn off, fresh water supplied, the whole stirred up and again allowed to subside, and the water again drawn off. The treatment of the starch in this stage depends on the purity of the water used—as, unless the Tapioca when prepared is of the purest whiteness it can hardly be given away. Hence, one of the principal points to be attended to is the supply of clean water in abundance. After the starch has become sufficiently pure it is allowed to dry in the vats, whence it is cut out in cakes and is then ready for the last stages of preparation. If Tapioca flour is required it is placed first on racks to dry, then on large, almost flat tin sheets which form the top of a brick flue where an extremely gentle fire is kept up.

If flake Tapioca is requisite it is submitted to rather stronger heat in concave pans at first, whence it is removed to the previously mentioned sheets and kept turned over with wooden rakes, &c., until it assumes the flake-like form so familiar to consumers in Europe. The flakes are then sifted, to separate the various sizes, and the prepared Tapioca is ready for piling in the bags for shipment.

After a liberal tiffin, for which we were indebted to the proprietor of the estate, Mr. Chea Hoon Bong, we started for an estate some 8 miles farther on belonging to Mr. Koh Hoon Boh (the name of which I have unfortunately forgotten), and as I have mislaid all my notes about our first day's trip I am obliged to fall back on memory for particulars.

Now commenced the real business of the day. The road from Bukit Bruang to this estate is in some places so steep and had that only light traps are available, hence it became necessary for either my companion or myself to drive while our Chinese hosts came on behind in another carriage. As it soon became apparent that unless I drove we should remain behind at Bukit Bruang, I was compelled reluctantly to take the ribbons, more especially as I found that our united weight amounted to close on 32 stone, to say nothing of the syce, who would be compelled to hang on behind somehow. The road did not belie our expectations, as it lies mostly through Tapioca estates, and cut up by constant bullock-cart traffic, with the end of charred trees projecting on one side, and living ones with enormous buttresses jutting out on the other, combined with stiff inclines and declines and sharp corners, so that it was out of the question altogether to think of looking at the vegetation as we passed.

Arrived at our destination, we found the machinery in splendid order, in three hours putting through 120 piculs (a picul is 133 lb.) of roots, one-fifth of which would be Tapioca eventually. On this estate about 20,000 acres are under cultivation. Reaching Bukit Bruang on the return journey safely, we changed vehicles, and arrived at Malacca at 8 P.M., visiting a very flourishing Nutmeg plantation belonging to Mr. Koh Hoon Boh on the way, and leaving our hospitable friends at their estates.

Arrived in Malacca, we found ourselves pretty well tired, but our labours were by no means yet at an end. My companion had declined several country invitations to dinner and a bed for each of us, as he had always been accustomed to put up at the house of a planting friend in Malacca, and depended on being able to do the same this time; consequently, on arriving at the entrance, we got our traps out and discharged the carriage. Judge of our surprise when, after sitting down a little while, we were told that Mr. — was away at the plantation.

Calling a carriage, we started to find somewhere to put up at, as Malacca possesses no boarding-house or hotel, and as there is nothing to do in Malacca after 6 P.M. residents retire early, so on driving to one house after another we found them shut up for the night. Driving to the residences of some bachelor friends we were informed by the servants that "Master had gone for a walk, and the time of his return was uncertain." This caused us to look rather stupidly at each other, and after a drive all around the town I proposed that we should put up in the carriage for the night, my companion proposing that we should go back and take possession of the house of one of our absent friends. This we acted on, and suc-

ceeded admirably, being warmly welcomed by our host after the first surprise of finding "men in possession."

I have related this incident rather in detail as it will help to give some idea of the state of civilization at which Malacca has arrived, and as a "word in season" to travellers who think of visiting Malacca to make sure of a bed before arranging to stay elsewhere a night there.

Next morning at 6 o'clock we were en route to another estate, belonging to Mr. Koh Hoon Boh, at Matchap, about 18 miles distant. The first ten miles is along the public road, along some parts of which in wet situations are large indigenous plantations of the Giam (Malacca leucodendron), the bark of which is used by Malays for caulking their boats. In all directions we saw the natives busy planting the Rice fields.

On leaving the public road, however, our troubles began; to drive over the road we did the day before was a delight compared with the one it now fell to our lot to drive over, and it was with no little satisfaction that I gave up the reins at Matchap to the syce, after his informing me when within 50 yards of the house that I had 2 miles more to drive. Here we found the primitive style at work. The roots are first half-peeled with knives, in which operation a large part of the root is cut off, then thrown into a tank of water when they are washed by the Chinese treading on them; thence they are lifted in baskets to the rasping machine, and worked by a traction engine, built in the brickwork, and is regulated by hand. The pulp falls from the rasper into baskets, which are carried about 20 yards, and the contents emptied on muslin covers of concave wickerwork baskets, above which a wooden water-gutter is placed, the supply of water being regulated by plugs over the baskets. Here the Chinamen separate the starch by arranging a constant fall of water on the muslin, and keeping the mass well stirred with their hands until they think they have extracted all the starch, when they throw the refuse pulp away, and receive a fresh supply from the rasper, the water with which they wash the pulp serving to convey the starch to vats prepared for it. Of course the starch prepared in this manner requires more washing than that prepared by the machinery I have described, and I venture to think that consumers in England would prefer Tapioca made by machinery, when it need never be handled, to that which is carried about so much amongst decaying vegetable matter and mud, as that hand-prepared usually is. Here the starch is baked by fire passing beneath a tile-covered flue on which it is placed. Pearl Tapioca is manufactured here as follows:—A cloth is attached like a hammock to the beams and kept open by cross sticks. A man at each end alternately jerks the cloth to and fro, the slightly warmed starch under this treatment soon forming small, completely spherical balls, which are afterwards baked on a tile-covered flue.

The number of coolies about here was surprising, and it is hardly necessary to say that only about 30 piculs of Tapioca is produced per diem; in fact, Mr. Koh Hoon Boh is so thoroughly convinced of the superiority of manufacture combined with economy of the preparation by machinery, after comparing the cost at his estate, which we visited the day before, with the cost of hand preparation, as at Matchap, that he ordered a machine to be erected at once.

After tiffin we returned to Malacca, where we were lodged and fed, in first-rate style, our host being Mr. Chea Hoon Bong, whose name is well known throughout the Straits (and beyond) as one of the most liberal-minded and hospitable Chinese gentlemen in the colony. The next day we parted from our hospitable friends of Singapore per steamer *Dillon*, arriving on Sunday morning loaded with presents of fruit for ourselves and Singapore friends. Thus ended what is probably the last of my trips in the Malay peninsula, and certainly, thanks to my companion and our Chinese hosts, the most enjoyable one.

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Can you or any of your readers give me any information as to the probable date of the introduction of Tapioca into the Straits, or by what nation it was first brought to the East? I have not Crauford's *Descriptive Dictionary of the Indian Islands* to refer to, but so far as I recollect he does not mention Manihot utilisissima, *Traveller*,

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JUNE 14, 1882.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRI- CAL.—Degrees from Glass, in Fathoms 5, 10, 15, 20, 30, 40, 50, 60.	WIND.	RAINFALL.
	Actual reading.	Height to which reduced.	At 9 A.M.	Average of Day.	At 3 P.M.	At 9 P.M.			
June 10	29.57	—0.01	54	59	52.0	51.8	—	2.9	0.40
11	29.33	—0.40	50	49	51.5	51.1	—	6.8	0.35
12	29.53	—0.40	58	56	57.0	56.8	—	5.0	0.67
13	29.84	—0.01	59	57	55.5	55.2	—	7.1	0.68
14	29.97	—0.10	59	55	53.0	52.6	—	8.6	0.50
15	29.74	—0.01	55	52	52.8	52.4	—	10.4	0.11
16	29.63	—0.15	53	50	50.5	50.4	—	9.7	0.12
Mean	29.61	—0.19	56.2	54.7	54.1	53.9	—	6.5	1.33

June 8—A dull, overcast day and night. Steady rain all the evening.
9—A dull day; gleams of sunshine at times. Thunder and lightning, with hail and rain, from 12.25 A.M. till 6 P.M. A dull, overcast, rainy night.
10—A very dull, with a dry, slight rain in morning. Cloudy night, thin rain.
11—Fine morning; dull day; occasional rain. Dull, cloudy night.
12—Rain in early morning; dull, rainy day. Alternately clear and cloudy. Showers of rain and hail. A cold, strong wind at night.
13—A dull day with a slight rain in afternoon. Rainy all the evening.
14—Rain in early morning. A fine bright morning; sun shining. A dull afternoon; overcast. Fine, clear night.

LONDON: Atmospheric Pressure.—During the week ending June 10, the reading of the barometer at the level of the sea decreased from 29.76 inches at the beginning of the week to 29.70 inches by 3 P.M. on the 4th, increased to 29.85 inches by midnight of the 5th, decreased to 29.71 inches by 9 A.M. on the 6th, increased to 29.77 inches by 3 P.M., and decreased to 29.73 inches by midnight of the same day, increased to 29.89 inches by 9 A.M. on the 8th, decreased to 29.46 inches by 9 A.M. on the 9th, and was 29.80 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.72 inches, being 0.45 inch lower than last week, and 0.26 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 70°, on the 4th. On the 10th the highest temperature was 58°. The mean of the seven high day temperatures was 63°.

The lowest temperature in the shade in the week was 49° on the 5th; on the 6th the lowest temperature was 55°. The mean of the seven lowest temperatures was 51°.

The greatest range of temperature in one day was 18°.8, on the 4th; the smallest was 7°, on the 10th. The mean of the seven daily ranges was 12°.

The mean temperatures—On the 4th, 57°.8; on the 5th, 56°.7; on the 6th, 57°.7; on the 7th, 58°.2; on the 8th, 54°.8; on the 9th, 51°.1; on the 10th, 52°.9; of these those of the 4th and 7th were above their averages by 0°.7 and 0°.6, all the rest were below their averages by 1°.3, 0°.6, 2°.0, 6°.8, and 5°.2 respectively.

The mean temperature of the air for the week was 55°.4, being 2°.5 lower than last week, and 2°.2 below the average of the week.

The highest reading of a thermometer with blackened bulb in water, placed in the full rays of the sun, was 135°, on the 4th; the highest on the 10th was 76°. The mean of the seven daily readings was 112°.8.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 40°.2, on the 10th. The mean of the seven readings was 45°.3.

Rain.—Rain fell on six days, to the amount of 1.36 inch, of which 0.40 inch fell on the 8th, thunder-storm on the 9th, with hail.

ENGLAND: Temperature.—During the week ending June 10 the highest temperatures were 77° at Sunderland, 75°.8 at Cambridge, and 74°.1 at Nottingham. The highest temperature at Bolton was 63°.5, and at Truro and Sheffield 64°. The general mean was 68°.

The lowest temperatures in the week were 43°.2 at Bolton, 44° at Wolverhampton, and 45° at Hull.

The lowest temperature at Brighton was 49.2, and at Bristol, Blackheath, and Leeds, was 49. The general mean was 46.9.

The greatest ranges of temperature in the week were 31 at Sunderland, 30.2 at Cambridge, and 28.6 at Nottingham. The least ranges were 16 at Bristol, and Sheffield, and 16.6 at Liverpool. The general mean was 21.2.

The mean of the seven high day temperatures was highest at Sunderland, 70.4, at Cambridge 68.3, and at Brighton and Nottingham 66.9; and was lowest at Bolton, 59.3, at Liverpool 60.6, and at Sheffield 61.4. The general mean was 63.5.

The mean of the seven lowest night temperatures was highest at Plymouth, 52.8, at Truro 52.3, and at Brighton 51.8; and was lowest at Bolton, 47.1, at Wolverhampton 47.2, and at Nottingham 43. The general mean was 50.

The mean daily range was greatest at Sunderland, 22.2, at Nottingham 18.9, and at Cambridge 18.5; and was least at Plymouth, 9.1, at Truro 9.7, and at Liverpool 10.4. The general mean was 13.5.

The mean temperature for the week was highest at Brighton, 57.6, at Sunderland 57.5, and at Cambridge 57.3; and was lowest at Bolton, 51.4, at Wolverhampton 52.7, and at Liverpool 53.6. The general mean was 55.3.

Rain.—The largest falls were 2.59 inches at Wolverhampton, 2.50 inches at Bolton, and 2.01 inches at Nottingham. The smallest falls were .28 inch at Brighton, .09 inch at Cambridge, and 1.28 inch at Liverpool and Bradford. The general mean fall was 1.59 inch. Rain fell on every day in the week at Bristol, Sheffield, Liverpool, Bolton, Bradford, Leeds, and Sunderland, and on five or six at other stations.

SCOTLAND: Temperature.—During the week ending June 10 the highest temperature was 69, at Glasgow; at Aberdeen the highest temperature was 65.5. The general mean was 66.6.

The lowest temperature in the week was 39.6, at Edinburgh; and the lowest temperature was 50.2.

The general mean for the week was 49.7. The mean temperature for the week was highest at Dundee, 56.7; and lowest at Edinburgh, 53.8. The general mean was 55.3.

Rain.—The largest fall was 1.95 inch, at Greenock; the smallest fall was 0.69 inch, at Edinburgh. The general mean fall was 1.18 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON. MUSTARD.—The following query, inserted in Notes and Queries (41st series, ix., p. 450, May 13, 1851), has never been answered, and never repeated in that journal.—"Preliminary for Making Mustard.—Did Queen Elizabeth issue a proclamation for 'the right of mixing mustard?' And, if so, what was the language of such proclamation? The above, if inserted in your columns, may perhaps meet the eye of some correspondent who can, and will, kindly enable me to 'make a note of it.'" P. P.

STRAWBERRY BOTHELL BANK PROLIFEROUS.—Can any one tell me the difference between the Bothwell Bank Frolic Strawberry and President? Those I received last year under the former are certainly identical with what I have for years known by the latter name. How different.

Answers to Correspondents.

AUSTRALIAN BLUE FESCUE GRASS: W. C. & Son. The only true Fescue valid in Australia are two common European species—F. dactyloides and F. ovina.

CUCUMBER: Cae. It is the well-known Cucumber disease, no remedy for which has yet been discovered, of turning out the soil and beginning again. Please send us a piece of the root.

EKRATA.—Page 770, for "distinctive" read "distinctious;" for "Mr. Brown's" group, read "Mr. Brown's."

FONGLOVE: F. Shrimpton. See note at p. 749, in reply to "H. J. R."

GRAPES: F. E. The Grapes are not diseased, but both bunches and leaves are badly scalded, the former, in fact, spoiled, as we should suppose through the insufficient amount of ventilation. Give them more air, and especially open the ventilators a little early in the day, to allow the vines to dry before the sun gains power.

GUM: Florist. Found some white shellac very fine, and mix it in a stone jar to the proper consistency with methylated spirit. It should be kept warm, and will be shaken-up for a day, after which it may be kept in any cool place.

NAMES OF PLANTS: Y. C. Caloglypho asperata; Lactia elegans, a good variety; P. C. Lycaste aromatica.—L. L. C. Pyrus (Sorbus) latifolia.—C. W. D. Geranium macrochirum, Solidago virgaurea, a monaster of Chrysanthemum segetum?, Ranunculus neriis bore cirrino, and Ligularia sp. 11; F. Ireland, 1, Arthrochlamydeum; 2, Hyoscyamus niger; 3, and patients, near Hookeriana, — F. Dry, 1, Valeriana

pyrenaica; 2, Heuchera cordifolia; 3, Listera ovata; 4, Fraxinus oxera.—S. C. An Orchid, Calanthe varifolia.—Constant Reader. Garden varieties of Rhododendrons, which we cannot pretend to name. Please repeat your question.—P. H. A. 1, Eranthis europaeus; 2, Staphylea pinnata; 3, Lonicera Ledebourii; 4, Thalictrum aquilegifolium; 5, a Saxifrage, which we do not recognise.—H. C. P. A withered scarp, utterly unrecognisable.—G. Well. Dendrobium Dufrenoyi.—D. 1, Tradescantia virginica; 2, Dictamnus Fraxinella, white variety; 3, Asphodelus fistulosus; 4, Culegion. Why send such miserable scraps? If we had the memory of Mezzofanti, and the readiness of the calculating boy, in addition to the botanical knowledge of Robert Brown, we could not name such bits.

TITLE: E. F. We cannot tell you. The question is one for the landlord, or his agent.

VARIETIES: BEECH: F. Clark. Well worth propagating, but is not so good, from the great amount of whiteness in the leaf, that it will partially revert to the green condition; indeed, so white is it that we do not think its life could be preserved unless some green leaves were formed.

WATER LILY: F. P. Yes.

WELSH POPPY: Cannon & Keil. Meconopsis cambricum.

* * * Correspondents are specially requested to address post-paid, and to communicate for publication to the Editor, and not to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspaper should be careful to mark the paragraphs which they wish to be used.

Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editor.

CATALOGUE RECEIVED.

W. CAUDWELL, Wantage—Polyanthuses, &c.

COMMUNICATIONS RECEIVED.—Nema.—R. McO.—W. C. B.—A. H. S.—T. Jun.—T. Smith—J. H. J.—D.—W. R.—F. W. & H. S.—S. & S.—E. S.—G. D.—W. D.—W. G.—H. S.—W. S.—W. H.—A. D.—M.—D.—R.—C.—J. G. H.—N.—J.—S.—H. Corcoran, Geneva, S. Boston.—W. S. Prof. Henriquez, Coimbra.—Marshall Wither, Boston.—W. S. The Third Mayor—J. E.—Dublin Subscriber (see Report of Scientific Committee in the present number).

Markets.

COYANT GARDEN, June 15. The late cold dull weather has somewhat affected supplies, prices remaining as last week. For the same reason trade has been quiet. James Webber, Wholesale Apple Market.

CUT FLOWERS—AVERAGE WHOLESALE PRICES.

Table with columns for flower types (Abutilon, Anemone, Arum Lilies, etc.) and prices per dozen or bunch.

PLANTS IN POTS—AVERAGE WHOLESALE PRICES.

Table with columns for plant types (Aralia Schiedelii, Arbor vitæ, Begonia, etc.) and prices per dozen.

FRUIT—AVERAGE WHOLESALE PRICES.

Table with columns for fruit types (Apples, Peaches, Pine-apples, etc.) and prices per dozen or bushel.

VEGETABLES—AVERAGE RETAIL PRICES.

Table with columns for vegetable types (Artichokes, Asparagus, Beans, etc.) and prices per bushel or bunch.

SEEDS.

LONDON: June 14.—There was a very poor attendance on the seed market to-day, and no change of either interest or importance can be recorded. The reports of recent lower to-morrow's extent water-killled both in the States and Canada are confirmed, and Mr. Fothergill promises to be cheap and abundant; 50 tons of new English have been sold at 19s. per hundredweight, fair average quality, delivery during July and August. Values for white Mustard and Rape seed remain unaltered. The best seed, however, continues exceedingly dull, with slightly lower rates for Hemp seed. There is still an active demand for Spring Tares, and Peas, are almost exhausted. A few orders drop in for Scarlet Runner Beans. Linseed is slow of sale, at 3s. 7d. per cwt. John Adams & Co., Seed Merchants, 27, Mark Lane, London, E. C.

CORN.

At Mark Lane on Monday English Wheat moved off slowly at about the previous Monday's rates, which were also quoted for foreign, but East India Wheats showed 1/2 per quarter decline. Flour was rather easier than on Monday's night, but Australian rather firmer than it has been in the interior. So appreciable change occurred in the value of Barley, Beans, or Peas, Malt, or ex ship, was rather easier. Large supplies of Oats met a dull sale, and common Russian were 3d. lower. On Wednesday the small quantity of English Wheat at Mark Lane was held for full value, and foreign was also steady held, but the trade was very quiet. Flour was unchanged in value; Barley, Beans, and Peas were steady; Oats firm but quiet, and Malt unaltered.—Average prices of corn for the week ending June 12.—Wheat, 42s. 6d.; Barley, 27s. 5d.; Oats, 24s. 6d. For the corresponding period last year.—Wheat, 44s. 6d.; Barley, 31s. 6d.; Oats, 23s. 2d.

CATTLE.

At the Metropolitan Market on Monday rates for beasts were depressed 2d. to 4d. per stone, the largest decline being on second quality. The Cattle market included a 40 gross-few beasts of prime quality, which reduced the extreme quotations of the morning's trade. For sheep the trade was slow, and rates easier than on Monday week. In some cases lambs sold without alteration. Three English calves and four of the same breed, the supplies consisting chiefly of secondary Scotch. Quotations.—Beasts, 4s. 4d. to 5s. 2d., and 5s. 4d. to 6s. 12d.; calves, 5s. to 6s. 4d.; sheep, 5s. 4d. to 5s. 6d., and 6s. 2d. to 6s. 6d.; American, 5s. 5d. to 6s. 6d.; lambs, 7s. 4d. to 8s.—Thursday's market was firmer. Lamb, calves and sheep met with more attention, and were the best of the lot. Lambs were quiet, and calves and pigs unaltered.

HAY.

At Whitechapel on Thursday the supply of hay and straw was moderate, and the trade dull. Hay was 2s. lower. Quotations.—Prime Clover, 16s. to 18s. 1d. inferior, 6s. to 9s. 1d. and straw, 30s. to 35s. per load.—Cumberland Market quotations.—Superior old meadow hay, 120s. to 130s.; inferior, 84s. to 100s.; new hay, 100s. to 102s.; superior Clover, 120s. to 135s.; inferior, 105s. to 112s.; new, 84s. to 108s.; and straw, 54s. to 60s. per load.

POTATOS.

The Borough and SPITALFIELDS Markets respectively state that a steady trade has been found for full supplies at the following quotations.—Old Champions, 30s. to 70s.; ditto Flukes, 100s. to 110s.; ditto Argentinum Bonitas, 100s. to 110s.; ditto Victoria, 100s. to 110s. per ton. New Jersey rounds, 9s.; ditto, kidneys, 11s. to 12s.; ditto, Cherbourg rounds, 8s. 6d.; ditto, kidneys, 10s. per cwt.—The imports into London last week consisted of 2347 tons from Jersey, 12,559 packages from Ostend, 1055 boxes from Barleux, 3150 packages, 2759 half-boxes from London, 5200 boxes 112s. cases from Cherbourg, 2500 hit-boxes from Cadix, 531 packages St. Nazaire, 334 cases Malta, and 8 cases from Naples.

Government Stock.—Consols closed on Monday at 100s. to 102d. for delivery, and 102s. to 104d. for the account. Tuesday's figures were, for delivery, 100s. to 102s., and 102s. to 104s. for the account. The closing prices of Wednesday were, for delivery, 100s. to 102s., and 102s. to 104s. for the account. On Thursday Consols, at 101s. higher, and 104s. higher for the account. The above quotations are all ex div.

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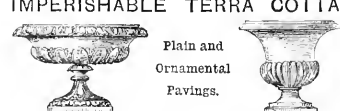
THE ABOVE and many other PATTERNS are made in materials of great durability. The plainest sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense.

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Illustrated Price Lists free by Post. The Trade supplied.

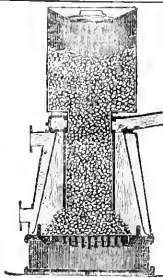
ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balcones, &c., from 2s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
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IMPERISHABLE TERRA COTTA.



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Tiles for Lining Walls of Conservatories.
ART POTTERY, including JARDINIERES AND OTHER
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Show Rooms, Albion Embankment, S.E.



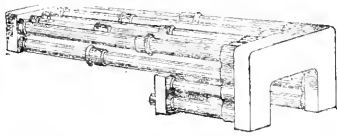
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AUTOMATIC COKE
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Will maintain a uniform temperature for from 12 to 15 hours, and often from 15 to 20 hours, with one small charge of common Gas Coke of the cheapest kind. For economy and efficiency in combination with cleanliness and comfort these Boilers are, beyond the possibility of a doubt, the greatest boon ever offered for the purpose of Heating Conservatories, Halls, and other Buildings, where little attention is required.
Every particular with testimonials given on application to
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Automatic, Economic, and Efficient.

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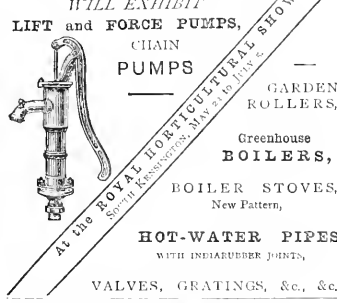
Unequalled for Simplicity, Power, and Economy.
See *Gardener's Chronicle*, Jan 1882, and Nov. 19, 1881.



As inferior imitations of this now well-known Boiler are being advertised and sold to the detriment of its reputation, C. F. K. & Co. beg to inform Gardeners and the Trade generally that Mr. Rochford has assigned to them the sole and exclusive right for its Sale and Manufacture.

HOT WATER PIPES AND BOILERS
From our large and complete stock at wholesale prices.
CHARLES P. KINNEL & CO.,
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APPLEBY & CO.,
Renshaw Ironworks, near Chesterfield,
WILL EXHIBIT
LIFT AND FORCE PUMPS,
CHAIN PUMPS, GARDEN ROLLERS,
Greenhouse BOILERS,
BOILER STOVES,
New Pattern,
HOT-WATER PIPES
WITH INDIA-RUBBER JOINTS,
VALVES, GRATINGS, &c., &c.



HOSE—HOSE—HOSE.
PATENT RED-RUBBER GARDEN HOSE.

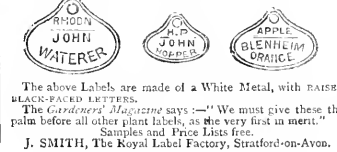
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A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."
Private Customers Supplied at Trade Prices.

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MERRYWEATHER & SONS,
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THE NEW GARDEN HOSE, made upon the principle of the five hose used by Captain Shaw, C.B., Chief Officer of the Metropolitan Fire Brigade. It is much cheaper and far more durable than white rubber, or false hose. Private customers supplied at trade prices. Sample free.
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TANNED NETTING for protecting the above from Frost, Blight, Birds, &c.; 2 yards wide, 2d. per yard, or 100 yards 20s.; 4 yards wide, 6d. per yard, or 20 yards 20s.
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Preserve your Strawberries from Slugs, Contact with the Soil, and superfluous Moisture, by using R. HOLLIDAY'S "STRAWBERRY CRINOLINE," which has been in use now for sixteen years. For Testimonials see Circular.
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Oil Paint No Longer Necessary.
HILL and SMITH'S BLACK VARNISH
for Preserving Ironwork, Wood, or Stone.
(Registered Trade Mark.)



THIS VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertiser, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by the ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, King Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.
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H. S. S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade mark as above, without which none is genuine.
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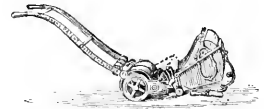
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PLATE, SHEET, CROWN GLASS.
Horticultural and all kinds of Glass having so much advanced, we are compelled to withdraw our prices, but on receipt of application the prices will be forwarded, but will be only from day to day until the market is in a more settled state. We have some bargains in 21-ounce, from 9x7 to 14x10 and upwards; sizes sent if required. Propagating Glasses, Hand Frames, Cucumber and Horticultural Glass genuine White Lead, best Linseed Oil Putty, Paints, Cids, and Colours.

BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities of
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B. & Son have always a large stock in London of 20-in. by 26-in., 20-in. by 34-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

SHANKS'S PATENT LAWN MOWERS.

The only Lawn Mower fitted with Double-edged Sole-plate, which enables the Cutting Parts to Last Twice as Long as in other Machines.

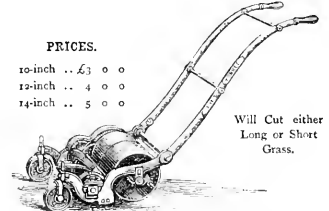
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PRICES.

To cut 12 inches wide	£3 10 0	To cut 19 inches wide	£8 0 0
To cut 13 inches wide	4 10 0	To cut 22 inches wide	8 10 0
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To cut 16 inches wide	6 10 0		

"THE YANKEE" LAWN MOWER.

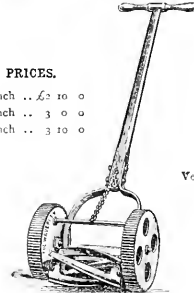


PRICES.

10-inch	.. £3 0 0
12-inch	.. 4 0 0
14-inch	.. 5 0 0

Will Cut either Long or Short Grass.

"THE WAVERLEY" LAWN MOWER.



PRICES.

10-inch	.. £3 10 0
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A New Machine. Very Easily Worked.

ALEX. SHANKS & SON,
DENS IRONWORKS, ARBROATH, FORFARSHIRE;
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Small Lawn Mowers, 6 in., 55s.; 7 in., 55s.; 8 in., 45s.
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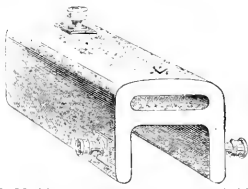
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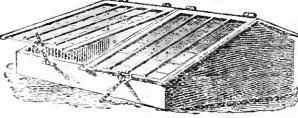
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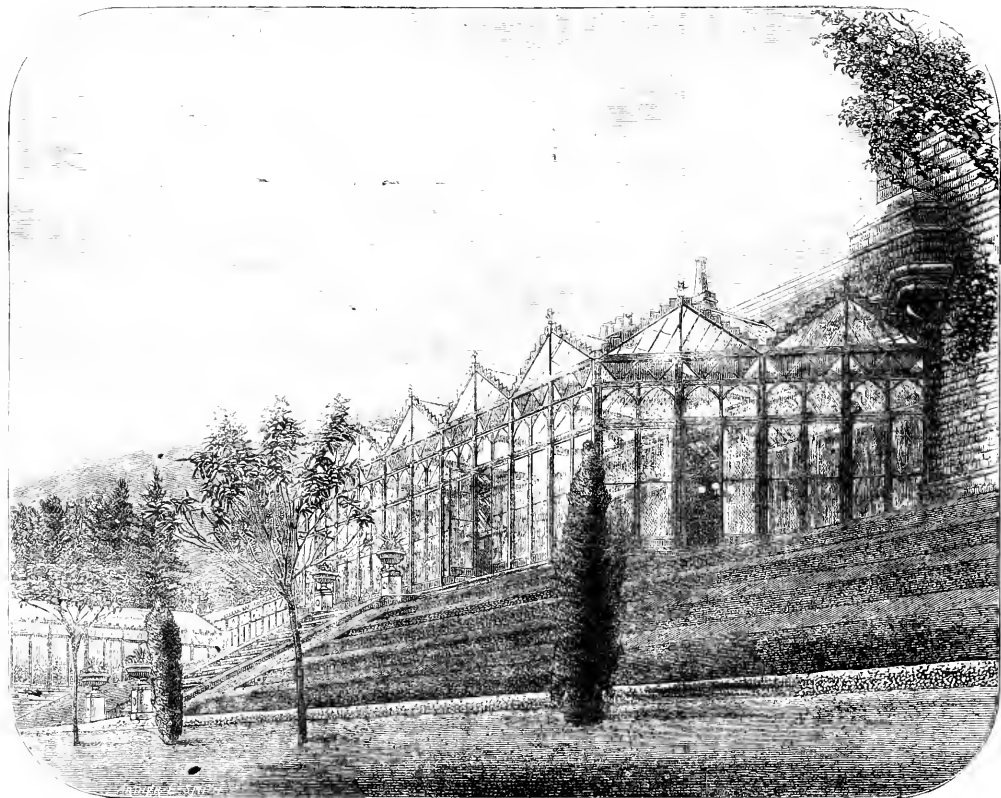
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in., 696 in., 702 in., 708 in., 714 in., 720 in., 726 in., 732 in., 738 in., 744 in., 750 in., 756 in., 762 in., 768 in., 774 in., 780 in., 786 in., 792 in., 798 in., 804 in., 810 in., 816 in., 822 in., 828 in., 834 in., 840 in., 846 in., 852 in., 858 in., 864 in., 870 in., 876 in., 882 in., 888 in., 894 in., 900 in., 906 in., 912 in., 918 in., 924 in., 930 in., 936 in., 942 in., 948 in., 954 in., 960 in., 966 in., 972 in., 978 in., 984 in., 990 in., 996 in., 1002 in., 1008 in., 1014 in., 1020 in., 1026 in., 1032 in., 1038 in., 1044 in., 1050 in., 1056 in., 1062 in., 1068 in., 1074 in., 1080 in., 1086 in., 1092 in., 1098 in., 1104 in., 1110 in., 1116 in., 1122 in., 1128 in., 1134 in., 1140 in., 1146 in., 1152 in., 1158 in., 1164 in., 1170 in., 1176 in., 1182 in., 1188 in., 1194 in., 1200 in., 1206 in., 1212 in., 1218 in., 1224 in., 1230 in., 1236 in., 1242 in., 1248 in., 1254 in., 1260 in., 1266 in., 1272 in., 1278 in., 1284 in., 1290 in., 1296 in., 1302 in., 1308 in., 1314 in., 1320 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WILLIAM BARRON,
HORTICULTURAL BUILDER, GARDEN ARCHITECT, &c.,
SKETTY, SWANSEA.

NEW AND ELEGANT DESIGNS,
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CONSERVATORY AT CRAIG-Y-NOS CASTLE, BRECON: THE RESIDENCE OF MADAME ADELINA PATTI.

From the "Gardeners' Chronicle," April 8, 1882.

DESIGNED AND CONSTRUCTED BY
W. BARRON, HORTICULTURAL BUILDER, SKETTY, SWANSEA.

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GARDENERS' CHRONICLE.

Established 1841.

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

THE GARDENERS' CHRONICLE

IN AMERICA.
The Subscription to America, including Postage, is \$6.35 for Twelve Months.—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
PEARLONIUM SOCIETY'S SHOW, AND FRUIT AND VEGETABLE EXHIBITION, on TUESDAY, June 27.
Band of the Royal Horse Guards, from 4 o'clock.
Admission from 1 o'clock, One Shilling.
N.B.—Show closes at 7 P.M.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE.—COMMITTEE OF ARRANGINGS, Fruit and Floral at 11 A.M.; Scientific at 1 P.M.; General Meeting for the Election of Fellows, &c., at 3 P.M. **PEARLONIUM SOCIETY'S SHOW AND VEGETABLE EXHIBITION on TUESDAY, June 27.** Band of the Royal Horse Guards at 4 P.M. Admission from 1 o'clock, 1s.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
RAND ROSE EXHIBITION, by the National Rose Society, on TUESDAY, July 4. Band of the Royal Horse Guards, from 3 o'clock. Admission from 1 o'clock, 2s. 6d. Show Closes at 4 o'clock.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park W.
EXHIBITION OF PLANTS, FLOWERS AND FRUIT, on WEDNESDAY, July 5. Gates open at 2 o'clock. The Faods of the 1st Life Guards and Royal Horse Guards will be so announced. Tickets, to be obtained at the Gardens only, by vouchers from Fellows of the Society, price 5s. each, or on the day of Exhibition 7s. 6d.

CRYSTAL PALACE.
GREAT ROSE SHOW OF THE SEASON.
Entries Close SATURDAY, June 24. Applications for Schedules and Entry Forms to be made to
Mr. W. G. HEAD, Crystal Palace.

LEE, BLACKHEATH, and LEWISHAM HORTICULTURAL SOCIETY.
President—JOHN PENN, Esq.
The ANNUAL SUMMER EXHIBITION will, by kind permission, be held on the Grounds of the Queen (The Cedars, Lee), on WEDNESDAY and THURSDAY, June 28 and 29. Schedules and all particulars may be obtained of
5, Boones Road, Lee, S.E. Mr. C. HELMER, Sec.

RICHMOND HORTICULTURAL SOCIETY.
The EIGHTH ANNUAL EXHIBITION of this Society will be held in the Old Deer Park, Richmond, Green, on THURSDAY, June 29. Schedules may be obtained on application to
Lesham Villa, Kew. GEORGE EYLES, Hon. Sec.
N.B.—The Veitch Memorial Prizes and Medals will be competed for at this Show.

LUDLOW ROSE SHOW.—THE ANNUAL EXHIBITION OF ROSES will be held at the Assembly Rooms, Ludlow, on FRIDAY, July 7. Liberal Money Prizes to Amateurs, Nurserymen, and Cottagers. For Schedules, &c., apply to
Rev. V. T. ORGILL, Hon. Sec., Ludlow.

JAMES CARTER AND CO. beg to direct the attention of their Customers to the following liberal CASH PRIZES, to be competed for during the next few weeks.—For the Best FOUR DISHES OF PEAS—viz., One Dish (50 pods) Carters' Stratagem; One Dish (50 pods) Carters' Telegraph; One Dish (50 pods) Carters' Frigate of the Market.

CARTERS' PRIZES FOR PEAS, RICHMOND HORTICULTURAL SOCIETY, June 27.—1st Prize, 100s.; 2d, 60s.; 3d, 40s.; 4th, 20s.; 5th, 10s. 6d.

CARTERS' PRIZES FOR PEAS, BAGSHOT HORTICULTURAL SOCIETY, June 27.—1st Prize, 40s.; 2d, 20s.; 3d, 10s.

CARTERS' PRIZES FOR PEAS TWICKENHAM HORTICULTURAL SOCIETY, July 7.—1st Prize, 20s.; 2d, 10s.; 3d, 5s.

CARTERS' PRIZES FOR PEAS, OXFORDSHIRE HORTICULTURAL SOCIETY, August 2.—This Collection to include three of the above Peas and three Dishes of other Vegetables.—1st Prize, 63s.; 2d, 30s. 3s. 19s. 6d.

NOTICE.—The Competitions are confined to Gentlemen's Gardeners and Amateurs only. **IMPORTANT REGULATION.**—To prevent misunderstanding, special labels have been distributed with each packet of the above Peas and should be distinguished that are exhibited without this special label being attached. **NOTE.**—The Peas exhibited must be grown from Seed supplied direct from Messrs. CARTER in 1882.

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A. Z., L. Woodthorpe, Glazenwood, Brintree.

WANTED, a large quantity of Decorative PEARLONIUM CUTTINGS.—State lowest price for cash to **T. C. NURSERY GARDENS,** Douglas, Isle of Man.

WANTED, large healthy PALMS, well established and clean, consisting of **Sasfarthias, Arca luteuscent, Kentias, Rapis,** or any tolerably erect-growing and not too tender sorts; also **Aspidistra lurida** and **Pandanus Veitchii,** for stock in **EXCHANGE** for other PLANTS or **CASH.** **W. HOWARD,** Southgate, N.

WANTED, prepared SEED OF SWEET BRIARS for next season.—State lowest price and quantity to **GEORGE LAVAL, 55, Gainsford Street, Horsleydown, S.E.**

WANTED, good stiff yellow Turfy LOAM, suitable for potting Roses and Strawberries.—State price in place and on rail.—**H. BENNETT,** Pedgree Rose Nursery, Seabrook, Walton-on-Thames.

SUTTONS' PRIZE GRASS SEEDS. Carriage free.—Prices on application.

SUTTONS' GRASS SEEDS. For Lawns.

SUTTONS' GRASS SEEDS. For Cricket Grounds.

SUTTONS' GRASS SEEDS. For Lawn Tennis Grounds.

SUTTONS' GRASS SEEDS. For Bowling Greens.

SUTTONS' GRASS SEEDS. For Cricket Grounds.

SUTTONS' GRASS SEEDS. Special Gold Medal, Melbourne, 1880-81.

SUTTONS' GRASS SEEDS. Prize Medal, Paris, 1878.

SUTTONS' PAMPHLET ON LAWNS. How to make and improve them. Gratis and post-free.

SUTTON AND SONS, The Queen's Seedsmen, and by Special Warrant to the Prince of Wales, Reading, Berks.

To the Trade.
SINGLE DAHLIAS.—About 10 good distinct varieties, strong plants, 8s. per doz., 50s. per 100. No white included.
HOOPER & CO., Covent Garden, London, W.C.

DOUBLE PRIMULÆ.—Strong plants, ready for first shift, 50s. per 100 for cash; also well-rooted **BOUYARDIAS,** in thumps, 20s. per 100.
ROBERTS BROTHERS AND ARNOLD, East Grinstead.

ALTERNANTHERA MAGNIFICA, extra fine, from single pots, 10s. per 100.
Wm. POTTEN, Camden Nursery, Sissinghurst, Staplehurst.

ARALIA SIEBOLDII, pots, 6 to 8 inches, 25s. per doz.
NERITRA DEPRESSA, pots, fine trusses, 3 to 4 inches across; will give a profusion of berries; 32s. per 100.
GARLIES MITCHELL, Nurseryman, Stranraer.

Valuable Imported Orchids.—Special List, No. 59.
THE NEW PLANT AND BULB COMPANY beg to inform their Friends that the above **NEW LIST** is just published, and will be sent post-free on application.
Lion Walk, Colchester.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, beg to intimate that their splendid collection of **PANSIES** and **VIOLAS** are **NOW IN FULL FLOWER,** and may be SEEN ANY DAY (Sundays excepted) at their Fiochhill Nursery, near Edinburgh.

CREEPERS FOR WALLS, TRELISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Hyacinths, Tulips, Crocus, Lilacs, &c.
C. G. VAN IJBERGEN JUN., Haarlem, Holland.—Wholesale CATALOGUE now ready, and may be had free on application to **Messrs. R. SILBERKAMP AND SON,** 25, Savage Garden, Crutched Friars, London, E.C.

SEED.—The stock, sample and price on application to the Trade on application.—**WILLIAM BARNES,** Pole Hill Nursery, Hillingdon, Uxbridge.

BURMESE ORCHIDS.—Some for disposal. Can be seen by applying to Superintendent, Botanical Gardens, Regent's Park, N.W.

PRIMULAS, PRIMULAS, &c.—Five young plants of the beautiful strain we have supplied for some years, 1s. 6d. per dozen, 20s. per 100; do., do., extra strong, 2s. per dozen, 15s. per 100; do., do., in 2½-inch pots, 3s. per dozen, 20s. per 100. **CINERARIAS,** fine young plants, 1s. 6d. per dozen, 15s. per 100.
Wm. CLIBBEN AND SON, Oldfield Nursery, Atrincham.

Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of **TEA ROSES** in all the leading varieties. **NEW LIST FREE.** Price to the Trade on application. Also a large stock of **GRAPE VINES.**

Rhododendrons.
JOHN WATERER AND SONS, of Bagshot, Surrey, beg to announce their EXHIBITION of the above is **NOW ON VIEW DAILY** at the Gardens of Cadogan Place, Sloane Street, S.W.

DESCRIPTIVE LIST OF STOVE and GREENHOUSE PLANTS, comprising the best selection of **CAMELLIAS, AZALEAS, ERICAS, EPACRIS, FERNS, &c.,** free for 12 stamp.
R. SMITH AND CO., Seed Merchants and Nurserymen Worcester.

SALES BY AUCTION.

Lycaste Skinneri, Colognye cristata, Phalenopsis VIOLACEA SUMATRANA, varieties. MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King's Street, Covent Garden, W.C., on TUESDAY, June 27, at half-past 12 o'clock precisely, by order of Messrs. H. Low & Co., a grand lot of imported plants, in the best possible condition, of LYCASTE SKINNERI, COLOGNYE CRISTATA, CATTLEYA TRIANA, OPHIOGLOSSUM ALEXANDREI, selected specimens: O. LUTEA PURPUREA, varieties; DENDROBIUM VANDAS, ABRIDES, &c. At the same time will be offered ARKINSEY MACULOSUM and CRISPIUM, extra fine varieties, in flower; PHALENOPSIS VIOLACEA SUMATRANA, varieties, semi-established plants, and other ORCHIDS. View the morning of Sale, and Catalogues had.

Thursday Next.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, NEXT, June 29, at half-past 12 o'clock precisely, a valuable importation of ADYSSONIA ORCHIDS, also a large importation of LYCASTE SKINNERI, LYCASTE COBIANA, a fine mass of CATTLEYA ROTHSCHILDIANA, ELEGANS, ADYSSONIA, and CATTLEYA SUPERBA, both enormous masses; two masses of CATTLEYA SANDERIANA, a large lot of OPHIOGLOSSUM ALEXANDREI, and a large lot of DENDROBIUM CRISTACEUM; also 1000 ONCIDIUM VARIOCOLOM ROGERSI and MARSHALLIANUM, which are expected to open on Tuesday next, together with a superb lot of BARKERIA CYCLOTELLA and SKINNERI. On view morning of Sale, and Catalogues had.

Sale on Thursday, July 6.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, NEXT, July 6, at half-past 12 o'clock precisely, a large importation of PHALENOPSIS VIOLACEA, and a new species in fine condition; a splendid lot of CYPRIPEDIUM SIKONII, VALDARELLA, and ABRIDES, from the Philippine Islands; CALANTHE VESTITIA varieties, LIMATODES ROSEA, an importation from Madagascar, together with many other species. Further particulars in next week's Gardeners' Chronicle. On view morning of Sale, and Catalogues had.

Nursery and Seed Business for Sale.

TO BE DISPOSED OF, the excellent NURSERY and SEED BUSINESS of the late Joseph Tremble, of the City of London, and Castle Nurseries, Penryn. Particulars can be obtained on application to Messrs. LITTLE AND LAMONBY, Solicitors, Penryn, who will receive Tenders up to July 8, 1882.

A Bargain.

TO BE DISPOSED OF, at a great sacrifice, an excellent NURSERY and SEED BUSINESS. Apply to Messrs. HURST AND SON, Seed Merchants, 157, Houndsditch, London, E.

To Florists and Market Growers.

BUSINESS in the above line for Disposal. Three Spanish Bunches, 64 feet long by 12, and two Ranges of Pits 65 feet by 11. All Heated with Hot Water. Apply to A. KOPE, Crowborough Cross, Sussex.

An Unprecedented Bargain.

THE GODWILL and STOCK, QUEEN'S GARDENS, BRIGHTON, 25 ACRE, 25 ACRE, 3 1/2 Acres, well stocked; Cottage and Greenhouses. Ground rent, £18 per annum. Established 30 years—in hands of a late proprietor 21 years. A Large Seed and Plant Trade, with Stands in three Markets, an unprecedented bargain to a thoroughly practical man. Price £750. Immediate possession. Particulars from W. KNIGHT, Oxford Street, Bilston.

TO BE LET, as a Going Concern, on September 29, or earlier if desired, a compact NURSERY and small SEED BUSINESS, in the best part of Staffordshire, comprising about 8 Acres of well-selected Nursery Stock, also 3 Acres of old Turf Land, and a Dwelling House, a large stock of Hollies in variety, which do well here, as does all other Nursery Stock, the Soil being deep Loam, and a universal supply of water on the ground. It has been established nearly sixty years, and declining health is the sole cause of disposing of it. For particulars address R. S. Robert Cooper, Esq., Seed Merchant, 90, Southwark Street, London, S. E.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDENERS and ENTERTAINMENTERS and VALUERS, 8, The Royal Hotel, Strand, and 1, Leightonstone, E. Monthly Horticultural Register had on application.

6000 Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN) Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES, grown from 1869 to 1882, suitable for present planting. CATALOGUE free. The Trade supplied. Also a large stock of TEA ROSES.

Hyacinths, Tulips, &c.

BUDDENBURG BROTHERS, BULB GROWERS, Huisje, Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent, post-free, on application.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rock-work, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post to JOHN SMITH AND CO., Limited. Selection of 100 good show varieties for 25s. R. SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

The Highest Awards for

PYRETHRUMS from the Royal Horticultural Society, the Royal Botanic Society, and the Crystal Palace Co., in 1882, have been received by KELWAY AND SON, Langport. CATALOGUES free.

MANSION HOUSE, LONDON.

Grand Rose Show

WILL BE HELD AT THE MANSION HOUSE, ON FRIDAY, JUNE 30, 1882, IN AID OF THE FUNDS OF THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN, WATERLOO BRIDGE ROAD, AND THE Convalescent Home for Scarlet Fever Patients.

The Exhibition, which will be arranged by Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace, will consist of 10,000 ROSES from the gardens of the principal growers, arranged with Ferns and other accessories in an artistic manner, and of a Competition confined to Amateur Growers.

All Roses to be grown by Exhibitor, and exhibited in boxes to be shown as cut from the tree. Any buds and leaves which are left, but no loose leaves to be added. Added foliage will disqualify.

All the exhibited Roses, unless reserved, will be sold at fixed prices, and delivered at the close of the Show, at 7 P.M.

All exhibits to be ready for judging by 10.30, or they will not be eligible for competition.

Entries to be made on or before June 27, addressed to the Secretary, Mansion House.

- 14 BLOOMS, named, distinct—single. CLASS II.
15 BLOOMS, named, distinct—single. CLASS III.
12 HYBRID BLOOMS, named, distinct—three of each. CLASS III.
6 HYBRID BLOOMS, named, distinct—single. CLASS V.
6 HYBRID BLOOMS, named, distinct—three of each. CLASS V.
6 TEA or NOISETTE, named blooms, distinct—single. CLASS VII.
3 TEA or NOISETTE, named blooms, distinct—three of each. CLASS VIII.
6 BLOOMS of ONE ROSE, any description. CLASS IX.
HAND BOUQUET of ROSES and FOLIAGE, with or without Ferns, 12 to 15 inches across. CLASS X.
BASKETS of ROSES, various, 20 to 30 blooms. CLASS IV.
There will be TWO PRIZES in each Class. SILVER MEDAL, 1st Prize. BRONZE MEDAL, 2nd Prize.
The LADY MAYORESS will also be glad to receive for Sale.—Bouquets or Bunches of Roses, Bouquets of Mixed Flowers, Button-hole Flowers, Baskets of Roses (large or small). Judges, Mr. G. PAUL and Mr. C. TURNER. Admission between the hours of 12 and 7 o'clock, 2d.

HIGHGATE HORTICULTURAL SOCIETY. THE ANNUAL FLOWER SHOW will be held (by permission of Colonel Wilkinson) in the grounds of Southampton Lodge, Fitzroy Park, Highgate, on THURSDAY, June 29. Admission from 1 o'clock till 7, 2d. From 3 till 10, 1s. 5 till 8, 6d. Children half price. W. M. BURCK, Sec.

THE SALTERHEBBLE and DISTRICT ROSE SHOW, THURSDAY, July 13. FIRST PRIZE A FIVE GUINEA SILVER CUP. Schedules of Prizes, &c. on application to Salterhebble, Halifax.

ROYAL MANCHESTER and NORTHERN COUNTIES BOTANICAL and HORTICULTURAL SOCIETY. A GRAND ROSE SHOW will be held in the above Society's Gardens on FRIDAY and SATURDAY, July 14 and 15. Schedules may be had from the undersigned. ENTRIES CLOSE on July 10. BRUCE FINDLAY, Royal Botanic Gardens, Manchester.

THE WIRRAL ROSE SOCIETY (affiliated with the National Rose Society) will hold its 2nd Exhibition in the Archer Ground, Birkenhead Park, on SATURDAY, July 15, next, when Prizes amounting to ONE HUNDRED and THIRTY SEVEN POUNDS, together with Medals, &c., will be offered. The Judges in the Nurserymen's Classes will be the Revs. Canon Hale and H. H. D'Umbrian. Schedules may be obtained from the Hon. Secs., E. CLAXTON, The Rosery, Alerton, Liverpool; and J. SMITH, Woodhey, Rock Ferry, Cheshire.

SOUTHSEA.—CLARENCE ESPLANADE PIER, SOUTHSEA. A GRAND HORTICULTURAL and FLORAL EXHIBITION, under Distinguished Patronage, will be held in the New Pavilion, during the first week in August, when PRIZES to the amount of ONE HUNDRED and FIFTY POUNDS will be awarded. Schedules are now ready, and may be had upon application to JOHN TAPLIN, Havant, } Hon. Secs. A. W. WHITE, Southsea Pier, }

THE ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY. GREAT SUMMER SHOW, SATURDAY and MONDAY, August 5 and 7. THREE HUNDRED and TWENTY POUNDS in Prizes for Flowers, Fruits, Vegetables, Honey, Hives, and Bee Appliances, Honey Fats, for the sale of Honey, &c. Entries close on July 25. A subscription of 2s., paid before July 8, clears all Entry Fees. C. S. FUDGE, Secretary, 39, York Street Avenue.

GLAMORGANSHIRE HORTICULTURAL SOCIETY. THE NINETEENTH SHOW will be held at Cardiff on WEDNESDAY, August 23, when upwards of TWO HUNDRED POUNDS will be given in Prizes. For Schedules and full particulars apply to H. F. LYNCH BLOSSE, Hon. Secretary, 11, High Street, Cardiff.

Borough of Grimsby.—"The People's Park." CONTRACTS, Nos. 3, 4, 5. TENDERS ARE INVITED for the following Works, viz.—

CONTRACT No. 3.—The ordinary AGRICULTURAL DRAINAGE of the PARK, 24 Acres in extent (exclusive of the surrounding roads); EXTENSION of LAKES of 2 Acres, and RAISING of MOUNDS, general LAYING OUT of GROUNDS and LAWNS, PREPARATION of BORDERS and FORMATION of WALLS. CONTRACT No. 4.—ERRECTION of ENTRANCE LODGE and GATES. (a) PAVILION, BAND STANDS, SHELTERS, and RETRAITS. Separate Tenders for Nos. 1 and 2.

CONTRACT No. 5.—THE PROVIDING and PLANTING of TREES and SHRUBS in the Ornamental Grounds and Borders. Drawings and Specifications of the several Works may be seen, and forms of Tender obtained, at the office of the BOROUGH SURVEYOR, Town Hall, Grimsby, from the 7th to the 21st day of JULY NEXT, on which latter day Tenders for each Contract must be delivered at the office of the TOWN CLERK, West Street Mayor's Gate, Great Grimsby, before 4 o'clock in the afternoon.—By order, JOSEPH SAUGHAN, Borough Surveyor, Borough Surveyor's Office, Town Hall, Grimsby, June 20, 1882.

DESIGNS Made and Works EXECUTED

In the Arrangement of TERRACES, CONSERVATORIES, FLORAL CORRIDORS, ROOF GARDENS on uninteresting Flat Leads, &c., formed with substantial PULHAMITE KEKING for the WALK BORDERS, &c., in TERRACOTTA or ARTIFICIAL STONE of various colours. BALUSTRADES, VASES, PEDESTALS, FIGURES, FOUNTAINS, CONSERVATORIES and WINDOW BOXES in great variety, suitable for any style of House. Various Specimens of KERB or EDGING, PULHAMITE PERMANENT GRAVEL PATHING for GARDEN, TERRACE and other WORK, and FLOORS, to be seen at the Horticultural Company's, Regent Street, W. 1, at The Orchard, Plant Lane, Tottenham; and at our Bristol Depot there is the greatest variety of the above to be seen. DURABILITY GUARANTEED. A Photographic Book of over 200 Illustrations, with Sizes and Prices, sent for Inspection on receipt of twelve stamps.

Address—PULHAM & SON, The Works, Broxbourne. Established in 1837.

Christmas Roses. BUDDENBURG BROTHERS, BULB GROWERS, Hillegom, near Haarlem, Holland, are now booking orders for the above. Prices will be given on application.

CALCEOLARIA "CLOTH OF GOLD" (Rapey's) — Awarded First-class Certificates Royal Horticultural Society and Royal Botanic Society, New Zealand. Price per 100 plants, 10s. 6d. See by post, and apply to JOHN LAING and Co., Seedsmen, Forest Hill, S. E.

A. M. C. JONGKINDT CONINCK, Dredanslant, near Zwolle, Netherlands, has the attention to his large stock of HOME-GROWN CHIONDOXA LUCILIE, Wholesale Trade LIST of HARDY BULBS and FLOWER ROOTS gratis on application.

To the Trade Only. TEA ROSES, on own roots, extra strong, out of 4 1/2-inch pots, 6s per 100, for cash. MAIRIS AND CO., Weston-in-Gordano, Bristol.

To the Trade. HOME-GROWN TURNIP SEEDS. H. AND F. SHARPE invite the attention of the Trade to their fine selected stocks of SWEDE and other TURNIP SEEDS of 1883 growth. Special offers at low prices on application. Seed Growing Establishment, Wisbech.

AZALEAS, with Buds, for September—Indian, hardy Mollis, hardy Ghent—6s, 4s, 6s, 2s, per 100 plants. CATALOGUES, with illustrations, may be had, JOSEPH NAPOLEON BAUMANN, Nurseries, Ghent, Belgium.

CABBAGE PLANTS.—Enfield Market, Brussels Sprouts, Green Curled Kale, Thousand-headed Kale, Drumhead Savoy, &c. 1st Prize at the Champion Drumhead. Fine plants, Prices moderate. Apply to T. DAVIES, Tangley, Guildford, Surrey.

Best Time to Sow Now, for Early Flowering in Spring. PANSIES.—Assortment of 18 splendid varieties, containing each one packet, 2s. 6d.; assortment of 12 fine varieties, containing each one packet, 1s. 3d.; splendid mixed, per pound 3s.; per ounce 3s. Carefully saved only from exhibition flowers, 100 seeds 2s. 6d.; per packet, 6d. My collection of Pansies grows, &c. 1st Prize at the Exhibition of 1881. Price LIST forwarded gratis and post-free on application. FRÉD. ROEMER, Seed Grower, Quedinburg, Germany.

Special Cheap Offer. E. VERVAET and CO., Mont St. Amand, Ghent, beg to offer the following: LATANIA BORONICA, fresh and most healthy seeds, 10s. per 100 seeds. COCOS PLUMOSA, fresh and most healthy seeds, 12s. per 100 seeds. LATANIA BORONICA, in store pots, strong seedlings, 8s. per 100 plants. EUTERIA, 1882, nice plants, in store pots, 6s. per 100. COCOS PLUMOSA (the graceful), nice plants in store pots, 20s. per 100. Immediate orders are solicited.



PRIVATE EXHIBITION OF ORCHIDS.

Mr. WILLIAM BULL'S Exhibition of Odontoglossums and other choice Orchids is creating so much astonishment and interest that it will be OPENED throughout this month to Patrons of the Establishment, and to those having received invitations. Several magnificent new kinds are in blossom.

Establishment for New and Rare Plants,
536, KING'S ROAD, CHELSEA, LONDON, S.W.

PAUL & SON, THE "OLD" NURSERIES, CHESHUNT,

Respectfully announce as ready for delivery the NEW CHESHUNT-RAISED ROSES.

H.P. WHITE BARONESS, a pure white, thoroughly double sport of the Baroness Rothschild.
H.P. PAUL'S SINGLE CRIMSON, a vivid almost scarlet seedling from Duke of Edinburgh.

Strong plants in pots, 5s. each.

The CHESHUNT SEEDLINGS, it may be noted, have always proved grand Roses when grown elsewhere.

NEW FRENCH ROSES, including the splendid Light Rose H.P. Helen Paul, Violet Bouyer, and others. The best lot for many years. 3s. 6d. each, 30s. per dozen.

New Single Roses, Miniature Roses, Old-fashioned Striped Roses, in pots, 1s. 6d. to 3s. 6d. each. **The Finest Lot of Extra Sized Roses** in pots ever held by the Firm, 30s. to 72s. per dozen.

The New and other Roses are now coming finely into flower. An inspection respectfully invited.

PAUL & SON, The "Old" Nurseries, CHESHUNT.

One Mile from Cheshunt Station on Great Eastern Railway.



EXHIBITION OF ORCHIDS.

B. S. WILLIAMS

Begs to announce that his Exhibition of Orchids, as previously announced, is still on view.

Patrons of Horticulture are especially invited to inspect this Exhibition.

The Exhibition contains large and small specimens of ODONTOGLOSSUMS, CATTLEYAS, LÆLIAS, ONCIDIUMS, CYPRIPEIDIUMS, MASDEVALLIAS, VANDAS, AERIDES, ANGULOAS, and other rare and showy ORCHIDS.

AN EARLY INSPECTION IS RESPECTFULLY INVITED.

VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

LYCASTE SKINNERI, CŒLYGNE CRISTATA, PHALÆNOPSIS VIOLACEA SUMATRANA, VARIETIES.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 27, at half-past 12 o'Clock precisely, by order of Messrs. HUGH LOW & CO., a grand lot of imported plants, in the best possible condition, of

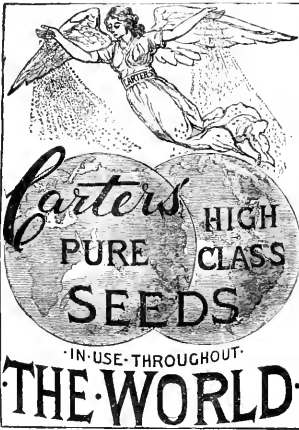
LYCASTE SKINNERI, CŒLYGNE CRISTATA, CATTLEYA TRIANÆ,
ODONTOGLOSSUM ALEXANDRÆ—selected specimens;

O. LUTEA-PURPUREUM, varieties; DENDROBIUMS, VANDAS, AERIDES, &c

At the same time will be offered AERIDES MACULOSUM and CRISPUM, extra fine varieties, in flower; PHALÆNOPSIS VIOLACEA SUMATRANA, varieties, semi-established plants, and other choice ORCHIDS.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN,
LONDON, W.C.



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THE QUEEN'S (Seedsmen by Royal Command) H.R.H. THE PRINCE OF WALES
SEEDSMEN, To

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235, High Holborn, London, W.C.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS
IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

SPECIAL OFFER OF ORCHIDS

The following beautiful and rare Orchids are offered at low prices, and will be found to be nice-sized, healthy plants; they have not yet been flowered, and probably contain many rare varieties in value quite out of proportion to prices at which they are quoted. They are offered by the importer to make room for fresh importations constantly arriving.

Each—s. d.	Each—s. d.
Acridos atine 5s and 7 6	Dendrobium chrysotoxum 3 6
" Fiedlmaji 7s. 6d. and 10 6	" Freemanii .. 5 0
" Lolla 5s. and 7 6	" heterocarpum .. 5 0
" japonicum .. 3 6	" .. 3s. 6d. and 5 0
" maculosum .. 5 0	" Waddellianum .. 10 6
Angulocera curatum 5s. 6	Grammatophyllum Elbii 15 0
Calanthe Sieboldi 5s and 7 6	Lælia albida and anceps .. 3s. 6d. and 5 0
" sylvatica .. 5 0	" autumnalis .. 5 0
" Venichii .. 2 6	" Dayana .. 5 0
" vestita .. 2 6	" majalis .. 3 6
Cattleya Acklandiae .. 5 0	" Masdevallia ambalisii 8s. 7 6
" amethystina .. 5 0	" .. Harryana 5s and 7 6
" aurea .. 2 6	" .. ignea .. 5 0
" citrina .. 3 6	" .. maculatum .. 3 6
" dolosa 5s. 7s. 6d. and 12 6	" .. Phærensii .. 5 0
" viridis 10s. and 15 6	" .. Wagneriana .. 10 6
Luddeemanniana .. 5 0	" .. Maxillaria grandiflora .. 5 0
" marginata .. 5 0	" .. Mormodes podanum .. 5 0
" Mossiae 3s. 6d. and 5 0	Odontoglossum Alexandrinum .. 5 0
" Trianae 5s. and 10 6	" .. citrea 3s. 6d. and 5 0
Chysis aurea .. 5 0	" .. dictyonum .. 3 6
" lewisii .. 5 0	" .. citrosium .. 5 0
Cœlygne corrugata .. 5 0	" .. madrense 7s. 6d. and 10 6
" .. cristata 3s. 6d. and 5 0	" .. Phalænopsis .. 5 0
Cymbidium elatum 5s. 6	" .. vexillatum 5s. and 7 6
Cypripedium barbatum 3 6	Onoc. ornithorhynchum .. 5 0
" Hookeni 3s. 6d. and 5 0	" .. prætextatum .. 5 0
" Lawrenceanum .. 10 6	Phalænopsis anabilis .. 5 0
" niveum 3s. 6d. and 5 0	" .. 7s. 6d., 10s. 6d., and 15 0
" venustum .. 3 6	" .. Schilleriana, ditto, ditto .. 5 0
Epidendrum vitellinum 3 6	" .. Platanis laetiflora 3s. 6d. and 5 0
Dendrobium bigibulum .. 3 6	" .. maculata 3s. 6d. and 5 0
" .. chrysanthum .. 3 6	Saccolabium Blumei .. 3 6
" .. crassinode 7s. 6d. and 10 6	" .. Vanda tricolor 7s. 6d. and 10 6
" .. formosum 3s. 6d. and 5 0	" .. cerulea 7s. 6d. and 10 6
teum, fine imported plants 3s. 6d. and 7 6	Zygopetalum Mackayi 5 0

All orders and letters to be addressed to 20, Cullum Street, London, E.C., and not to Nurseries, Two-kilnham, Middlesex. P.O.O. payable to W. GORDON, Mark Lane.

GRASS SEEDS

FOR LAWNS,

Of the finest close-growing Evergreen kinds, 1s. per lb. Special preparations for all purposes, soils, and situations. Advice gratis.

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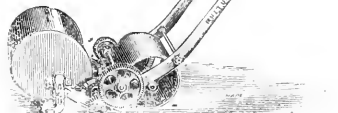


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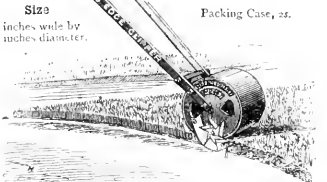
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 24, 1882.

THE CHISWICK GARDENS.

THE Chiswick Gardens of the Royal Horticultural Society, the glorious old Chiswick of a generation ago, have been *en fite* during the past week, on the occasion of holding within the gardens the second annual exhibition of the Chiswick, Turnham Green, and District Horticultural Society. Small and comparatively insignificant as the show was in comparison with the splendid exhibitions which a quarter of a century ago made these gardens famous throughout Europe, it was yet like a relic of the past—as if the old glory would make an effort to reassert itself despite the changes which have come upon the time-honoured Society that still holds the gardens.

Amid all the vicissitudes through which the Society has passed during the past fifteen years, Chiswick has never failed, so far as its crippled resources permitted, to hold aloft the light that has always shed abroad in greater or lesser degree the quickening influences of practical work. When the heaviest clouds of impending dissolution appeared to overshadow the Society, as also in times when a brighter and more hopeful aspect lent a silver lining to the gloom, Mr. Barron never lost hope and courage; and Chiswick has for years past, under his intelligent supervision, shown a remarkable vitality in the way of practical work, the actual value of which has been much better understood and appreciated by those who make a point of visiting the gardens than by those who seldom go there. The columns of the *Gardeners' Chronicle* not infrequently give prominence to the nature and scope of the practical work done there; but it is only a small portion of it, and that not its most valuable portion, that finds its way into public print. Unfortunately there are now no published *Transactions* of the Society to keep the Fellows and the horticultural public generally *en rapport* with the Superintendent of the Gardens and his useful and increasing work.

It is not too much to say that Chiswick is now exceptionally full of interest for the horticulturist; while the *beau monde* and the mere loungeur can find much to satisfy what sense of the perception of decorative beauty they may possess. The large vinery as well as the smaller houses devoted to the culture of Grapes are in admirable condition, and the Vines bear crops of great promise. Outdoor fruits are of a more variable character in regard to crop. The south wall of cordon Peaches and Nectarines show very large crops of fruit, and though blight has been plentiful, the trees are in good condition. Cordon Cherries on the west wall show a partial crop. The fine collection of pyramidal Pears show in the majority of instances a very good crop: the low bush trees from Mr. Rivers are very full of fruit. All the bush trees of Apples of small size are in the same category; the larger and more exposed trees have but very little fruit. It might be reasonably inferred from this that the gale in early spring had the effect of either

tearing the blossoms from the trees, or rendering them barren. Cordon Apples are also bearing good crops of fruit. As is unfortunately usual at Chiswick, owing doubtless to its liability to suffer from spring frosts, the crop of Plums on exposed trees is practically *nil*; one wall tree of the fine old Victoria Plum has, however, an exceptionally heavy crop of fruit. Currants and Gooseberries have good crops of fruit, but the former are much affected with blight. Strawberries are a good crop, fine weather being required to mature the fruit. A variety named Pauline is worth noting as an early variety, the fruit long, quite 2 inches in length, and very ugly. This variety makes only small plants, but they fruit freely. In the vegetable garden there are excellent trials of the newer Peas and Potatoes, both of which are very promising; also of Lettuce, Tomatoes, Shallots, &c., that improve daily.

It is scarcely necessary to go into details as to the occupants of the various plant-houses. There is now an abundance of flowering plants of a widely representative character, all in excellent condition and well worthy an inspection. The Chiswick houses are never without something of more than ordinary interest, and many an old favourite of years ago that has become almost lost to cultivation occasionally appears in fine form at Chiswick, making one regret that so much of beauty and fitness should have fallen away into the bye-paths of neglect. Just now there are interesting trials of Begonias, Lantanas, and Ivy-leaved Pelargoniums, that in all probability can nowhere else be seen to such excellent advantage—Gloxinias, zonal Pelargoniums, Mignonette, &c. The frames are replete with plants of almost countless variety. In the open ground there are beds upon beds, and patches of hardy and half hardy plants of a very varying character. Violas, seedling Pinks, Canterbury Bells, Sweet Williams, Foxgloves, Antirrhinums, &c., all appeal in their best forms for a passing tribute of admiration. The rockwork is studded with floral gems of interest; and in the depth of winter as at midsummer it is never without some sweet floral visitant. The circling year, at all times and seasons, witnesses some "star of earth" answering in harmonious service to some glittering speck in the boundless vault above.

This is but a rapid and necessarily imperfect epitome of the leading features of the Chiswick Gardens. During the next three months, no practical horticulturist should visit London and go away without seeing Chiswick. He will have missed a treat and a lesson if he does so, especially if he bear in mind the numerous obstacles which the embarrassed state of the Society necessitates. Let us, in conclusion, bear testimony to the valuable services rendered by the heads of departments at Chiswick, who make up Mr. Barron's responsible staff. They appear to second his efforts with alacrity and intelligent co-operation. There is in such a place the constant necessity for a painstaking supervision of an immense number of valuable details. Herein lies one of the chief elements of success; and when the *entente cordiale* between superintendent and staff is perfect, there will be but the smallest hitch in the working of the daily round of routine duties which form the foundations of success.

New Garden Plants.

NEPENTHES ATRO-SANGUINEA.

Our illustration of this hybrid (fig. 125) was taken in the establishment of Mr. B. S. Williams, who states in his *Catalogue* that it is a garden hybrid of American origin, probably a cross between *N. Sedeni* and *N. rubra*. It is one of the richest coloured Nepenthes we have ever seen, being of a deep reddish-crimson and much richer than *N. sanguinea*. The pitchers

measure about 6 by 2½ inches, and are reddish-crimson slightly spotted with yellow, pointed at the base, distended at the lower half, cylindrical above; wings broad, fringed, mouth ovate acute slightly prolonged towards the lid and surrounded by a flatish rim marked with close ridges, some red, others blackish; lid about the size of the mouth of the pitcher, oblong emarginate, with radiating veins, and a simple spur at the base.

ODONTOGLOSSUM ASTRANTHUM, Rehb. f.

This rare species has appeared once more in the collection of Mr. O. Schneider, Cromwell Range, Wiltson Road, Fallowfield, near Manchester. The fine inflorescence just now to hand has very much brown colour on the disc of the lip. The plant is very chaste indeed in its colours. The star-like flowers are whitish-greenish-sulphur, with sepia-brown streaks and blotches, and it is only the base of the column that is decidedly orange, with a few reddish-purple spots. The largest flowers I ever obtained came from Mr. H. Salt. A sketch in colours made in Ecuador by Dr. Krause, and kindly sent by Messrs. Backhouse, shows a white lip, with red blotches. I candidly confess that I have not had a very satisfactory experience with many of these sketches, and the origin of the discrepancies may not so often be attributed to the difference of insolation, &c., as to the poverty of colours of the traveller. My wild-grown specimens are from Messrs. Wallis, Dr. Krause, and C. Klaboch, one of the numerous Roelian nephews. *H. G. Rehb. f.*

ODONTOGLOSSUM VEXILLARIUM WOTIANUM, n. var.

A glorious variety! It is of the finest, richest white, with a light yellow base to the lip, and three short reddish-purple lines in front. There is a light purple dot at each side of the base of the petal, and the anther and sides of flower are purple, too, as are two short lines on the base of the side sepals inside. It is nearest *Odontoglossum vexillarium leucoglossum*, but well distinguishable. I dedicate it with pleasure to Messrs. Wiot, of the old firm, Jacob & Makoy. *H. G. Rehb. f.*

SUMMER GROWTHS.

THE trees which so widely suffered from the terrible force of the April hurricane are now recovering from its effects, and we see, as an undoubted phenomenon in vegetable life, Oaks, Elms, Chestnuts, and other badly injured trees, just now putting on new growth and leafage as though it were April and not June. Summer growths on the part of deciduous trees are common enough, although very largely dependent upon the rainfall and geniality of the season, but such a summer development of new growth as is just now taking place is indeed an unwanted feature such as few have seen in the past and few may see again. Indeed, the cause of this unwanted appearance is unwanted also. Fierce cold blasts may blow and rage with terrible force through the winter months, and though we shiver and suffer we feel no surprise. It is when the elements war so furiously against the tender vegetation of spring, as they did in April last, that we wonder and realise that we are indeed in the midst of strange phenomena. The trees that seem to us to be made of the sternest and most defiant stuff, were so literally stricken and chilled, that their very life's blood seems to have been arrested, and congealed. The destruction of the leafage wrought almost the same effects as autumnal frosts and growth for the time literally ceased.

No more unusual sight has been presented than that but a week or two since offered by large breadths of sturdy vigorous Oaks standing in Windsor Forest, upon which, though it was reputedly the leafy month of June, yet there was not a leaf visible. The fierce wind had killed every spring bud and leafy shoot, and not a green speck was to be seen. But even then there was to the experienced eye evidence of an universal burst of leafage soon, for the swollen brown leaf-buds glistened in the sunlight as they will in the month of March, when the winds are soft and the sun shines out pleasantly. The great reaction was then setting in, and is now in its fullest vigour, and though late Nature will do all that she can to recoup herself and reclothe the naked woods with luxuriant leafage. There is an old notion, more or less true, that when the stem of some noble tree has been severed with a saw that experts can tell of each season's growth by the width

or otherwise of the woody rings seen. If, however, some such expert should, half a century hence, strive to penetrate into the secrets of the past, and find that 1882 gave but a narrow ring, he would perchance but indifferently guess at the cause, for it is, indeed, as singular as it is unwanted.

A "DRIPPING" TIME.

THIS is the golden opportunity of the gardener. If a time of warm invigorating showers at this season of the year comes a little inopportunistly for the farmer who is making his crop of hay, it is of great advantage to the gardener—provided, of course, that the showery weather is not too long in duration and too cold in temperature. Just now the market gardener is getting out his Brussels Sprouts, Cauliflowers, Vegetable Marrows, &c., while his Runner and Dwarf Beans, Lettuce, &c., are greatly benefited by the nourishing rains. There is nothing like getting a good start with such crops, and a showery time for planting out is also a great economiser of labour. To the gardener such a time is also a welcome and beneficial one. He, too, is bringing on succession crops, and is also planting out his winter stuff, &c. It is true that he has a command of water that does not generally fall to the lot of the market gardener; but the beneficial showery time is, for obvious reasons, not less advantageous.

Those who do spring gardening on a large scale are just now dividing and planting out in the reserve garden such useful spring-flowering perennials as Daisies, Pansies, Violas, Aubrietias, Arabis, Primroses, Polyanthus, and the many other subjects used for this purpose; and if this be done during a time of rain, or immediately preceding it, the divided pieces soon draw root and make abundant stock. A showery time during June greatly helps the newly-planted subjects in the flower-garden, and lays the foundation of a display throughout the summer, the attractiveness of which is greatly augmented by the rain. It is also a time of hard pelting showers that beat down the surface soil, and this bakes in the sun till it takes the form of a thick crust. The hoe, or any tool that can break the surface, is then called into requisition, and with great advantage, for not only does it further the necessary aeration of the soil, but it keeps down the growth of weeds. Probably gardeners, as a rule, undervalue the use of the hoe in the garden; and yet a loose surface is of the greatest value in a time of drought. No one knows this better than a nurseryman; a deeply-stirred surface at a time of drought, provided the roots of trees and plants are not unduly interfered with, is the salvation of some growing crops. There is no more genial growing time than showers alternating with sunshine; but both should be warm, and then the plants answer to the invigorating influences, giving cause for man and beast to rejoice.

DERNCLEUGH.

THIS very handsome residence, the property of Godfrey Ermen, Esq., is situated between Dawlish and Teignmouth, and is approached off the Teignmouth road. The property has been lately acquired by Mr. Ermen, who within the last three years has laid out new gardens, erected new plant and forcing houses, and otherwise embellished and ornamented the grounds. The entrance to the kitchen garden is beautified with borders of choice hardy flowers and ornamental and flowering shrubs, Conifers, and hybrid Rhododendrons. The Wallflowers and Stocks have attracted a large share of attention lately, owing to their excellent quality, profusion, and size of flowers, which is mainly due to a liberal system of cultivation adopted by Mr. Pook, the gardener. *Veronica*, *Hydrangea*, *Eaonymus*, *Lycyestera formosa*, *Dentia scabra*, *Escallonia macrantha*, *Weigela rosea*, *Althea frutex*, and many other flowering shrubs luxuriate in this climate, close by the sea, and are no doubt materially assisted by the new virgin soil and cultural attention which they receive in order to hasten their development into established specimens. Indeed, their progress has been so rapid that it seems incredible, looking at the size of the trees and shrubs, and the numbers of hardy flowers, that what is now a beautiful garden was only a half-cultivated field some three years ago. But such is the case; and what has been accomplished here in so short a time may be done elsewhere in scores of cases, if only the means are provided, and there is equal energy displayed in carrying on the work.



FIG. 125.—NEPENTHES ATRO-SANGUINEA. (SEE P. 826.)

Upon the slope of a hill a new orchard of fruit trees has been established Devonshire-like—for it is a remarkable fact that nearly all the fruit orchards in the county occupy slopes—no doubt for the excellent reason that frosts and fogs are not so likely to damage the blossoms during the flowering season. On the summit of the slope there is a new range of forcing-houses built by Messrs. Shapter & Son, of Dawlish, who have had much experience in bothouse building in the neighbourhood. The crops of Grapes are a great success, and, owing to the fine elevation of the houses, and their contiguity to the sea, the very highest degree of colour may be expected when the Vines have reached the proper age. As it is, notwithstanding their unusual vigour, the bunches are numerous, and are large and well formed. The sorts are Black Hamburgh, Foster's Seedling, Frontignan, Mrs. Pince's Black Muscat, Muscat of Alexandria, and others. Two soft-water tanks have been provided for supplying water to these houses; indeed, nothing seems to have been omitted that is at all calculated to promote success in Grape growing. Smaller houses for the cultivation of Cucumbers, pot Vines, and plants, are also furnished with the best modern appliances, which tends in a great measure to facilitate all operations, and is productive of the most satisfactory results.

In another range of three divisions, chiefly devoted to Peach growing, there are some experiments in glazing being tested, which are worthy of notice. One of the divisions has been "double glazed," the distance between the two sets of squares being three-eighths of an inch. The inner squares "butt," that is to say, the ends of the squares nearly touch, while the outer squares "overlap" each other in the usual way. The advantage of this system of glazing is, that a temperature of 8° higher is obtained than under the single system. Naturally there is less loss of heat by radiation, but the question is—are the trees not liable to excessive heat in summer? So far as three years' experience at present shows (apart from the higher temperature secured in winter without the application of fire-heat) the trees grown under the double system of glazing are in superior health generally, and are better furnished at their base. But here again it would probably be hasty to ascribe this success to the double system of glazing. It is generally cold draughts admitted through the front ventilators of a house that are fatal to the furnishing of Peach trees, rather than anything else. Upon the whole, the system may be advantageous where fuel is expensive, but the house should be freely ventilated in order that healthy volumes of pure air may be admitted in warm weather, and in the case of early houses the sashes should be "movable" altogether, so that perfect rest may be secured after the leaves have fallen.

There is a good Peach wall planted with young Peach trees, which are much exposed to storms from the sea, and which grow fairly well, but which will not be satisfactory until the wall is covered with glass. A roomy house built against a wall of this kind would grow pot fruit trees to perfection, besides never missing a crop from the hack wall, and Tea Roses could be trained up the rafters. The fact is, small houses are proportionately dearer than good-sized roomy ones, and are worse to work, and far less productive. They are soon hot and soon cold, and rapid changes of temperature are very dangerous to fruit trees in bloom, and, indeed, are not beneficial to them at any time. The house stands on an elevated site, about 150 feet above the level of the sea.

The terraces are steep and smooth, and the lawns, enclosed by flowering shrubs and trees, are very beautiful. The conservatory is gay with seasonable flowers, but the flowering shrubs are more striking because of their great size and luxuriance of leaves and flowers. Veronicas grow into fine bushes, and Azaleas, Camellias, Ericas, and other plants grow and flower freely in the open borders; but it should be added the climate is most genial and the situation well sheltered. The view from the terrace is splendid towards Dabbicombe Bay, Berry Head, and the "Ore Stone"—an immense rock standing out in the sea, and the spire of St. Mary's Church, Torquay. In Lindsay Park, which is divided from the private grounds by "Smuggler's Lane," Mr. Ermen has laid out tennis lawns, rockeries, and a handsome summer-house, built in spar and Ifaldon flint, which is a pretty addition to a garden and grounds that promise at no distant date to be of a truly beautiful and interesting description.

LETTUCES.

NOTHING in the vegetable way is more esteemed during the summer than Lettuce, but to have them crisp, juicy, and succulent they require special treatment; for, though they may do very well under the ordinary mode of treatment during the earlier part of the season, they will not bear transplanting now without suffering such a check as will completely stop their growth, and cause them to run up to seed. The great thing to avoid in the cultivation of Lettuce is the severance of the tap-root, which must of necessity take place if the young plants are pulled from the seed-bed; and to save doing this the seed should be sown where the plants are to grow, as then they strike down, and are able to endure the great heat or changes of weather. Another important thing in the management of Lettuce is to give them rich soil, or plenty of manure, which should be of a mild nature, and thoroughly decomposed, as in that state they can feed on it at once. In digging the manure in the deeper, in reason, the ground is dug up the better; but if light, it is as well, after the digging, to tread it over before raking down, so as to prevent it lying hollow and loose. With the surface made firm and smooth all will be in readiness for seed sowing, which should be done in shallow drills drawn at about 15 inches apart. To save waste of seed, and also labour and trouble in thinning, it is a good plan to dot the seed in in small patches, leaving a space of a foot or so between each patch, which is the proper distance for the plants to stand and grow, and gives plenty of space for them to develop themselves, and form large solid hearts. The thinning must be done betimes, and should be carried out immediately the plants are large enough to show which is the strongest and best, as then there is little or no disturbance of the one left, which then have every chance of growing from the first start to the finish. To afford them every encouragement to do this sewage or liquid manure should be given after they have attained about half their size, which will help them on amazingly, and the quicker progress they make the finer will the quality be.

During the heat and height of summer the best place for Lettuces is a half-shady border away from the roots of trees; and where a cool situation of that kind cannot be afforded them, it is a good plan to stick a few evergreen branches along the sunny sides of the rows, or run a piece of old fishing-net over the tops, and support it there about a yard high, where it will afford the requisite shade, and prevent the plants becoming distressed from the fierce solar rays. Later on one of the most suitable situations for Lettuce is between Celery trenches, along the centre of the flat ridges, as there they get a great depth of fresh soil, and by having so much room, with plenty of light and air, attain a great size. As to sorts, there are none for summer work equal to the Cos sorts, and one of the best, if not the very best, among these is the old Paris White, which hearts in well of itself, without tying, and when ready for the salad-bowl is tender, crisp, and delicious. Among the Cabbage kinds the Victoria and Neapolitan are as good as any, and both are fine large Lettuce that have close solid hearts, which are of excellent quality. To stand the winter none are better than Hicks' Hardy Cos and the Bath Brown Cos, both of which should be sown towards the end of August, and the former best plants planted close under the foot of a sunny wall, or on a warm dry border facing the south, where, unless the winter is very severe, they will stand all frosts, and be fit for use very early in spring. *J. Sheppard.*

PLANT PORTRAITS.

CATALPA KEMPFERII, Sieb. and Zucc., *Bot. Mag.*, t. 6611.—A hardy tree with cordate ovate scarcely lobed leaves and panicles of irregularly funnel-shaped pale yellow flowers sprinkled with small red spots. Japan. Hort. Kew. For a notice of the cultivated *Catalpa* see *Gardeners' Chronicle*, p. 650, vol. xiii.

CATTLEYA VELUTINA, *Orchid Album*, t. 26; *Reh. l.*, in *Gard. Chron.* 1870, 140, &c.—Flowers 5 inches across, fragrant, segments oblong, tawny, with reddish-brown spots, side lobes of lip erect, whitish, central one much larger, spreading, whitish, marked with lilac veins. Brazil. Coll. Sir Trevor Lawrence.

CYMBIDIUM PARISHII, *Orchid Album*, t. 25; *Reh. l.*, in *Gard. Chron.*, i., 338, x., 74.—Flowers 3½ inches in diameter, segments oblong obtuse, lateral lobes of lip erect, white, central lobe flatish, roundish,

white, with a yellow blotch and numerous purplish-brown spots. Mouline. Hort. Day.

MASCARENHAISIA CURNOWIANA, Hemsley, *Bot. Mag.*, t. 6612.—An Apocynaceous stove shrub with oblong-acuminate glabrous leaves and terminal turesses of rosy-pink funnel-shaped flowers each about 2 inches across. Madagascar. Hort. Low.

ODONTOGLOSSUM BREVIFOLIUM, *Orchid Album*, t. 27.—Flowers panicle, each about 2 inches across, segments broadly ovate, bright chestnut-brown edged with yellow, lip small, wedge-shaped, yellow, with a pale reddish-brown chevron shaped blotch.

ROSE STAR OF WALTHAM, *Journal des Roses*, March.—A poor illustration, which gives a very inadequate representation of a fine Rose. Of course it is a mistake to ascribe its introduction to the year 1835.

SCUTELLARIA HARTWEGI, Denth., *Bot. Mag.*, t. 6615.—A slender perennial with cordate ovate lanceolate leaves, purplish on the under surface and terminal racemose cymes of rose coloured labiate flowers with a long slender tube. Andes of Quito. Messrs. Veitch.

TALAMIA CANDOLLEI var. *GALEOTTIANA*, Blume, *Nat. Mag.*, t. 6614.—A stove Magnoliaceous shrub, from Java, with oblong lanceolate leaves; flowers 3½ to 4 inches in diameter, pendulous, with oblong greenish sepals and numerous yellow petals as long as the sepals. It is the *Magnolia Galeottiana* of hort. Van Houtte. Hort. Kew.

WAHLENBERGIA SACCOLA, A. DC., *Bot. Mag.*, t. 6613.—A low growing annual with tufted linear oblong leaves, erect leafless flower-stalks bearing solitary bell-shaped flowers. New Zealand. Mr. T. Anderson-Henry.

ZYGOPETALUM GAUTIERI, *Orchid Album*, t. 28.—Flowers 2½ inches in longest diameter, segments oblong acute, green with brown blotches, lip large, spreading, three-lobed, violet. Brazil. Hort. Massange.

FLOWERS IN SEASON.

BENTHAMIA FRAGIFERA.—This lovely tree is now a charming picture in the grounds of the Earl of Mount Edgecumbe, Cornwall; one plant in particular, over 30 feet high, is clothed with a profusion of its large yellow blossoms, which are peculiarly beautiful, owing to the situation. The plant is situated midway upon a slope overlooking the sea in an open space evidently cleared of underwood as an honour conferred upon the floral gem. Its branches droop gracefully under a burden of rich golden flowers, which are sheltered by abundant foliage of other trees at some little distance off. It is viewed from a drive which stands at a considerable elevation above it, and will be an object of interest from now until winter, when its fruits will be ripe. There are not many places where the winter Strawberry will succeed as well as at Mount Edgecumbe, but it would surely be worth while to plant it more extensively in the South and West of England upon trial.

CITRUS LAXUS.—Apart from the utility of this fruit for massing in beds in pleasure-grounds, where it has a fine effect during the present month, it is one of the most pleasing objects for covering banks or planting by the sides of Orchis against Tives or other creeping plants. In parts of Devonshire and Cornwall the flowers develop to an extraordinary size, owing, no doubt, to the geniality of the climate, and flower continuously over a period of several weeks. The flowering season is of much longer duration where the plants are not fully exposed to the sun during the hottest part of the day.

ROSE OF CHINA PEONY.—Few hardy flowers have so rapidly advanced in public estimation during the past two or three years as the finer varieties of those lovely *Peonies*. Only lately, indeed, have they been tolerated as a cut flower at all, but now whole groups of them may be seen in many gardens, and charming groups they make. At Saltram, the Earl of Morley's fine garden, near Plympton, Devon, there is a line extending the whole length of a long border of the variety above-named, which are specially cultivated for cutting purposes. The variety is happily named; it is "rose scented," and is shown as a cut flower. There are no other hardy flowers to compare with them for sending long distances, or that will turn out of a box so bright and fresh after a long journey, and for this reason, if for no other, they are destined to become very popular before long.

CHRYSANTHEMUM FRUTICOSUM.—When a plant becomes so common that nearly every market grower in the country has a stock of it one would think that that plant has seen its best days, but the plant in question is more than a market grower's plant. There will be hundreds of it grown by-and-by where only single plants are grown now. The reason is not obvious to the many, because plants that are introduced by a flourish of trumpets and said to yield fashionable flowers, are not kindly taken to by the masses at first. The greatest gain will be to the poor cottager and amateur hereafter, when it is discovered that the plant will flower all the year round in the open air in mild seasons. Plants grown from a single cutting in the spring, if planted in an ordinary rich soil, will grow 4 feet through in a season, and this is one important advantage to people of limited means. In the spring garden it may also be used, where it will have an incomparable effect at a time when spring flowers are nearly over, and the summer show is not at its best. At Mount Edgecumbe, Cornwall, there are two circles in the flower garden filled with this plant, which at the present time is something fascinating. At a long distance off one wonders what the masses are, so densely are the flowers packed together, and these same plants have been flowering in the same place for nearly twelve months. Making due allowance for climate it cannot be too widely known among all classes of the gardening community that plants that are so cheap and so easily grown may be had in flower during the greater part of the year, and especially that it is worth risking a few plants out-of-doors, which, if the winter be not severe, will yield a great profusion of flowers during the spring months.

SOLANUM JASMINOIDES.—As a fast-growing creeper and a pretty one this plant should be extensively grown by amateurs and cottagers desirous of covering trelliswork or naked, unsightly walls, in a natural-like manner. At this season, when growth is progressing rapidly, the long shoots entwine and interlace each other, and the little white blossoms are about equal in number to the leaves, presenting a very pleasing surface, that would be welcome where people hardly know what to employ to cover objectionable places the quickest. In a good climate the plant will continue to flower more or less from now up to Christmas.

CALCEOLARIA KAYII.—Twenty years ago or less this variety was grown everywhere, but since *Calceolarias* have been so much affected with disease in hot summers, it has almost died out of cultivation. *Aurea floribunda* and *Golden Gem* are now the favourite yellows employed in the flower garden, and the latter is undoubtedly the best of the yellows for the flower garden proper, because of its robust compact habit and excellent constitution. It lives and thrives where other varieties fail. But still the old *Kayii* is a taller grower, and makes a grand border plant at this season. Its presence in a flower border puts many other plants in the shade until masses of summer flowers come into full blow. Around Exeter the plant has lived through the winter—if we can say we have had a winter—and is now a very ornamental border plant.

DEUTZIA SCABRA.—In sheltered situations near the seacoast in Devonshire this useful shrub grows to an extraordinary size beyond anything that is ever seen or thought of in northern counties. Writing from actual observation of a plant having several stems upon the same stool, which is from 12 to 15 feet high, and three times as much in circumference, it seems strange that the plant is not more extensively planted. The drooping little sprays of white flowers are so effective in the shrubby border, and so useful for cutting as well, that it is difficult to understand why over a hundred common *Rhododendrons* are to be found for every one of this *Deutzia*. No greater ornament can be desired in the shrubby border during the present month, where, among green Hollies, or green of any kind, the mass of white flowers look peculiarly bright and lively.

CASSIA CORYMBOSA.—This useful free-growing plant is more frequently found in collections in the South and West of England than in the North; and its leaves, which are somewhat *Jasmine*-like in habit, but more vigorous, are of a very ornamental character. The flowers are deep yellow, and are

freely produced, which renders the plant a desirable and attractive subject for the conservatory during the summer months. It also makes a good exhibition plant, and owing to its freedom of growth ought to make a useful specimen for exhibiting at local shows. A nurseryman from Dorchester showed a grand specimen of this plant at Weymouth two years ago, which attracted hosts of admirers—as well it might, for it was really the finest example of a flowering plant at the show. Grown in small pots it is a useful subject for grouping in show-houses, and it is also suitable as a sitting-room plant.

MILDEW IN VINERIES.

THERE is no other disease to which the Grape Vine falls a prey which spreads with such amazing rapidity, or that is more injurious in its consequences to a crop of Grapes, as the Vine mildew. It is, happily for all concerned, a rare thing to meet with Vine mildew in the bracing atmosphere of the Northern or Midland Counties; but the Southern and Western Counties of England do not enjoy the same exemption from its attacks. Cultivators who are unfortunate enough to be subject to the attacks of the disease annually are sorely puzzled at times to arrest its development, which in some cases is next thing to impossible. There are of course certain well known conditions which tend to breed or develop the disease, and of these practical gardeners are fully aware, and if provided with the necessary machinery the enemy is soon brought to bay; but there are circumstances under which even the best practitioners are baffled in dealing with the enemy. What are the conditions that tend to develop the disease, and what is the remedy? Seldom do we hear of mildew in a vinery occupying an ordinarily favourable situation, and that is well heated and ventilated. But in the genial climate of the South hot-water pipes are not considered so important in relation to horticultural buildings as they are in northern latitudes, and the consequence is, that many vineries are not heated at all, and thus the gardener is left to fight a losing battle with the foe.

We will suppose that there is a depression in the weather for a week or more, that the temperature falls rapidly, and that the atmosphere continues stagnant for a time; the inevitable consequence must be that mildew will attack the Vines, and the gardener is practically left without a remedy to extinguish it. Of course these remarks are based upon the assumption that the atmosphere of the South differs from that of the North, inasmuch as it is more relaxing; in other words, that it tends to promote the development of the disease, and that it has a greater and more powerful tendency to do this than the atmosphere of the North. Assuming then that this is the case, there are a few points which—to gardeners and their employers—appear to be of paramount consideration. In the first place a vinery should not be built in a low, damp situation, and in the next place it ought at least to be warmed with a flow and return 4-inch hot-water pipe to enable the gardener to make a dry atmosphere by artificial means, when the natural atmosphere out-of-doors is of that dubious character which, to a clear-sighted cultivator, is calculated or likely to bring in its wake an attack of the disease. Our forefathers not being as well informed as we are, have built many low houses—houses with flat roofs—in the worst situation in the garden, where not only fogs and heavy dews hang about, but also where there are but slender means provided for ventilating. Now, it is a fact that these houses—and not a few of them—exist, and that the Vines are attacked with mildew every summer as regularly as the swallows return to England.

The gardener either knows the only remedy, or, if he is an amateur, he asks his wisest neighbour, who tells him to dust the affected parts with sulphur, and to keep a drier atmosphere. This is very good advice as far as it goes; but if the house is not heated, and cold, damp weather continues, the sulphur puff is of but small service indeed. Well, the thing goes on year after year, and people sit and wind their fingers, so to speak, while the disease spoils more fruit in a single season than would, if properly grown and marketed, compensate for heating the house. How far this state of things is due to gardeners themselves it would be unfair to conjecture, but it does seem an aimless business to build houses, and be at the expense of cultivating Grapes up to a certain point, and then let the crop spoil when the remedy is so cheap and obvious. There are, however, cases where the Vines are old and entangled, where the roots are in an unsatisfactory condition, through bad drainage or other causes, which cannot be cured except by grubbing up and replanting young Vines in well-drained borders. This will cure the worst case of mildew, and the undertaking will more than pay for itself the year after planting, in capable hands. *W. Hind.*

A TOWN GARDEN.

THE accompanying plan (fig. 126), may be serviceable to those who have to design town or suburban gardens of the usual oblong form. It will be seen that there is a forecourt which faces a suburban road, so near to the smoke of a manufacturing suburb that gardening is carried on under difficulties. At the back of the house are stables, and the usual offices, while at the far end are a summer-house and a green-

not suited for Rhododendrons, which would otherwise be in place in this situation. On the central lawn are various beds filled with Hollies and Aucubas of many varieties, which do well in the locality, and other ornamental shrubs, and bordered, some with the choicer hardy perennials, others with bedding plants. A few specimen shrubs are dotted about on the lawn. The whole forms one of the prettiest suburban gardens for the size that we know, and it is so planned that at all seasons there is something to admire. The surface, with the exception mentioned, is nearly flat, and the area about 7525 feet.

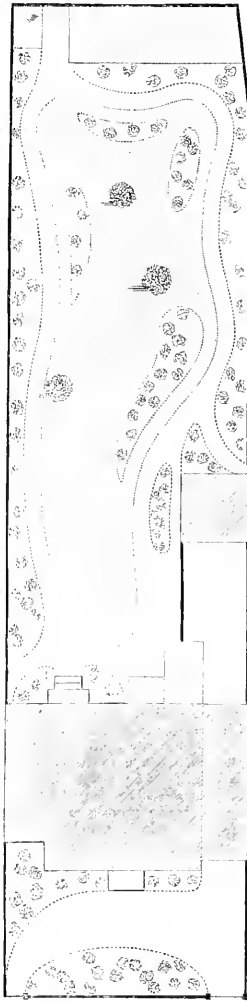


FIG. 126.—A TOWN GARDEN.

house. A shrubby border, with many well selected shrubs, bounds the whole, and at one end, at the left-hand side, near the summer-house, the border rises gradually to a "wild bank" not indicated on the plan. This wild bank is, nevertheless, one of the features of the garden, being merely a raised mound devoted chiefly to the cultivation of Ferns and many of the more showy and interesting British plants collected by the owner during many a summer ramble in various parts of Britain, and which thrive well in spite of the smoke. The border in front of the green-house is filled with evergreen shrubs; the locality is

EASTLEIGH.

TRAVELLING over a picturesque country, and amid scenes of unrivalled beauty for some time past, I was agreeably surprised to find compressed within a comparatively limited space so many horticultural attractions as may be seen in the beautiful garden of Captain Paul, near Teignmouth, South Devon. The garden upon the east side is well sheltered by a good block of Pines and Elms, parallel with which the flower garden—a long green strip at the base of the east terrace—is charmingly laid out and planted. Upon the east terrace walk arches of the Japanese *Honeysuckle* and other creepers are very effective, and the south terrace is adorned with numerous vases filled with summer flowering plants. At the base of this terrace there is a good sweep of lawn, soft as a Brussels carpet to the tread, and partly encircled by groups of hybrid *Rhododendrons* the leaves of which are the picture of health itself. Upon the west side there is a neat conservatory and fernery adjoining the former, which is gay with *Calceolarias*, *Hydrangeas*—the hardy kinds in pots, and Miles' hybrid spiral *Mignonette*, a first-rate sample. The walls of the fernery are covered with virgin cork, and Ferns planted in pockets droop gracefully down the walls. The collection consists of *Asplenium*, *Nephrolepis exaltata*, *Lygodium scandens*, *Nephrodium corymbiferum*, and a good many *Adiantums*, and other dwarf Ferns, in all making a very distinct and pleasing sight, from the more showy subjects in the conservatory. *Habrothamnus elegans* is hardly out-of-doors here, and the belts of shrubs are marvellously luxuriant, and as regards formation and outline elegantly conceived.

In a sheltered portion of the grounds the samples of *Azalea arvensis*, the old *Azalea indica*, *Ghent Azalea*, hardy *Heaths*, and *Pernettyas* indicate the remarkable gentleness of the climate as compared with other parts of the kingdom. From the terraces there is a clear view of the Haldon Hills and the bay opposite Torquay—a charming sight upon a bright day. A walk through the flower garden reveals the fact that climate and shelter, together with taste and judgment, work wonders with plants as regards arrangement and effect. The plants have already nearly filled the beds, and the blending of the colours is very pleasing to the eye, either from the terraces or upon closer examination. Quiet, pleasing harmony is the principle of arrangement, which is well shown off by so many fine trees and shrubs, naturally formed arches, bowers, and summer-houses, either made or clothed with *Laburnums* or other drooping plants or creepers. Through one of the latter an entrance is effected into a modern span greenhouse, containing a good collection of plants, among them a large batch of *Carnations Souvenir de la Malmaison* and *Lady Middleton*. The latter variety is rose-pink, the flowers are large, and altogether the variety is a good companion for the old favourite *Malmaison*. The back wall is covered with *Bougainvillea glabra*, *Trachelospermum jasminoides*, *Lapageria alba* and *rosea*, and *Camelias*; and the pot plants consist of *Orange trees*, tuberous-rooted *Begonia*, *Woodwardia radicans*, *Pelargoniums*, both of the zonal and of the decorative section, which have been very showy for some time, and promise to supply a continuance of flowers still longer.

The south wall of the fruit garden is entirely covered in with glass, the centre portico or pediment and the two ends projecting from the front of the range; this gives the glass an ornamental appearance. In this range Peaches, Nectarines, Grapes, and Figs are the staple crops. Early *Bettrice* and *Early Rivers* Peaches are being gathered from standard trees, and later kinds will succeed them in the same division. Plums and Strawberries I omitted to mention, but suffice it to say that everything under glass, as well as out-of-doors, is not only successfully managed, but the neatness of the garden and the good order and liberality that appear to reign supreme lend an additional charm to one of the prettiest gardens and the best managed that I have met anywhere upon the South Devon coast.

PARKERSWELL HOUSE

DERIVES its name from a spring of that name close by, and is but a short drive from St. Thomas' station, Exeter. It is the property of W. Brock, Esq., who takes much interest in his garden, and spends much of his leisure time in company with his plants. From a purely horticultural point of view plant growing may be said to be its conspicuous attraction. The entrance is off the Top-ham Road, upon the south side of the house, where the lawns, trees, and shrubs are kept in excellent order. The evergreen Oaks are very fine, and the flowering shrubs are tastefully arranged, as also a piece of rockwork furnished with a good variety of Ferns and hardy plants. The houses, with the exception of a fine conservatory, are all within the walled-in garden, but there is no difference as regards order in any of them.

The greenhouse is the first of a range of houses, spacious and well-appointed, and is at present gayer than usual with a fine collection of Calceolarias, exhibited at Exeter a week or two ago. The strain (chiefly Smith's of Dulwich) is very fine, and the plants average from 2 to 3 feet through. The leaves are nearly as tough as those of young Cabbages, and quite as sappy looking, and the flowers are large and well-formed throughout. It is notable, however, that plants grown from a local strain are equal in every respect—quality of flower excepted. Trained Pelargoniums of the decorative class, hardy Heaths, Orange trees, and Lapagerias are grown and arranged in first-rate style, the Pelargoniums and Calceolarias of course making a fine display of themselves.

The next division is a Peach-house in which there is a good crop of Peaches, the old Noddles fruiting with more than usual freedom. The house is so constructed that there is room for a row of plants between the trellis and the front lights, and here there is a splendid show of Pelargoniums being brought forward for the coming exhibition. The plants are over 3 feet across, and consist of Prince of Pelargoniums and other show varieties.

Vines occupy the next division, and are bearing good crops, and young Vines in a house by themselves are making rapid progress, both wood and leaves being strong and healthy. The plant stove probably contains the best effort at plant growing. Croton Disraeli (a favourite variety about Exeter) is 5 feet through, and Croton variegatus, Lord Derby, and angustifolius are little short of the same dimensions. They are in reality very fine specimens, about as large as can be grown in the house. Their companions are fine Marantas, Alocasia intermedia and Lowii, Davallia Mooreana, an extra fine specimen of Nephrolepis davallifolia furcans, nearly 8 feet across; Vines, Dipladenia, Stephanotis, Allamandas and Clerodendrons—all very good specimens and promising to make very fine plants at no distant date. Palms, Fitcher-plants, and Dracaenas, together with many other foliage plants, are also observable in the collection.

But Mr. Brock is not content with the list of plants above mentioned, but is engaged in forming a collection of Orchids, of which there are two houses partly filled already. There are eighteen varieties of Cypripediums, a good stock of Dendrobium, Cattleyas, Saccolabiums, Calanthes, Phalænopsis, Cerebra cristata, Anthuriums, Masdevallias, and, in short, a collection in which representatives of all the leading and valuable species will be found in excellent condition.

The bulk of the plants are imported pieces, and Mr. Brock may be congratulated upon his success in securing so many good varieties of the different species in his collection.

As regards comm-mixte gardening, such as Cucumbers and Melon growing, the crops are plentiful, and in no case is there any appearance but of prosperity and abundance. The conservatory is a handsome structure, having creepers trained over the roof which are both graceful and pretty. Tacsoniaxonensis and Passiflora Imperatrice Eugénie are very fine, and flowering with their accustomed freedom. The permanent plants are large Palms and Dracaenas, Tree Ferns and Camellias, so that it is an easy matter at any time to make a good display with the addition of a few flowering plants. Mr. Rowland, the head gardener, is a persevering and successful exhibitor, and does everything well that he undertakes in plant, fruit, or vegetable growing.

The Herbaceous Border.

HARDY HERBACEOUS PLANTS.—Those who do not grow many hardy herbaceous plants have little idea of the great numbers there are that flower at this early season, or imagine what a grand display they make in borders or beds, and with a view to bring them more under notice I purpose making a few remarks on some of the best. The first deserving special mention are the Alstromerias, which are a very beautiful class of plants, having large heads of richly marked or spotted Lily-like flowers. To grow them well, Alstromerias require a light, well-drained, warm soil, and a sunny situation in some sheltered spot, as they make their growth early and are somewhat tender, and apt to suffer from spring frosts or cold cutting winds. The way to get them established, and ensure their safety during winter, is to plant deeply or sow seed where the plants are to remain, so as to avoid any further removal. Another fine old herbaceous plant that is making quite a show just now is Aster Amellus, with its large purplish-blue flowers and prominent disc. Delphiniums are a host in themselves, and for brilliancy of colour are unsurpassed, and quite eclipse everything else. D. cashmerianum is remarkably showy, and should be in every border, as also the old formosum, which is still one of the best. Campanula Van Houttei is a very fine thing, as it bears immense bell-shaped blooms quite 2 inches in length. For affording spikes for cutting to dress in vases, C. persicifolia alba is the most valuable, as the flowers are pure white and very elegant looking. Dictamnus Fraxinella is a most uncommon looking plant, with tall stately spikes of very singular looking blossoms that have a strong and agreeable odour. In soil that suits it the Dictamnus forms quite a bush some 2 or 3 feet high, and blooms with great freedom. One we have here has nineteen strong tall spikes that have a very stately appearance. Geraniums, such as the large blue platypetalum and sanguineum, form charming objects and are fine for rockwork where they can run and spread over in their own natural way. Potentillas, too, come in well for the same work and are very bright and telling with their profusion of vivid coloured Strawberry-like blossoms. Fankias are alike remarkable for their foliage and flowers, the spikes of which resemble Lilies in miniature and are of great service for cutting. F. ovata is perhaps the best and most suitable for this purpose, but all are good, and F. Sieboldi has magnificent leaves. Spirea palmata is grand with its lovely panicles of violet-pink blooms, and produces a splendid effect grouped with S. japonica or S. filipendula flore-pleno arranged in the front. The Ilcemorealis or Day Lilies are stately plants, the best among them being Il. Intea, which has rich yellow blooms that continue coming on for a long time in succession. Il. kwanso is almost too large for the herbaceous border, but is fine for planting in the foreground of shrubs or in semi-wild places to be left to itself.

It is not often we see Pentstemon flowering at this early period, but the winter having been so mild ours are now at their best, and very beautiful they are, and of extreme service for cutting. A packet of mixed seed affords no end of variety, and sown now and the plants wintered in pots in frames, they will be fine for next season. Too much cannot be said in praise of the lovely Iris, the Niphion or Spanish section of which and the German set are equal to Orchids, so singular and beautiful are they in their form and rich colouring. The common or flag Iris are very fine, but they are quite eclipsed by the bulbous kinds now in the height of their beauty. To keep them safe through the winter they require light sandy soil and a tolerably dry situation, or the bulbs rot. The common kind on the other hand delight in wet, and only succeeds really well where it can have plenty of moisture. Aquilegias are and have been very gay, the Rocky Mountain species being by far the best. Unfortunately A.erulea, the finest of all, is rather a misfit doer, and to keep it going it is necessary to sow often and raise fresh plants to replace others, as they die out and go off. A. chrysantha is much stronger, and the hybrids partake more of its vigorous habit, but are without the finish and ornamental appearance the long spear-like appendages give to their parents. Pyrethrum are simply invaluable, as they are quite

equal in form and shape to Chrysanthemum or Asters, and as rich and varied in colour. Plants have been quite ablaze for a long time and have afforded plenty for cutting without any apparent loss to the borders, so full have they been with bloom. These double Pyrethrum should be largely planted, as they are among the most showy and useful subjects we can have. Pæonies as usual have been gorgeous, and in these days of professed æstheticism seem the right thing. Lilium candidum is just unfolding its snowy white blossoms, and though old and plentiful and common in cottage gardens, is still one of the best and purest of Lilies, as well as the most agreeably fragrant. The above named plants, though making a goodly list for June, are only a portion of what may now be seen in flower, as there are plenty of others of minor importance. J. S.

The Rosery.

THE ROSE HARVEST.—I hope "Wild Rose's" estimate of the Rose harvest is right; but present experience in the Eastern Counties by no means justifies his hopeful estimate. No doubt good Roses will be forthcoming at most of the ensuing Rose shows; they always are, no matter what the season. So many Roses are now grown specially for exhibition that the great shows seldom fail to be well furnished. At one of the first Rose shows of the season—that at Brantree on the 14th and 15th inst.—there were some fine Roses. The number of exhibitors was, however, very limited, and this is likely to be the case at all the early shows; but the scarcity of Roses in private gardens is somewhat extraordinary. In not a few hardly a perfect Rose has been cut till the middle of June. Fully half or three-fourths of what flowers have opened are quite deformed or lopsided, and the majority of buds show very little tendency to open. Before the rains the keen north-east winds held the buds fast in their shivering blasts, and with the rain came more cold and whipping winds, so that Rose prospects have not greatly brightened up till now (the evening of the 17th of June). I never remember seeing so few Roses, and so many imperfect flowers among the few so far. This paucity of Roses, with the loss of the major portion of our most useful fruit crops, is a heavy penalty to pay for summer in winter, and a killing dash of December in the tail of May and the head of June; for there really seems no other way of accounting for the poor estate of our fruits and Roses this midsummer. The brightest outlook among the Roses is the Briers, if it is not a bull to put it so. They look remarkably well, and the buds are likely to have a lively time of it so soon as the buds are sufficiently developed for the purpose. Possibly some general showers and warm weather may produce a good second bloom of Roses; late maidens may also yield some fine flowers, but the majority of cut-backs—as older plants are now characteristically, if somewhat technically called—are largely doomed so far as the first bloom is concerned. Maggots and aphid, as usual when anything is wrong either at top or bottom, have been abnormally numerous, strong, and active, and red-rust and mildew have likewise put in an appearance in several places; and altogether, what the Roses gained in safety or strength through the mildness of the winter they seem in a fair way of losing, or have already lost, through the coldness of the summer. D. T. Fish.

ROSE SHOWS.

We have been favoured by the Secretaries of the National Rose Society with the following list of

Rose Show Fixtures—	
June 27. * Maidstone	July 6. * Brockham
" 28. * Bath (National Rose Society)	" 6. * Eitham
" " * Grosvenor	" 7. * Hpswich
" " * Hitchin	" 8. * Sutton, Surrey
" 29. * Farningham	" 8. * Alexandra Palace
" " * Hereford	" 11. * West Kent
" * Norfolk & Norwich	" 11. * Christleton, Cheshire
" 33. * Horsham	" 12. * Cardiff
" * Masson House,	" 13. * Manchester
" * London.	" 15. * Manchester
" * Barnham	" 16. * Birkenhead
" 34. * Reigate	" 18. * Sutton
" * Crystal Palace	" 19. * Darlington (National Rose Society)
" 4. * South Kensington (National Rose Society)	" 19. * Darlington (National Rose Society)
" 6. * Canterbury	" 20. * Sutton Coldfield
" * Oxford	" 20. * Heleasburgh

Those marked with an * are affiliated to the National Rose Society; those with a † are not exclusively Rose societies.

Orchid Notes and Cleanings.

DENDROBIUM DALHOUSIANUM.—This fine old species is not often seen now in collections in the form of large well-flowered specimens. I purchased a small plant of it about six years ago, and divided it into two. They are now very handsome specimens, and one of them this season produced eighteen spikes of bloom, the other had as many, if not more. It is very easily grown; all that is required is a high temperature when the plants are making their growth; plenty of water at the roots and a moist atmosphere are also necessary. *J. D.*

ORCHIS INCARNATA.—With reference to a former paper of his given to the Linnean Society, Mr. C. B. Clarke at the last meeting drew the attention of the Fellows to a large bundle of plants gathered that morning by him in Hampshire, wherein were distinguishable at a glance the *O. incarnata*, Linn., the *O. incarnata*, Syme, and the *O. maculata*, Linn.

Florists' Flowers.

THE GLADIOLUS.—It is now time that the beds should be mulched with decayed manure, and the ground should be kept moist with repeated waterings. The object we ought to have in view now is to push on the plants as rapidly as possible without their receiving any check to their growth; as the spikes appear they must be tied to stoutish sticks, else the plants will be blown over on their sides by the first gale. Every grower should also be a seedling raiser, and if there are only a few hundreds of seedlings raised each year it is best to sow the seeds early in April, in pots, and grow them on in pots for the first year. There is always a certain percentage of good varieties in a batch of seedlings, and the anticipation of waiting for them to flower is very pleasant. See that no caterpillars are lurking in the centre of the plants, ready to devour the incipient flower-stem. Syringe the plants in the evenings of hot days.

PINKS.—If the cuttings of the early flowering section were put in at the time advised, and treated according to instructions, they will now be, as ours are, good strong plants. They were now set in the cutting-pots some weeks ago, and were planted about 3 inches apart in boxes; about the middle of July they are planted 8 or 9 inches apart in good open soil, where they soon form good clumps, which will produce masses of bloom from March to the middle of June next season. Put in pipings of the florists' section on the first favourable opportunity—that is, in showery weather. They strike best in a shady place, in a little bottom-heat. About two or three barrow-loads of fresh stable-manure put into a two-light frame will give just a gentle bottom-heat, which will cause roots to form very speedily. The pipings may be put into boxes, or they may be struck in some fine soil placed over the manure in the frames.

RANUNCULUS.—One of the critical points in the culture of these is the taking up of the tubers; as soon as the stems decay it is best to lift them at once; but, as they do not decay all at once in the same bed, it may be necessary to go over them two, or perhaps three times. The reason of this is that the tubers will start into growth as soon as they get a shower of rain, or even, if they have no rain, if the ground is moist. The tubers shrivel very much indeed if they are left spread out on a shelf for a length of time. It is best to store them away when quite dry in rain sand.

TULIPS.—In less than a week the bulbs will be taken up, as they show by the leaves rapidly changing colour that the bulbs are very rapidly approaching the ripening stage. When the bulbs are taken up place each sort into a pot without removing the offsets, and place the pots in a room which is neither damp nor too dry; over-dryness, such as placing them in a blazing sun, is injurious to the bulbs. As soon as the beds are cleared we dig them up and plant with *Asters*. *J. Douglas.*

The Kitchen Garden.

SINCE my last Calendar was written we have experienced a change in the weather, the nature of which, notwithstanding its being more characteristic of the month of March than that of June, afforded a good opportunity for carrying out the directions given in our number for June 10 respecting the planting-out of Broccoli and other plants, inasmuch as the latter, owing to the condition of the weather and ground at the time of planting, experienced scarcely any check in the process of transplanting. This will be a good time to make another planting of the stronger plants of the respective kinds of Savoys, the distance between the plants each way being, as with kindred plants, determined by the respective varieties as well as by the nature of the soil, in poor land less space being required than in rich ground. Small kinds, like Tom Thumb and Early Ulm, may be planted, as stated in our last Calendar, in rows 15 inches apart and 12 inches from plant to plant in the row, while Drumhead should have a space of 2 feet between the plants each way. In taking up the plants care should be exercised in examining the roots, in order to ascertain whether they are clubbed or not, and all that show signs of that disease should be cast away. Continue to make successional plantings of Celery in trenches, as previously described, and see that the plants in every stage of growth have plenty of water at the roots; and do not trouble about earthing them up until they have attained to 12 or 15 inches in height, thereby not only economising labour in the operation, but also lessening the chances of the soil getting into the hearts, which is not infrequently the case when the plants are earthed-up when only 6 or 8 inches high, and the primary object—the branching of the head—is secured as fully and completely as by carrying out the operation at more frequent intervals.

TOMATOES OUT-OF-DOORS.—The chief points to be observed in Tomato culture, whether indoors or out, are to keep the shoots and leaves well stopped and thinned. If the plants are trained up the wall with one, two, or more stems, which should not be closer to each other than 10 or 12 inches, all side shoots should be pinched at the first joint, and kept persistently stopped afterwards, and the leading and secondary branches stopped above the fruit, and so soon as the latter have set, their size will be increased and the development hastened by the plants when necessary having copious supplies of liquid manure at the root.

GENERAL WORK.—Owing to the early and plentiful supply of Peas, the cutting of Asparagus will ere this have been discontinued. This, under any circumstances, should be done from the middle to the end of June, to enable the plants to make foliage, and consequently fresh roots, and thus acquire more vigour for the ensuing year. The only attention which the beds will require for the next few months is to keep them free from weeds, and seedling plants, which are now coming up in all directions, should also be pulled up forthwith, and other work of a routine character, including the thinning of late sowings of Turnips and Spinach, the supporting of Canadian French Beans with short sticks to keep the plants erect and the Beans free from damage, the destruction of weeds, &c., will also require attention at the hands of the kitchen gardener. *H. W. Ward, Longford Castle Gardens, Wilts.*

Peaches and Nectarines.

KEEP the foliage on trees from which the fruit has been gathered in a clean healthy condition, by continual syringing twice daily, and by giving copious supplies of water at the roots whenever they require it. To allow them to get dry at the roots, at this season is frequently the cause of buds dropping in the spring, or whenever the trees are started. Any wood not required for fruiting next season, or any spurs at the base of which there have been fruit, may now be taken out, to give all the light, sun and air possible to next year's bearing wood. Stop any gross leading shoots, and pinch in laterals to one eye to keep an equal flow of sap all over the trees. The third house will now be swelling off its fruit, which expose by the means already mentioned to all the light and sun it is possible to give them, with a free circulation of air. Succession houses bring on according to the time they are required; any forcing is best done by sun-heat when possible, by shutting up early and keeping a moist genial atmosphere. Trees in late houses may now be finally thinned, leaving sufficient to allow of a few drooping during the stoning period. *J. Wallis, Kettle Gardens, June 20.*

Grapes and Vineries.

MADRESFIELD COURT GRAPE.—A few evenings since, in looking through the well kept gardens of Sir F. H. Bathurst, at Clarendon Park, Salisbury, I was pleased to see a couple of Vines of this handsome and excellent Grape in a flourishing condition in a Hamburgh-house—the bunches, like those of the Black Hamburgh, being large and well shaped, the berries, even for this variety, large, and taking on a beautiful bloom, and perfectly free from cracking—a tendency to which this handsome and highly flavoured Grape is subject, and in the present case, in the opinion of Mr. C. Warden and of the writer, the exemption from cracking is to be attributed to the fact of the laterals being allowed to make plenty of growth in front of the bunches, thereby drawing the superabundance of sap away from the berries, which are rather thin-skinned, and thus preventing them from cracking. Those of your readers who may hitherto have failed to grow this fine Grape satisfactorily should make a note of this, and apply the remedy forthwith, if not too late; for it is when the berries have obtained their full dimensions and are commencing to colour that they are most liable to "crack." I may remark, in conclusion, that Mr. Warden grows all his Vines in this house on the "long rod" system and in an outside border—that is, allowing young rods to run up from the main stems, which are of good thickness, last year to fruit this: cutting out the ones that fruited last year at pruning time, and so on—each succeeding year cutting out the wood of the preceding year's growth. To this fact and good cultivation may be attributed the fine size and promising good finish of the branches. *H. B.*

Plants and their Culture.

STOVES.—Those possessing a nice young clean stock of Gardenias of the more free blooming kinds will do well to turn them out into a pit where there is a command of bottom-heat to help them on later in the season; a far better supply will thus be secured, and that oftentimes when plants in pots will not be yielding such good returns. Give them a good open soil with plenty of drainage, so that water can be liberally applied. Look after the stock of Genestas for next autumn's blooming; they will do well in a pit at this season of the year; plunged in a little heat they will thrive the better. Give all possible attention also to every kind of plant grown for winter display. Avoid overwatering and too much shade, the better to secure a stocky, sturdy growth, which means a more satisfactory return when looked for. This season's seedling Gloxinias that are growing freely may require a shift, any in 60's can be safely transferred to 40's, and will make a good succession to the older stock. *Torenia Fourcieri* is now a useful plant, and repays attention; occasional pinching will keep it more compact. When there is room in the propagating pit a batch of Croton cuttings will give useful stock for the autumn, and any of the bright coloured *Dracenas* may be struck off to get them established again before next fall.

GREENHOUSE.—*Kalosanthes* now showing flower should have all the light possible; they will, in fact, perfect their flowers and develop a more intense colour if fully exposed to the sunshine in the open air. This is, however, a rather risky process, as a sudden storm would mar their beauty. *Rochea falcata* should not be kept too dry now, or a weakly flower-spike may be the result. These plants are valuable, coming in at a handy time. *Staticee* in flower and advancing towards that stage must be watered rather more freely. See that they do not stand where they would receive the contents of a syringe or catch any drip, damp being prejudicial to their well-being. *Aphelaxis* and *Phenacomas* require the same caution exercised with them. *Indian Azaleas* that have completed their growth may be gradually hardened off and then stood out-of-doors in a light airy place. Previous to taking them out, however, see if any trips are lurking about, and, if necessary, give a good fumigation; three nights in succession will settle these troublesome customers. *Camelias* I find do better (when placed out-of-doors) if they can have a somewhat moist and shady position accorded to them, with occasional syringing in hot weather. Winter-flowering *Heaths* and *Epacris* are now with us in the open air, standing on a bed of coal-ashes. *James Hudson, Gunnersbury House.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, June 27	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; Luncheon offered to the Foreign Guests, at 2 P.M. Pelargonium Society's Show. Maidstone Rose Show. National Rose Society's Show at Bath. Croydon Horticultural Society's Show. Lee and Earle's Horticultural Society's Show (two days).
WEDNESDAY, June 28	Hitchin Rose Show. Annual Festival of the Gardeners' Royal Benevolent Institution at the Albion, Aldersgate Street. Farnham Rose Show.
THURSDAY, June 29	Hertford Rose Show. Newich Rose Show. Rose Show at the Mansion House, E.C. Horslem Rose Show. Farnham Rose Show.
FRIDAY, June 30	Crystal Palace Rose Show. Regate Rose Show.
SATURDAY, July 1	

THE art of GRAPE GROWING, like that of winning a boat or other race, depends very much on the start and the finish—the latter being the more important. Unless, however, both are managed with skill, it matters comparatively little what is done between. The cultivator that forces his Vines to put out all their strength in the breaking, and compels them to make a series of spurts afterwards, seldom finishes well. "Slow and strong" is the motto for the start, and the finish should be like unto it, "Slow and sure." A good deal has recently been written on what has been very properly called express culture. There may be, probably is, scope enough for this in the middle period of Grape growing; but high rates of speed are dangerous alike at the start and the finish, and no doubt they are most dangerous at the finish.

It may be somewhat difficult to explain the reason, but experience proves beyond doubt that growth may be developed much more rapidly than it can be matured. The mere enlargement of the size of fruit is a far simpler matter, and makes fewer demands on the strength and resources of the Vine than the ripening of the berries or the maturation of the seeds of Grapes. The latter process is by far the more complex, and for that reason probably the more exhausting. Green Grapes exhaust the Vines but little, but no sooner do they begin to ripen than comes the tug of war, and the strain on the developing power and feeding resources of the Vine.

Hence the necessity for slackening speed, as well as for increasing the resources of the Vine, and enabling it to make a better use of those provided. How far the slower rate of growth contributes to the latter two may be uncertain, but that the three together are essential to a high or perfect finish is generally agreed among Grape growers.

The common recipe for colouring, that is, perfectly ripening Grapes—a free circulation of air night and day—is probably as powerful in heightening and perfecting maturity, by lowering the temperature of the air, as in keeping it in perpetual motion. If this be so, it simplifies a phase of practice which has hitherto been somewhat difficult to explain; for, provided the Vines absorbed all they needed from air at rest it is by no means obvious why such air should not ripen Grapes as thoroughly as air in motion; out every one is conversant with the cooling effects of thorough draughts, and it is such that seem most important in the ripening of Grapes.

The value of a depression of temperature is further illustrated by the fact that air at night is needed for the maturation of Grapes. No matter how much air they may have in the day it is difficult, if not impossible, to finish Grapes well without a free circulation of air during the night. This not only lowers the temperature, but causes a greater disparity between the day and night temperatures than could otherwise be obtained, and there can be little doubt that this disparity is one of Nature's most powerful means of completing maturity. It corresponds with the fierceness of continual

sunshine and the coldness of its dews and hoar-frosts, and it may be somewhat difficult to say which of the two are the more powerful in producing complete ripeness. Perfect maturity is probably largely the result—the product of the two extremes of temperature. Hence, some of the best Grape growers give almost more air at night than by day. They husband the sun's rays to quicken the juices of the Grapes into full activity, and by lowering the temperature allow this to sink into comparative quiescence and repose during the night. The very suddenness, as well as the extent of the change of temperature, possibly hastens as well as heightens the completeness of the change of the acids and other substances into sugar, the product of such changes being a characteristic of maturity. But during all these changes the strain on the plant is incessant, and, as already hinted, chemical changes seem to exhaust the plant more than the mere physical enlargement of the fruit. Hence the necessity of a full larder during the last or finishing stage. The roots must be well supplied with food if the fruit is to be made quite perfect. It is quite a mistake to suppose that the finishing of Grapes is the work of the sun and air chiefly or only.

It is impossible to exaggerate the importance of light and air, and the powerful influence they exert in maturing Grapes. But root absorption or a full supply of suitable food though them, is of equal or more importance. As a matter of fact and experience, it is found that rich liquid and solid dressings are never so useful as during the colouring of Grapes. When the drainage mania was at its height, not a few crops of Grapes were crippled and ruined by the withholding of food and water from them so soon as they began to colour. This ended in disaster. Not a few of the most successful Grape growers now water and feed the roots till the Grapes are absolutely ripe.

But all this may not result in a perfect finish if there are more bunches than the roots can feed fully and well. This is very often the case. There are more crops of Grapes wrecked by overcropping than from all other evils put together. The roots on the Vine are numerous and strong enough to land twelve bunches at the goal of perfection, and it is made to carry twenty-four. The result is obvious—the entire crop is injured, probably three-fourths of it lost within sight almost of maturity. It is in this strongly adjusting the burden of Grapes to the strength of the Vine that the skill of the best Grape grower shines forth most conspicuously. A sufficiency of food and a moderate crop are two of the surest recipes for a perfect finish.

But one thing more at least is needed—that is, sufficient motive forces in the Vine itself. Broadly stated, the motive power, drawing or driving force, is as the area, size, and strength of its leaves. Nor is it in the finishing of its fruit that the strain upon these is greatest. During the early stages of growth leaves are so quickly produced and reproduced that the injury or removal of a few affects the Vine but little. Even green Grapes probably perform the functions of leaves to some extent, and may almost take care of themselves. It is, however, far otherwise as the Vines approach maturity or the finish. Each leaf then is in full collar, doing a threefold work—directly or indirectly sustaining itself, feeding or finishing the bunch, and filling up the bud at its base, or, in other words, manufacturing the embryo bunch for the following year. For the fulfilment of these purposes, and also to enable it to contribute its individual share to the general strength of the Vine and its roots, it must be freely and fully exposed to light and air, and have a genial atmosphere to live in. The latter is specially important. It is no uncommon thing to find the atmosphere of vineries so arid as to render the leaves crisp as scorched paper; they are, in

fact, scorched, and dry up or die off prematurely. As long, however, as there is any life in a Vine, it is probably contributing something—it may be a great deal—to the finishing of the fruit; it ought not, therefore, to be removed on any account; but the great thing is, to prevent the leaves getting into a crippled state. With a fair crop, and the tops and bottoms of the Vines carefully cultured, the leaves will remain more or less fresh till the fruit is ripe, even afterwards.

Next to the preservation of the leaves, fresh to the last is that of preserving as many as room can be found for. Some Grape growers sacrifice the leaves to give more light and air to the Grapes. This is generally a mistake: Grapes are not directly coloured thus, but indirectly through the ministry of the leaves. Whilst there ought to be no overcrowding of foliage, the greater part of the area of the house should be fully furnished with leaves. The Grapes of the densest black and the heaviest bloom, the Muscats of the deepest golden tints, will mostly be found under or among the finest canopy of foliage. These leaves, in fact, are the colour manufacturers as well as the active artists that lay it on, the Grapes themselves being more passive than active agents in the matter. It follows that the more colour factories or painters—in other words the more leaves—with room to work, and favourable conditions to work in, the better and more perfectly the Grape will be finished, and experience proves that this is so.

One word by way of warning, in conclusion. Perfectly finished Grapes are wanted, not once, but many times—that is, annually. To ensure this in succession with certainty it is needful to understand and practise the theory of the conservation of energy in such a way that the Vines shall be the stronger, not the weaker, for each crop of fruit they finish. Shoot, stem, branches, leaves, should not only be equal to the crop required of them, but more than equal to it, so that the residue of vital power not expended in finishing off the fruit may be safely and surely deposited in the Vine, to strengthen it against the contingencies or demands of any or all coming years.

— THE BELGIAN VISITORS.—A party of about eighteen Belgian horticulturists propose visiting this country next week for the purpose of seeing illustrations of various departments of British horticulture. The scheme proposed to meet the expressed wishes of the excursionists is as follows:—

MONDAY, June 26.—Visit to market florists' establishments and Kenitish fruit growers.

TUESDAY, June 27.—Exhibition of the Pelargonium Society at South Kensington. Luncheon offered by the Council of the Royal Horticultural Society and the Committee of the Pelargonium Society to the foreign visitors. Other gentlemen desirous of being present are requested to apply immediately to Mr. SHIRLEY HIBBERD, 15, Brownlow Park, Stoke Newington, or to Dr. MASTERS, Mount Avenue, Ealing. Tickets, 21s. each.

WEDNESDAY, June 28.—Visit to Slough, Frogmore, Clivedon, Dropmore, and Burnham Beeches.

THURSDAY, June 29.—Visit to market gardens in the neighbourhood of London. Dinner of the Gardeners' Benevolent Institution.

FRIDAY, June 30.—Visits to nursery establishments, at the discretion of the visitors.

SATURDAY, July 1.—Visit to Kew, Siou, and Chiswick.

In addition to these proposals, various offers of assistance and private hospitality on the part of nurserymen and others have been made to the Belgian visitors, whose headquarters will be at De Keyser's Royal Hotel, Blackfriars.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We venture again to remind our readers that the annual festival of this Institution will be held on Thursday evening next at the Albion, Aldersgate Street, under the Presidency of the Right Hon. the Lord Mayor, Sir J. WHITAKER ELLIS, supported by the Sheriffs of London and Middlesex, and others interested in the Institution. Knowing those of whom the Board of Stewards is composed,

and the excellence of the cause they plead, we have the best of reasons for believing that no stone has been left by them unturned to insure success, and it remains now for the rank and file of gardening—those of them who have the power and the will to do so—to do their part by contributing, with the sanction of their employers, what fruit or cut flowers they can spare, the former for the dessert, the latter to decorate the tables, and thus relieve the finances of the Society of one burden. On this occasion there will be present many supporters of the institution of high standing in the horticultural world, as well as a party of distinguished Belgian and French horticulturists who, next week, will be on a visit to this country, and it is in the highest degree desirable that there should not be a mean show of the results of English gardening skill on this occasion. We need only add that the Secretary, Mr. E. K. CUTLER,

Linnean Society on June 15. The minuteness of its flowers, scarcely $\frac{1}{8}$ inch in length with ovules $\frac{1}{30}$ inch in diameter, is most extraordinary; the more so, that the latter organs are succeeded by fruits of immensely large dimensions for the order. The plant has nearest affinity with *Alstonia*, from which it differs conspicuously in the sessile stigmas, and in the singular pistil.

— THE ORCHID EXHIBITIONS.—For the last two or three years it has become the custom with some of our leading nurserymen to establish during the London season a special exhibition of Orchids and other plants in their own establishments, and to specially invite those likely to be interested to come and see the display. This is a purely commercial speculation on the part of the exhibitors, of the advantages of which they must be the best judges and concerning

plants, distributed throughout his nursery, than to any special aggregation in one house. Here are the heroes of a hundred fights, and it is open to question whether they were not more imposing when seen in competition, or rather while surpassing other exhibits, of a similar kind at the various public exhibitions, than they are at home, surrounded by their equals, or by others little less remarkable. Our illustration shows one end of Mr. BULL'S house crowded with beautiful specimens, which have been mentioned from time to time in our columns. Certainly no visitor to London interested in Orchids should omit to visit the collections at Messrs. LOW'S, VEITCH'S, HENDERSON'S, WILLIAMS' and BULL'S.

— INDIA-RUBBER PLANTS.—Mr. W. T. THURLETON DYER, C.M.G., laid before the Linnean So-



FIG. 127.—MR. BULL'S SHOWHOUSE OF ORCHIDS,

14, Tavistock Row, Covent Garden, W.C., will be happy to give any information as to how and when such welcome contributions should be sent.

— GROUPS OF PÆONIES.—A very choice display of these charming flowers may now be seen at Eastleigh, near Teignmouth, South Devon, in the garden of Captain PAUL, where everything that is new and good finds its way, and is cherished and cared for by its owner. The group referred to consists of a dozen plants in good health of different sorts—white, crimson, and red, and others of a violet hue, changing to pink, the whole producing an effect superior to anything else in a garden where all kinds of plants are cultivated under the most favourable conditions of soil, climate, and attention.

— DYERA is the name of a new genus of rubber-producing plants belonging to the natural order Apocynaceæ, from the Malay Archipelago, and which was described by Sir J. D. HOOKER, at the

which no outsider has any right to express an opinion. But, as to the magnificence of the display made, there cannot be two opinions. A visit to Mr. BULL'S Orchid-houses at any time is a delight, but when the flowering plants are massed in large numbers, as they have been lately, the effect is certainly dazzling. In the case of the exhibition at Mr. BULL'S the effect is produced by large numbers of relatively small specimens, including some of the finest varieties in full bloom, intermixed with Ferns, Aroids, Palms, and fine-foliage plants. As a spectacle the flowering plants are too numerous and too crowded; but this of course is not the view that would be taken by the commercial horticulturist, or the purchaser, who would be impressed rather by the large amount of capital represented, and the grandeur of the display and potentiality of wealth which the plants suggest, than by mere artistic effect. But in any case the impression produced is so great that criticism is for the time banished. Mr. WILLIAMS trusts rather to his magnificent specimen

ciety on June 15 an important communication "On the Caoutchouc-yielding Apocynaceæ of Malaya and Tropical Africa." After giving a general sketch of the structure and physiological conditions of the occurrence of caoutchouc in plants, the author pointed out that the plants which appeared to yield it in commercial quantity in three widely separated regions, all belonged to one tribe of Apocynaceæ—the *Cariseæ*. In the East Indies, the *Gutta Singarib* of the Malay Peninsula, the *Gutta Sooloo* of Borneo, was the produce of a new species of *Willughbeia*, *W. Burtidgei*. Many other species of this and other allied genera also seemed to produce caoutchouc in quantity worth collecting. In Central Africa, *Landolphia*, which was closely allied to *Willughbeia*, but differed in possessing terminal instead of axillary flowers, was the most important source. On the East Coast caoutchouc was yielded by *L. ovariensis* and *L. florida*, the latter a very ornamental plant. As the rubber exuded from the cut stems it was plastered on the breast and arms, and

the thick layer, when peeled off and cut into squares, was called "Thimble rubber." On the West Coast the most important species was *L. Kiriki*, the rubber of which could be wound off into balls or small rolls from the cut stems like silk from a cocoon; this species was called "Materé." *L. florida* also occurred, and was called "M'bungu;" its rubber was worked up into balls, but was inferior in value. The rubber of *L. Petersiana* was of little importance. In South America, *Hancornia speciosa* yielded what was called "Mangabeira" rubber.

— ROSE MABEL MORRISON. — It has been charged against this beautiful white Rose that it is wanting in petal, and not so full as is desirable in a perfect flower, but we have seen some blooms lately, grown by Mr. BENNETT, against which the charge above-mentioned could not honestly be made. How Mr. BENNETT gets them to bloom in this desirable manner may be mentioned as a hint to other growers. He allows his plants to bloom from the terminal branches of the old wood, and the blossoms so produced nearly all come very full, and sometimes more so than Baroness Rothschild.

— GRAPE-GROWING ON THE ROOFS OF HOUSES. — That the most is not made of our garden resources becomes more obvious every day by experience, but it certainly is rather a novel, if not ingenious, method of Grape-growing to train the Vines over the roof of a house. At Lord HALDON'S, about four miles from Exeter, there is a good example of the system carried out upon the roof of the gardener's cottage, which is done in the following way:—The Vines are planted against wooden columns supporting a verandah in front of the cottage, and after travelling over the top of the verandah ascend to that of the cottage, upon which there is a wire trellis laid for training the Vines. The trellis-work is about a foot above the slates. The roof has a steep pitch, and in favourable seasons the Vines are said to succeed quite as well as if trained in the usual way against the garden wall. In Sussex it is nothing unusual to see Vines trained, or rather creeping, over the roof of an unsightly house or shed, but the trellis-work is seldom, if ever, seen. The idea is a good one for amateurs, and others, occupying houses in rural districts, which may not only be covered with rich foliage in summer, but also supply a few Grapes in ordinary seasons that will be all the more acceptable as to their production costing nothing more than a few pence to buy one or two Vines at the beginning. The trellis need not necessarily be of wire unless it is so desired by those adopting the system.

— THE EXETER NURSERY. — On Saturday evening last between forty and fifty of Messrs. LUCOMBE, PINCE & Co.'s employes met together at the Plymouth Inn, Exeter, and enjoyed the annual dinner, given as usual by the proprietor of the Exeter Nursery, Dr. WOODMAN. The proceedings were of a highly satisfactory character.

— STRAWBERRY MARGUERITE. — This Strawberry is largely grown in the South of England as a late cropper, and a very good one it is in dry seasons, but should the season turn out to be a wet one it is only third-rate in flavour, and is easily spoiled by heavy rains. It is the custom to plant late Strawberries in situations which are not favourable to the development of high flavour, or even appearance; and this is, of course, very well so far, for a chance late crop. But a better way would be to make two small plantings, one in an early situation, and a second upon a north or west border to come in for succession. In a private garden the great enjoyment is to have one crop coming in to succeed another in regular order, rather than to have a glut of fruit at any one time, and appearance and flavour are always welcome in desert fruits. In order, therefore, to secure these two essential points good runners should be obtained at once, or layered into small pots if there are old plants in stock, and when rooted planted out upon a "steep" south border. Mutch the ground between the plants after planting. The variety is rather a strong grower, and the plants should be planted at from 18 inches to 2 feet apart from plant to plant, and the same distance between the rows. From the nature and habit of the variety it requires a longer season of growth than dwarfier-growing kinds, and should therefore be planted out early in August at the latest, with a view of having the crowns well ripened

before the winter. This being done success will be sure to follow. The fruits will come much firmer in a high dry situation, and their flavour and appearance will be so much improved as to render them hardly recognizable with those grown under a less careful system of cultivation.

— THE WOLVERHAMPTON PUBLIC PARK has recently been greatly improved by the addition of a hand stand, presented to the town by the Right Hon. C. P. VILLIERS, M.P. This structure occupies a position on an elevated part of the park, from whence are obtainable the best views of the surrounding scenery, embracing the wooded Tottenhall ridge, and also of the park itself. Round the base of the stand is a grass border some 9 feet wide, relieved with ornamental beds planted with trees and flowers, and enclosed by a neat ring fence of wire. Outside this is a circular gravelled walk 30 feet in width, with five other walks, each 20 feet wide, radiating therefrom to the main roads in the park. The turf has been taken up and relaid upon improved levels to correspond with the walks. The canopy, like the stand, is of cast-iron, and octagonal in plan. It is dome-shaped in elevation, the profile or outline being to the curve known as the ogee. An ornamental railing, 3 feet 9 inches high, fixed to each of the columns, encloses the structure, and on one side a double-leaved gate is hung to plain wrought-iron standards. The total height to the top of the vane is about 35 feet, the diameter over the pillars being 20 feet, and over the eaves 28 feet. Partaking somewhat of the Italian style, this new addition to park adornment and town property has a very pleasing appearance, which is much aided by artistic decorative painting and gilding. Messrs. STEVEN BROS. & Co., of Upper Thames Street, London, E.C., and Glasgow, were the manufacturers of the ironwork.

— A SPRING FLOWER BED. — It is an admitted fact that spring bedding, well done, is sweeter to the eye than any style of summer bedding yet invented. Nor, indeed, is it to be wondered at that this should be so. We pass through a long dull period where there is little out-of-doors in the floral way of an inviting character. For some cause or other the unexplaining, flowering shrubs are not arranged as they might be, in order to give effect; in many cases the bed of them are not planted at all. It is not, therefore, surprising that the first masses of spring flowers are more welcome than those that succeed them in summer. At Haldon House, near Exeter, there are two serpent-like beds of *Silene pendula* compacta, edged with a band of *Salvia argentea* which in point of effect can hardly be exceeded. There is an indescribable sweetness about the little pink *Silene* in almost any position, but planted against the white satin-like leaves of *Salvia argentea* it is incomparably beautiful. The *Silene* will be succeeded by *Perilla*, which is already planted, so that both a spring and summer effect is secured at a very trifling cost.

— NEW METHOD OF GROWING AND TRAINING TOMATOS. — As we grow older the majority of us are supposed to grow wiser in our generation, and if we do not we certainly ought to do. At all events, in the matter of Tomato growing we have not been over-sharp in discovering the shortest way of obtaining the best results. As long as Tomato growing was carried on chiefly by private gardeners the one-leader system, which gave a few fine fruits, was all very well for the exhibition table, and ornamental-looking in the hothouse of a private gentleman; but as the public demand for English-grown Tomatos increases, the one-leader system will have to be given up, and the side-shoots more depended upon for a general crop. As a matter of fact the side-shoots are the most prolific, and if they do not bear the largest fruit, they produce the greatest quantity, and already the market growers, or the most knowing of them, are finding this out, and are very wisely altering their tactics. In the case of one—a well-known private gardener at one time—the system now adopted is to plant out in a narrow border (there are Cucumbers grown at the front of the same house), and peg down the side-shoots upon the surface of the border, where they root in a short time, and have to be supported under the weight of their crops. Instead, therefore, of having long naked stems, we shall in future have a border covered with medium-sized shoots, and laden

with fruits which pay as well, or better, than anything else in the market at the present day. Given a moderate-sized variety, and a free cropper, grown upon the principle indicated, and started early in the season, or even now, for a late crop, no other garden produce will be found to pay its way better, or be more generally satisfactory.

— HORSE-TAILS. — Representatives of the marsh vegetation of the ancient coal period would appear still to exist in South America; at least, specimens of *Equisetum giganteum* from Brazil, which is said to have aerial stems of 30 feet, were exhibited by Mr. W. T. THIBELTON DYER at the Linnean meeting on June 15. A forest of these would certainly carry the mind back to the time when our now coal beds were luxuriantly flourishing in the marshes of the period.

— PORTUGAL LAURELS IN DEVONSHIRE. — These are now extremely beautiful along the South Devon Coast, their leaves being almost hidden again by a profusion of their milky-white flowers. In the greater number of medium-sized gardens they are planted as "breaks," or protective boundary lines, or arches are formed of them over woodland walks, where perhaps they look most natural and beautiful. Those who like formal-trimmed shrubs will find in the Portugal Laurel a very striking object in pleasure-grounds during the flowering period, their cone-shaped flower-stems of unequal lengths presenting a surface of singular beauty and gracefulness; but, after all, it is the irregular form and natural growth that is most striking, and most agreeable to the eye, during the flowering season. The leaves, too, have a peculiar glossy greenness in the genial climate of Devonshire.

— PUBLICATIONS RECEIVED. — *Anales de la Sociedad Rural Argentina, revista mensual de ganaderia y agricultura Buenos Aires.* — *La Vigne Americaine.* — *Bulletin d'Arboriculture—Hamburger Garten und Blumen Zeitung.* — *Greentice.* — *British Fresh-water Algae*: part 2. By M. C. COOKE (WILLIAMS & NORGADE). — *Proceedings of the Agricultural Society of Madras.* — *Hot-water Heating.* By F. A. FAWKES (BATSFORD). — *The Forester.* By JAMES BROWN. Fifth edition, enlarged and improved (BLACKWOOD & SONS).

— THE WEATHER. — General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending June 19, issued by the Meteorological Office, London:—The weather has again been cold, showery, and extremely unseasonable, in all parts of the kingdom. Thunder and lightning have been experienced in several parts of England. The temperature has again been below the mean in all districts, the deficit being 5° or 6° over the greater part of England, and 4° or 5° in Ireland and Scotland. In very many places the maxima did not exceed 65° during the whole period, while the minima, which was registered on the 16th in Ireland and the 17th over England, were as low as 33° in "Ireland, N.," 35° over central England, and from 36° to 38° elsewhere. On the grass temperature was, of course, much lower, and in London during the early morning of the 16th it fell to 31°. Rainfall has been a little less than the mean in the "Midland Counties" and "England, N.E.," but more elsewhere; at the north-western stations and in "England, E." the excess was considerable. Bright sunshine shows a decrease in duration in most districts, the percentages ranging from 20 in "Ireland, N.," to 46 in "England, S.W." Depressions observed:—The barometer has been generally higher over France and our southern coasts, while numerous depressions have passed from west to east across our more northern districts. The wind has consequently varied between south and west or north-west, and, though generally light or moderate, blew with the force of a strong breeze or fresh gale at many of the northern stations from the 13th to the 15th.

— GARDENING APPOINTMENTS. — Mr. GEORGE URQUHART, one of the young gardeners in the Royal Botanic Garden of Edinburgh, has, on the recommendation of Mr. SADLER, the Curator, been appointed by the Secretary of State for India, Assistant Curator of the Royal Botanic Gardens at Howrah, Calcutta. — Mr. A. PARROTT, Foreman to Mr. HARE, at Wellington, Grantham, has been engaged as Gardener to T. A. SCANNELL, Esq., Marlands Park, Farnham, Surrey. — Mr. Wm. MILNE, Foreman to Mr. SUTTON, Workshop Manor, Notts, has been engaged as Gardener to Mrs. VIVAR, Stibington Hall, Wansford, Northamptonshire.

HOME CORRESPONDENCE.

The Electric Light.—In referring in your issue of the 10th inst. to the experiments upon which I have been engaged for the last three winters at Sherwood, Tunbridge Wells, for the purpose of determining the influence of electric light upon the development of plants, you remark very properly that show results should not be aimed at until after certain principles involved are clearly established. In carrying on these investigations the results are often negative and disappointing for the moment, but are on that account perhaps the more instructive. I do not, therefore, wonder that your contemporary's correspondent who visited Sherwood in my absence was not favourably impressed, and I should add that I am only proposing to myself the development of certain physical problems involved. One interesting fact results from last winter's campaign. Having sown two small pieces of ground at about the same time with Wheat, Oats, Barley, Rape, and other annuals, I found that the action of the electric light, which was allowed to play upon one field, was very remarkable during the early period of growth. Although during the winter time the observable progress was retarded, on the first appearance of mild weather in January the plants in the electric field took a start, so that some of the Wheat taken up on May 31 stood 4 feet 6 inches high, was in vigorous growth, and had fully developed ears in full bloom, whilst that in the general field was only 2 feet in average height, without any development of the ear; the soil was very similar in both cases, whilst the field not influenced by the electric light had decidedly the advantage as regards exposure to the sun. The plants taken up from these two fields have been dried and put into a case, thus furnishing a convenient record of the efficacy of the electric light in the early stages of growth. [May we suggest that a chemical analysis be made of these specimens?] I notice that the experiments made last summer at the Paris Exhibition have been frequently referred to as showing that the electric light, though efficacious in the manner described in my papers, produced but very small effects. But it should be borne in mind that in those experiments could be of no scientific or practical value, having been got up only for a show inside a building abounding with gas lights, gas engines, and gas producers. The two arc lights employed had a power probably not exceeding 200 candles each, were at first installed unprotected by glass, which is so necessary to intercept the ultra violet rays, and were without the means of discharging the harmful nitrous compounds developed in the arc; the wonder in my mind was that under these untoward circumstances the plants could be made to survive at all. C. H. Siemens, 12, Queen Anne's Gate, S.W., June 20. [Botanists and horticulturists cannot sufficiently express their obligations to Dr. Siemens for his endeavours to solve a problem of the highest scientific interest, and the practical results of which may be in the future of the utmost importance. ED.]

The Potato Disease.—This unwelcome visitor has already put in an appearance in this district, and at the time of writing (June 17) has almost completely destroyed the haulm on some patches of early sorts, and a few spots are to be found on the second earlies. This is about a fortnight earlier than it has been observed in this district in past seasons. I have observed that the disease almost invariably commences its ravages in those potato beds which are, to a certain extent, shaded by trees, and I find that this season is no exception to the rule, as the first lot I saw attacked was in a cottage garden, very heavily shaded by timber, as most of the cottage gardens in this county are, and they are, so to speak, hotbeds for the disease, from whence the spores are dispersed in every direction. Potatoes, generally, and early varieties especially, must be nearly fully grown before the disease will attack them virulently, and where cottagers in particular often leave their crop in the disease commencing in the early one, and spreading at once to the late sorts, planted by the side of them. They would to a great extent save their crops if they could only be induced to remove the haulm of the early varieties, as soon as the first spots are observed, and destroy it. [We have often urged the necessity for this procedure. Those who take every precaution against the disease do not get all the reward they should, as long as their neighbours remain indifferent in the matter, as a garden wall will not keep the spores out. When the disease is not spreading rapidly and the tubers have not attained a fair size; it is a good plan to go through the rows and remove all the affected leaves. We saved a large patch of American and other varieties, which are generally so badly affected by the disease, in this manner last year. *Lombard.*]

In this locality the disease has already made its appearance in the haulm, and this, too, to rather an alarming degree. A plot of Myatt's Ashleaf,

which were attacked on the 11th inst., are now almost black and leafless, and this morning I have been informed by a neighbour that even his *Magnum Bonum* are beginning to show it as plain as a "spike staff." That the disease should make its appearance so soon—nearly a month earlier than heretofore—is a matter for much regret, and is anything but a hopeful sign for the year's crop. Should the present state of the weather—which is highly favourable to the development of the disease—continue for many days longer, it is certain to spread with great rapidity. J. Hornefield, *Heythorpe, June 19.* [We were sorry to observe the progress of the disease near Folkestone recently. ED.]

How to Make a Paper Box.—The invention shown in the annexed engravings (figs. 128, 129) is a new construction of a folding box, having its body and cover in one piece, so that it can be set up without paste or other adhesive material. The blank, of which the body portion of the box is formed, is cut so as to form the flaps, A, B, C, and the cover portion so as to form the flap, D, and the fastening flap. The blank is then scored in such a manner that corresponding

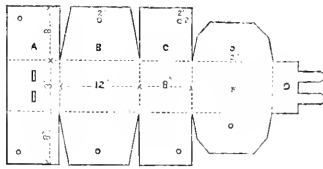


FIG. 128.—DIAGRAM SHOWING CONSTRUCTION OF BOX.

portions form the bottom and cover, and other corresponding rectangular portions form two sides of the box, the other two sides being closed by the folding in of the flaps of the main body of the box. The front side portion of the box has slots formed through it to receive the ends of the locking flaps. The flaps of the body and cover are perforated to receive a cord or tape to secure the box in a folded position. It will be seen that the box is cheaply made, easily set up, and occupies very small space for shipping or storing. *Scientific American.* [We may add to the above that, supposing a box is required 12 inches long, 8 wide, and 8 deep, the paper or card necessary for

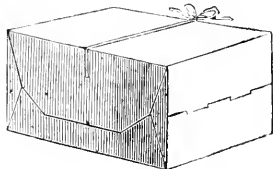


FIG. 129.—BOX COMPLETED.

such a box must be of the shape and dimensions shown in the outline diagram. It is necessary that the holes should be in an exactly correct position, or the string will not pass them all. The hole of the flap should be 2 inches from the edge, and in the exact centre at this position; the hole at A and C should be 2 inches each way from the outside corners as shown, whilst the holes on flaps belonging to top of box E should be 2 inches from the line of fold and in the centre at this position. The diagram is drawn to scale, and if properly made, a very compact box will result, as in the lower illustration. Of course, when the dimensions are altered, boxes of any size can be made, either larger or smaller. ED.]

Strawberry Bothwell Bank Prolific.—"Herefordian," p. 815, asks some one to tell him the difference between the above and President. Eighteen months ago we had a dozen plants of the Bothwell variety from Edinburgh, and about this time last year a good many runners were detached and planted on a south border. Three weeks ago we had ripe fruit on these, and President, a few yards distant, is just now beginning to ripen. In this there is a wide difference between the two; the Bothwell Bank is also much more prolific, but in size of fruit and flavour it does resemble President. This latter does not do well, here and will be decreased or thrown away altogether, but we intend multiplying the other variety to

a considerable extent. J. Muir, *Margam Park, June 20.*

The Queen Onion.—I last summer read a notice in your paper recommending the Queen Onion as one of the best for autumn sowing for the spring crop, I therefore had a bed of it sown on July 26 last. I have now a most wonderful crop, quite ripe and ready for housing. The bulbs vary from 2 inches to 3 inches in diameter. The frost in winter lifted them slightly, so I had half an inch of sawdust sown on, and on the sawdust a dressing of soot. This put all right, and we had no further trouble. At the same time I had with the Queen a bed of the Italian Red also sown. These are the bulbs we do, but they are far behind the Queen; as the diameter do not measure more than 1 inch to 1 1/2 inches in diameter. But we are not in the tropics here; we are in North Derbyshire, 530 feet above sea level on the upper waters of the Derwent. *Cijolla.*

Vegetables: Edinburgh International Fruit Show.—Agreeing with the general remarks of Mr. Muir in reference to the managers of Horticultural Societies not offering prizes for new vegetables, as they do for fruits and plants, I am afraid it is now too late to expect a class for such at the International, the committee of management are quite right in giving little encouragement for the exhibition of vegetables as a whole. Edinburgh has never held out much inducement for the exhibition of vegetables at its ordinary shows, and the exhibits generally correspond with the prizes offered. It may be said that the luxurious few alone are interested in first-class fruit culture, but all, even the poorest of the poor, have a desire to obtain good vegetables, from the tiny Radish to the monster Cabbage, and I have often thought it a pity that more encouragement could not be given for the production of first-class vegetables as compared with fruits and plants. However, there is one thing the managers of the International ought to do, if not already done—to bestir themselves and try and obtain from the various railway companies every facility in the way of cheap fares for those who visit the show. To quote Dundee—they not only give for more encouragement at the ordinary shows for the exhibition of vegetables than the International offer, but they also arrange every season with the railway companies for cheap fares; hence, to a great extent, the number of visitors and the success of their shows is to be attributed, and it would be well for the International were the same privilege obtained for it. *James Brown, Abercainy, Perthshire.*

—Mr. Muir's wish that our large shows should be made to encourage the introduction of new vegetables is both natural and proper, but the phrase "any new kind of vegetable" would not only be a wide one, but not quite sufficiently explicit. If any new or novel vegetables of kinds not yet in commerce were asked for something new and novel might turn up, but if the result of the class as first put were but to bring together a score of seedling Peas, the same of Potatoes, and of other vegetables in proportion, the product would be chaos, and the awards valueless. If I do not assume that there are not be many meritorious seedling or new kinds of Peas, Potatoes, and similar things, but the difficulty which presents itself is, how are the judges to be assured that such kinds are both new and meritorious? The samples, as they lie on the tables before them, carry with them no evidence, and it would hardly be safe to accept the statement of partial and often enthusiastic, though possibly still truthful exhibitors. I think that executive committees of flower shows are well advised in offering prizes to keep well within the limits hitherto followed without striving after the illimitable. It is only this year, after much weary exhortation had been expended, that the committee of the International Potato show has been induced to adopt the needful precautions to ensure that its seedling Potato classes shall be filled by *bona fide* seedlings only. And it is only possible for a society having special objects in view to thoroughly deal with a matter of this special nature. The Potato society which Mr. Gilbert, of Burghley, is promoting is not prepared to test fully by growth and comparison all the assumed seedling kinds of Potatos put before it, it will but help to make confusion worse confounded. With our knowledge of so-called new Grapes even such a class as that to be found in the Edinburgh schedule can hardly have much value. The finest kind exhibited may after a few years' growth prove to be absolutely worthless. A.

Hydrangea Hortensia.—This is a very useful and showy plant for decorative purposes when grown in 4-inch pots, with single stems from 9 to 15 inches high and individual blooms or trusses as many inches through, and associated with small plants of scarlet flowering Begonias, double Petunias, pink and white; *Pelargonium*, *Salvia patens*, and *Fern* intermixed; the effect thus produced in the conservatories at Lockerly Hall and Clarendon Park at the present time is a pleasing one, the *corerulea*-tinted pink

flowers of the *Hydrangea* agreeably harmonising with the different shades of scarlet, pink, white, and blue, which, with the Ferns and flowering climbers depending in wild profusion from the roof, make a graceful finish and a pretty floral picture. As, perhaps, a few of your readers may not see their way clearly to achieving results such as above indicated, I may remark that the cuttings of *Hydrangea* should be taken off and struck soon after the flower-buds have been formed; that is, about the middle of September, or earlier according to the time the plants have completed their growth. The plants will succeed well if other cultural points are duly attended to in equal parts fibry peat and loam with a dash of rough sand added. *I. H. W.* [We lately saw some splendid specimens produced by similar means in Mr. Barron's nursery at Borrowash. The plants were remarkably vigorous, clean, and full of bloom—perfect specimens, in fact. *Ed.*]

Lychnis vespertina and *L. diurna*.—In the name of many gardeners who have found as much difficulty as I have in propagating the double white Campion I thank Mr. Jenkins for his note. It is a very fine garden plant, though this year, in common with many other plants, its leaves have the curly blight. In wet weather also it has the habit of shedding its flowers before or as soon as they are open. On looking again at my cuttings I find that one out of seven or eight is not so struck and filled the pot with roots; the others look as if put in yesterday, having been put in in February. As Mr. Jenkins says, there is considerable confusion about the red and the white Campion. I cannot say whether those botanists are right who look upon the larger white Chapon as a variety of the common Rose Campion, but to ordinary observation it is quite distinct in form and habit. *L. vespertina*, otherwise called *L. dioica alba*, is a large, straggling, long-jointed plant, inhabiting clover fields often in woods or banks. The flowers are white or sometimes pale rose, never dark rose or red. *L. diurna*, or *dioica rubra*, is common in every plantation and on every bank. The normal colour of the flower is dark rose, but it commonly varies through every shade of pink to pure white, though even in that colour the plant may be distinguished at a glance from *L. vespertina*. The double form, which is very common, increases at a more prodigious rate in any plant I know, and roots readily from every joint, whether detached or not. A double of the white variety would therefore be a great acquisition to gardens, and I wish I knew how to encourage flowers to become double from seed. The habit of this, as a garden plant, is very superior to *L. vespertina*. *C. Wolley Dod, Erskine House, Llundudno, June 17.*

I have for years past been in the habit of striking a few cuttings of *L. vespertina* fl. pl. also annually. I take off the cuttings just at this time, and plant them under a bell-glass. They are a long time in rooting, but some of them always do root. I have never seen *L. vespertina* with flowers as deep a shade of red as those of *L. diurna*, but a year or two since I found many plants in corn-fields with pale pink flowers near the village of Merton, Theford. If a double form of this pink variety could be produced it would be a great acquisition to our gardens. *H. Harpur-Cree, The Rectory, Drayton-Beachamp, Tring, June 19.*

Pot Marigold Meteor.—What a pity 'tis that this exquisitely marked flower is but a pot Marigold! The very prefix of "pot" is vulgar and repelling, it breathes of the scullery, of smut and dirt, of everything that is disagreeable and obnoxious, and thousands of lovers of flowers at once, on hearing of this Marigold, jump to the conclusion that anything so miserably named must be a coarse common plant indeed. And then whoever could have been so silly as to give it the distinctive appellation of Meteor? Should strangers to the flower accept this name as indicative of its fleeting properties, they would assume that it was but a floral flash in the pan—a momentary thing of beauty, existing only so as suddenly disappear. Some of our earlier poets, whose eyes could not have feasted upon the gorgeous Roses, Orchids, and other innumerable and resplendent garden flowers of our day, sang love songs to the yellow Marigold, and breathed over its winking golden buds an air of poetry such as should have saved a charming old flower from the detestable prefix of "pot." The greater scarcity of garden flowers in a few nations, since possibly weight for those more real love and veneration than we give to flowers now, for our great wealth of floral treasure has, perhaps, rather taught us to look contemptuously upon simple things, and to prize those that are rare rather because they are costly than because they are beautiful. But this humble, early, and, not least, hardy Marigold, finds, perhaps, more congenial homes in the gardens of the poor than in those of the wealthy. It is not that it is not pretty, and indeed, for supplying cut flowers, serviceable; but then it is so common, and, after all, is only a Marigold. But, contemptuous ones, let me say that

this Meteor variety, so exquisitely and perfectly striped in lemon and orange, and with flowers so double and of such good form, is not common, and still farther, wherever seen, always causes surprise and evokes admiration. As the open winter spared all my plants that bloomed so persistently all through last summer, and autumn, I have been enabled to realise that the greatest perfection in markings to be found in the second year's produce, and still more, that, strange yet true, the prints given of the flowers when first sent out were literally truthful and unexaggerated. *A. D.*

Epping Forest Club Underground.—On Saturday last this field club went to Hangman's Wood, one mile north of Little Thurrock, on the north side of the Thames, opposite Gravesend, to examine the "Den-holes." Hangman's Wood is a peculiar one; for although its area is not more than a quarter of a mile square, it is furnished with seventy-two "Den-holes." The majority of these are what is termed "filled up," but several are open. The "filled up" examples are about 20 feet in diameter, 6 or 8 feet deep, and present themselves as deep basins. At the bottom of some of these basins there is a hole like the orifice of a well, which goes deep into the earth. Such holes are hardly safe for children, insect-catchers, and British botanists, and at one time they were wired over; not, however, for the safety of human beings, but to prevent dogs and foxes falling down. The "filled up" examples are probably not entirely filled up from top to bottom, but roots and rainwash have gradually made a sort of make-shift natural plug, or cork. On Saturday last it was explained that a "filled up" hole had this year opened itself again by the plug of earth and leaves dropping to the bottom. Some of these plugged holes occur in the paths, so that it is at times advisable to walk carefully, or the pedestrian may run a chance of going to the bottom with the plug. The holes probably date from pre-historic (an elastic time) times. Similar holes occur in Kent, as near Blackheath and Dartford, at Stouffville, near Dromon; at Wrotham, near Worthing; at Spiennes, near Mons, in Belgium; and elsewhere. The rustics on the spot have strange ideas of the apartments below, and some archeologists have described these burrowings as habitations, or even places of worship, with altars. Sometimes rustics let each other down, after a primitive fashion, by means of a rope, but it requires a sailor, or a strong and skilful athlete, to perform this feat to perfection with such simple apparatus as a rope only. The writer of these lines has known these holes for many years, and hardly looking for flints and funguses has often cast a wistful eye down, and longed to descend. It was, therefore, with unusual pleasure that he received an invitation last week to be let down one or two of these wells, with other members of this club, in a comfortable way. Mr. George Biddell, of Grays, kindly gave permission for the exploration, and nobly furnished some wooden gibbet-looking apparatus, with ropes, windlass, and wheels, for the purpose.

Two holes were explored, and both were 82 feet deep. First the hole was made through 60 feet of loam and sand, and the rest through the solid chalk. A great deal of the chalk and sand of the first hole had fallen in, but the second was far more perfect. This at the base opened into several large lateral caverns. When the ground and new villas suddenly sink several feet in the earth, as at Blackheath and elsewhere, it is sometimes owing to the collapse of caverns of this nature. In some places the floor was visible. Many bones are in the caves, and a doctor who accompanied the party referred these bones to the rat, rabbit, dog, and fox. The rabbits had made burrows in the fallen sand, and the dogs had made deep striations with their claws at the base of the well in futile attempts to get out. The chalk is to this day as white as snow, and the innumerable marks of the metal picks of the excavators as sharp as if done but yesterday. The places were well illuminated with candles, and several feet as the writer's spiders were seen walking about, together with a *Helix*, evidently lost. A large number of sticks and stems were littered about the floors, and these supported a good crop of fungus life, both in the form of dense mycelium and the more perfect form of *Corticium*, and other *Fungi*. Many seeds that had dropped from the top to the bottom were growing in a blanché state below. The explorers, on going up and down, sat across a short transverse stick, and for the greater part of the journey turned round and round like a joint of meat on a roasting-gale. A lively discussion took place at the "King's Arms," Grays, as to the meaning and purpose of these holes, the writer maintaining that they were burrows for flints for the manufacture of flint implements in ancient times. One speaker considered them places of refuge in times of trouble (it would be a bad job if the enemy ran away with the rope); another that they were caverns for storing corn when it was not safe to leave it in the fields (a damp and mouldy storehouse at the best)—all in pre-historic times. Many artificial flakes of flint were met with, mostly outside

the holes. The best object was found by the writer, who lighted on a beautiful little flint knife, with secondary working on both sides. The trees in the wood showed signs of severe suffering from the late gale, except the Ash, which was in uncommonly good form—probably because it came into leaf after the gale. All the wild Mallows were badly down with the *Fucinia*. *H. G. S.*

Standard Laurels about Swansea—In many of the best gardens about Swansea, which have been laid out by Mr. William Barron, of Sketty, standard plants of the broad-leaved Laurel have been used with excellent effect along terraces and in combinations of shrubs. The stems are 3 or 4 feet in height, and surmounted with a finely shaped bushy branch of rich green leaves. They resemble orange trees more than anything I can think of, and may certainly be pressed as such at a little distance. They are favourite subjects with this landscape gardener, and it is surprising they are not more generally used throughout the country, for when the effect of them is once properly seen it will not readily be forgotten. *J. Muir, Margam Park, Talbach.*

Reports of Societies.

York Gala : June 14, 15, and 16.—The York show this year was not only such as to maintain the popularity it has long enjoyed, but also to still further enhance the reputation it has attained of bringing together one of the best displays of horticultural produce witnessed in the kingdom. Almost every section in the principal departments was thoroughly represented, and flowers were present in large quantities and in fine condition; fruit was nicely shown, and vegetables were very good. In the principal open class of sixteen plants, ten in *Zelma* and six fine-foliated, Mr. Letts, gr. to the Earl of Zetland, exhibited. *Marche-by-the-Sea*, was easily 1st, showing one of the best collections ever placed on an exhibition stage—not an inferior plant amongst them. His flowering examples were *Dracophyllum gracile*, 4½ feet through; *Phenocoma proflera*, similar in size; a huge *Stephanotis*, covered with flowers, and a *Williamsii*, bearing hundreds of heads of bloom; a grandly flowered *Heath*, *Allamanda grandiflora*, large and full of flower; *Anthurium Scherzerianum*, with fifty unusually big bouquets; *Statico profusa*, large and finely flowered; *Douglasvillea glabra*, so covered with its small well-quantified as to hide the leaves; and an immense bush of *Azalea Brilliant*; these were set in a framework of green and variegated-leaved plants comprising *Alnans*, Ferns, and *Crotons*—collectively a fine group. 2d, Messrs. Cole, Withington, Manchester, with silver good *Palms* and *Crotons*, *Thrinax*, *Heath*, and other flowering specimens. 3d, Mr. Berry, gr. to W. Dove, Esq., staging a nice lot. Six stove and greenhouse flowering plants.—Here also Mr. Letts took the lead, having a well bloomed half dozen, in which were *Isora ambonyensis*, an enormous *Clerodendron Scherzerianum*, and a *Williamsii*, bearing hundreds of flowers. Mr. Tudgey, gr. to T. F. G. Williams, Esq., Worcester, was 2d.

In the class for eight fine-leaved plants, there were a number of exhibitors, Mr. Letts again being well with the front row, amongst his competitors being Messrs. Vroomil, Croton Queen Victoria, and C. Johannsen, each 5 feet through, and finely colored; *Dion edule*, *Gleichenia Mendellii* and *G. rupestris*, dense green, vigorous bushes. Messrs. Cole, who were 2d, had a large and handsome lot, in which were three *Ferns*—*Lattina borbonica*, *Arcaea rubra*, and *Thrinax elegans*—and *Crotons Disraeli* and *Weissmanni*. Mr. Tudgey came in 3d with specimens smaller but of good quality. Mr. Noble and Mr. Lyon, gr. to Vicountess Ossington, Newark, received extra prizes.

Four ornamental plants.—Here, too, there were a number of competitors. Mr. McIntyre, gr. to Mrs. Pease, Warlington, taking 1st with a nice group. With eight exotic Ferns, Mr. Letts also scored first honours, showing, amongst a few looking lot, *Cibotium regale*, the rare *Sadleria cyatheoides*, with large masses of fronds, and a *Phlegmum*, bearing a fine lot of flowers, whose group contained several fresh *Gleichenias*, and various Tree Ferns; 3d, Mr. Bonsall, gr. to J. Rhodes, Esq., who in a nice collection had a grand *Todea superba*, 4 feet in diameter. *Hardy Ferns* are always present at the York shows, and this year were not an exception, forming in themselves a feature. The winning twelve (exhibitor's name not given) were a magnificent lot, including *Polypodium Stanfieldii*, *Blechnum spicatum ramosum*, *Adiantum pedatum*, and a new, unnamed, profusely crested *Scolopendrium*; Mr. Scott, gr. to W. Buckle, Esq., who took 2d, also had an excellent collection, containing *Osunda regalis cristata*, 4½ feet across; *Athyrium cristatum*, and *A. plumosum*, unusually fine. Mr. Rylance, Ormskirk, 3d, had a good group, but too many *Athyrium* amongst them.

Orchids were present in such numbers, so large and fine, that it is difficult to say which were the best seen at York. Mr. Hill, gr. to G. Hardy, Esq., Impberly, Manchester, took the lead with a grand half dozen, comprising *Odontoglossum vexillarium*, 2 feet in diameter, a mass of bloom; *Cattleya Mossiae*, equally large and full of flower; *G. Mendellii*, bearing 2½ spikes; the long *Anguloa Clowesii*, carrying some fifteen flowers; *Odontoglossum crispum*, a splendid variety with enor-

mous spikes; and Vanda suavis. Mr. Mitchell, gr. to Dr. Ainsworth, Broughton, Manchester, was a good 2d. showing large well-bloomed plants that would not have had to put up with 2d honours in many competitions, 3d. Mr. Hayward, gr. to Captain Hicks, Thurst, also a creditable exhibit; 4th, Mr. Bonsall, Three Orchids.—In this class Mr. Beddows, gr. to F. Perceval, had the first honours, with an immense *Odontoglossum vexillarium*, nearly a yard in diameter; *Cypripedium barbatum*, and *Cattleya Mossie*, a single piece bearing over forty flowers; this, we understand, was imported only about two years ago. We venture to hint that if big plants are raised in little time procuring large specimens, with its in every way preferable to crowding quantities of small ones together when in bloom. 2d, Mr. Hill, with *Cypripedium Lawrenceanum*, *Odontoglossum vexillarium*, and *Dendrobium Jamesianum*, thickly studded with its lovely white orange-centred flowers; Mr. Kollinson, gr. to W. Bateman, Esq., Harrogate, was 3d, and Mr. Mitchell 4th, both having meritorious plants. Single specimen Orchid.—1st, Mr. Beddows, a densely flowered *Cattleya Mossie*, over 2 feet across; 2d, Mr. Eastwood, gr. to F. W. Teley, Esq., Westwood, Leeds—*Aerides Fieldingii*, in unusually good condition, carrying three spikes branched from 2 to 2½ feet long; 3d, Mr. Hill, with *Vanda tricolor superba*.

There were two classes for groups of plants arranged in pots, which would grow together in the garden, the large one—200 square feet.—Mr. Simpson, Selby, had 1st, putting up a well arranged lot sufficiently relieved in the surface, and with an absence of the unsuitable trained examples sometimes shown in these exhibits; in 2d, Mr. G. G. Peaches, the competitors kept fairly clear of plants of this description. Mr. Berry was a good 2d, Mr. Bonsall 3d, and Mr. McIntyre 4th. In the smaller groups, which were also well done, the prizes went to Messrs. Scott, Noble, and McIntosh, in the order of their names.

Pelargonium.—Invariably well shown, in size and condition that reminds us of the days of Bailey, Turner, and Ward. With twelve show varieties Messrs. Lazenby were to the fore, putting up a good exhibit, the most effective of which were *Duchess of Edinburgh*, *Queen Bess*, *Triomphe de St. Mandé*, *Exhibitor*, and *Rebecca*; 2d, Mr. G. G. Peaches, with *Queen Bess*, *Exhibitor*, and *Rebecca*; 3d, Mr. G. G. Peaches, with *Queen Bess*, *Exhibitor*, and *Rebecca*; 4th, Mr. G. G. Peaches, with *Queen Bess*, *Exhibitor*, and *Rebecca*. For twelve, Messrs. Pybus & Son, Ripon, took the lead with a collection alike good in flower and foliage, among which Mrs. Chandler, Mrs. W. Paul, Polly King, and Warrior, were the brightest; 2d, Mr. Eastwood, who in a well-bloomed lot had *Flourence Durand*, *Princess of Wales*, *Leonides*, and *Wellington*; 3d, Mr. McIntosh. For six zonals Mr. Winterbone took the lead with a well done half-dozen, in which *La Dame Blanche* and *Flourence Durand* were the best. The fancy varieties, now so little grown, but so well represented in their class, were of delicate colours, were well represented by Mr. Kylan's winning six—new varieties of this class of *Pelargonium*, good enough to beat the old ones, only make their appearance at rare intervals; the best were *Sarah Turner*, *Queen Antislavia*, *Her Majesty*, and *Princess Victoria*; 2d, Mr. May. *Fuchsias* were better done than we usually see them at the Southern exhibitions; they consisted mostly of established well-proved kinds. With six Mr. Clarke, gr. to Miss Wharton, York, had 1st, and *Roses*, not less than a fine variety, among which Mr. E. R. Whitwell, Darlington, who took 1st, had nice blooms of *Belle Lyonaise*, *Souvenir d'Elise*, *Vardone*, *Marchal Niel*, *Madame H. Jamin*, and *Soubreuil*; 2d, Mr. O'Neary, gr. to Mrs. Grimston.

At stove and greenhouse flowers were forthcoming in quantity, and in the best condition. With twelve, Mr. McIndoe, gr. to Sir J. Pense, Guisborough, came in 1st, putting up a splendid lot, containing *Odontoglossum Roezlii*, *Phalaenopsis grandiflora*, *Anturium Andreanum*, *Ixoras*, and others of similar description; Messrs. Cole was a close 2d, the only fault being that there were too many sorts of *Ixora*. Six varieties.—For these Mr. McIndoe was again 1st, staging similar kinds to those in his larger group. With two bridal bouquets Mr. Wright and Mr. Kylan were respectively 1st and 2d. *With two* Mr. Kylan, gr. to Mr. G. G. Peaches, had 1st, and Mr. G. G. Peaches, gr. to R. Dickinson, Esq., Durham, 2d. Stand of flowers.—1st, Mr. Baynes; 2d, Mr. Wright.

Messrs. Downie & Laird, Edinburgh, exhibited, as is their wont, a beautiful collection of *Fansies* and *Violas*, splendid flowers, combining good form and colour.

colours. In the group were several new ones, which received First-class Certificates: amongst these was *May Tree*, extra large, good substance, colour dark, purple ground, with a broad, bright yellow margin, a grand flower; *Ruby*, dark mulberry, lower petals edged with canary-yellow, upper petals bright ruby edged with white; *L. Dawson*, a fine flower of a deep claret colour, edged with white all round; also a new *Viola*, *Countess of Hopetoun*, a decided advance in colour, which is pure white, without the least streak or shade; *Viola Duchess of Albany*, violet-purple shading off to white in the outer petals; *Duke of Albany*, deep purple, lower petals shading to pale purplish-white in the top. From Mr. E. Thompson, a *Horwax*, exact, not for competition, a good collection of miscellaneous new and rare flowering and fine-leaved plants, including a number of *Orchids*, *Nepenthes*, *Sarracenias*, *Heaths*, *Palms*, *Ferns*, new *Crotons*, *Dracaenas*, and others of like character. Messrs. South, of Worcester, had a nice lot of cut herbaceous flowers, including the best varieties of *double Pyrethrum*, and some beautiful *Peonies*; in the herbaceous flowers was a beautiful bunch of *Cypripedium spectabile*, with unusually large blooms.

FRUIT was shown in considerable quantities. With ten dishes Mr. McIndoe took 1st, his best being a *Queen Pine*, *Stanwick Elong Nectarines*, and *Brown Turkey Figs*. Mr. Mann, gr. to Mrs. Hornsby, Grantham, was 2d, with amongst others, nice examples of *Royal Vinograd Grapes*, *May Duke Cherries*, and *Rivers' Proflic Plums*. In the class for six dishes the best fruit was shown, and the competition was better—Mr. McIndoe again taking 1st with *Black Hamburg* and *Muscot Grapes*, a *Pine*, *Barrington Peaches*, *Brown Turkey Figs*, and a *Melon*. Chief taulker, who was 2d, was James Veitch *Strawberries*, a *Golden Queen Melon*, *Black Hamburg*, and *Forster's Seedling Grapes* in nice order. Mr. Clayton, gr. to J. Fielden, Esq., Tadcaster, was 3d, his collection being little, if at all inferior to the last named; it contained *Westfield Court* and *Muscot* of *Alexandria Grapes*, the latter better finished than usually seen so early; *A. Bee Peaches*, and *Violette Hative Nectarines*, beautifully coloured. For four dishes Mr. Wallis, gr. to Sir H. M. Thompson, York, took the lead, showing, in a nice collection, a good dish of *Black Hamburg* and *Black Hambur Grapes*, Mr. Westcott, gr. to the Duke of Cleveland, Raby, 2d. In the class for Black Grapes there were ten exhibitors, collectively staging good fruit for the time of the year. 1st, Mr. Wallis, small bunches, well finished; 2d, Mr. Leadbetter, gr. to Admiral the Hon. O. Duncombe, who had, quartered, *Black Hamburg*, *Black Queen*; Mr. Faulkner, 2d, likewise showing the same excellent kind. *Scarlet-fleshed Melon*.—1st, Mr. McIndoe. *Green-fleshed*, ditto.—1st, Mr. Swanwick, staging *Best of All*. *Figs*.—1st, Mr. McIndoe, a good dish of *Brown Turkey*.

VEGETABLES.—For ten dishes Mr. McIndoe had 1st with a very good lot, in which was a beautiful dish of *Tomatoes*, and both varieties of *Telephone Peas*, in nice condition; 2d, Mr. G. G. Peaches, gr. to W. J. Cholmley, Esq., likewise a meritorious collection.

South Essex Floricultural.—The annual exhibition of this Society was held in the grounds of J. Gurney Barclay, Esq., Knotts Green, Leyton, on Wednesday, June 14. The exhibition was not quite so successful as last year, owing to the absence of a prominent exhibitor; but the quality of the exhibits was quite up to the average, and in the case of some things even superior to that in any previous season. Stove and greenhouse flowering plants were as usual a prominent feature, and Mr. Donald, gr. to J. G. Barclay, Esq., was awarded the 1st prize for eight, and also grand for six. He had a splendid *Adenanthe fragrans*; its beautiful rose-coloured flowers had a pleasing effect. *Ixora Fraseri* was also fine. *Boronia elatior*, in the class for six, showed its best. Mr. Douglas, gr. to E. Whitbourn, Esq., of Loxford Hall, Ilford, was 1st for the best single specimen with an immense well-flowered *Anthurium Schzerianum*. In the *Orchid* classes Mr. Douglas gained the 1st prize for eight, and the 2d for six. He staged a large specimen of *Dendrobium Dholistanum* with eighteen spikes. For four specimens Mr. Monk, gr. to W. Fowler, Esq., Walthamstow, gained the highest award; the highest place for a single specimen being occupied by Mr. Gilks, gr. to A. Brown, Esq., Highgate Hill, Walthamstow, with a really good *Lelia purpurata*, fine both in a plant and a variety. *Fine-foliage* plants always make a prominent feature at this exhibition, and Mr. Ward, who has charge of the arrangement of the tent, always places with these the most delicate groups with the most interesting plants. Mr. Douglas was in the highest place with six, *Cycas rotundifolia* being a handsome specimen, and *Kentia Carterburyana*, a handsome Palm. The same exhibitor was placed 1st for a single specimen with *Cycas rotundifolia*. Mr. Douglas was 1st for *Abutilons* in a large competition. There were also numerous sections of *Coleus*, but Mr. Monk's was by far the best. Mr. Donald, gr. to A. Brown, Esq., Highgate Hill, Walthamstow, was 1st for a single specimen with *Canary Bird*, *George Simpson*, *Mrs. G. Simpson*, *Aeol*, and *Firefly*, very fine. The same exhibitor had also a fine group of *Cockscomb*; for these and six *Gloxinia* Mr. Donald was 2d. Mr. Donald staged the finest *Ericas*, and large as well as finely flowered they were; *Candolleana* and *Farricena* were the best. Mr. Donald's *Fuchsias* were also better than usual; they were handsome well-furnished specimens,

clothed from base to summit with foliage and flowers. *Stage Pelargoniums* were not up to the usual point of excellence. Mr. Donald had the best—Mr. E. Crook, gr. to E. Baxter, Esq., Leytonstone, securing the highest awards for single and double *Stage Pelargoniums*. Numerous groups of plants were exhibited in the large tent, of various degrees of excellence. *Ferns* in the large tent formed a very prominent feature. Messrs. Douglas, Gilks, and Monk taking 1st prizes. In another tent were the table decorations, cut flowers, fruits, and vegetables, and it was well filled with very creditable productions, the stands of flowers, bouquets, &c., being numerous and attractive. The 1st class is for groups of three wases; the 1st prize in this class was awarded to Mrs. Douglas, of Ilford, with the usual *March stands*; the centre one was much admired, the base formed of *Roses*, white *Pelargoniums*, and *Anthurium*; the centre with *Saxifragas* and *Cattleya Mossie*; the trumpet being filled with single *Anthurium*, and a few *Orchid* sprays, with *Stipa pinnata* and *Maidenhair Ferns*. Mr. Gilks gained the 1st prize for a single stand in the gardeners' classes, while the amateurs were well represented by Mr. Sutton Abbot, Wansford, who was 1st for a very nicely arranged design; and also Mr. Mclland, Chelmsford Road, Woodford, who was in the 1st position with three very well furnished and tastefully arranged vases, *Corniflowers* and *Lilies* being very pretty. There was no much fruit exhibited, but some of it was very fine—the *Black Grapes* especially so. Mr. Bagg, gr. to G. Bervick, Esq., Walthamstow, had the best *Black Grapes*, and Mr. Douglas the best white. *Strawberries* were well shown by Mr. Donald, and *Cherries* by Mr. Douglas. Mr. Donald also exhibited an excellent *Fineapple*. Baskets of vegetables were very numerous, and filled with quality very good. Mr. Donald had the best collection of eight varieties, and Mr. Mallett the best collection of six.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON FOR THE WEEK ENDING WEDNESDAY, JUNE 24, 1882

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC REDUCTIONS FROM 32° TO 60° F.	WIND.	RAINFALL.
	Mean Reduced to 32° F.	Maximum.	Lowest.	Range.	Mean for Month.	Departure of Mean from Average of 35 years.	Degree of Humidity.			
June 15	30.04	+0.03	51.6	58.1	48.2	53.5	5.5	55.4	65	W. 0.00
16	30.04	0.00	51.1	58.0	48.2	53.5	5.5	55.4	74	W. 0.00
17	29.87	+0.08	50.0	57.2	48.0	52.6	4.6	54.9	57	W. 0.00
18	29.49	+0.36	48.9	56.8	47.8	51.4	5.4	54.7	68	SW. 0.23
19	29.67	+0.16	50.6	58.0	48.0	53.3	5.4	54.7	70	W. 0.00
20	29.75	+0.05	50.7	58.0	48.0	53.3	5.4	54.7	71	W. 0.00
21	29.73	+0.05	51.4	57.3	48.5	53.7	5.5	54.8	84	W. 0.00
Mean	29.77	+0.05	50.2	57.2	48.1	53.5	5.4	54.8	71	WSW 0.25

- June 15.—A dull, overcast morning, fine bright afternoon. Thunder heard at 3.20 P.M. Fine night.
- 16.—A very fine bright day. Fine cloudy night.
- 17.—A very fine bright day. Fine cloudy night.
- 18.—Rain in early morning; sun shone for a little time after 10 A.M., rain from 1 P.M. till 2 P.M. Cloudy, cold night.
- 19.—A dull, overcast morning; fine afternoon, but mostly overcast. Fine, calm, cloudy night.
- 20.—A dull, overcast day and night.
- 21.—A dull, but, on the whole, a fine day; gleams of sunshine at times, a very thin rain falling at midnight. Cloudy night.

LONDON: Atmospheric Pressure.—During the week ending June 17, the reading of the barometer at the level of the sea increased from 29.86 inches at the beginning of the week to 30.04 inches by 9 A.M. on the 11th, decreased to 29.82 inches by 9 A.M. on the 12th, increased to 29.98 inches by 3 P.M. on the 13th, decreased to 29.81 inches by midnight on the 14th, increased to 30.25 inches by midnight on the 16th, and was 29.94 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.98 inches, being 0.26 inch higher than last week, and 0.01 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 69°, on the 17th. On the 13th the highest temperature reached was 55°. The mean of the seven high day temperatures was 61°.

The lowest temperature in the shade in the week was 42° 5' on the 13th; on the 14th the lowest temperature was 50°. The mean of the seven lowest temperatures was 46° 2'.

The greatest range of temperature in one day was 22°, on the 17th; the smallest was 10° 5', on the 11th. The mean of the seven daily ranges was 14° 8'.

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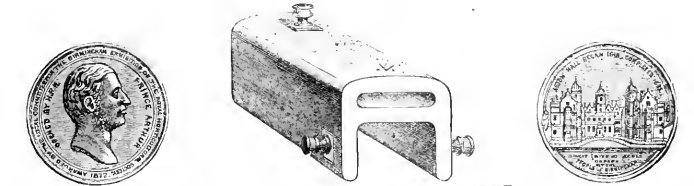
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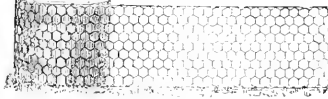
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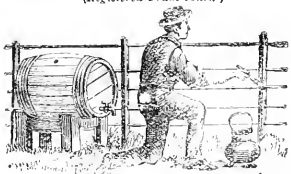
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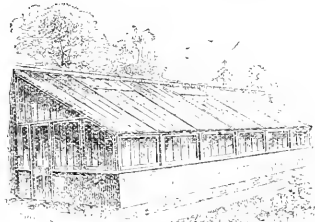
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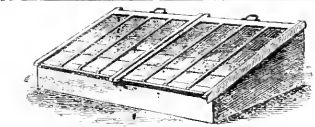


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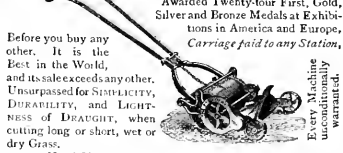
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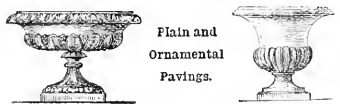
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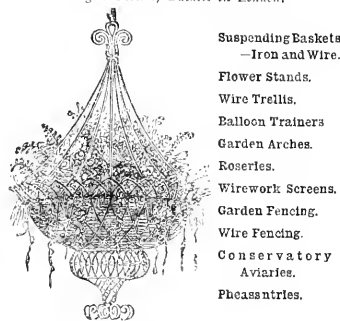
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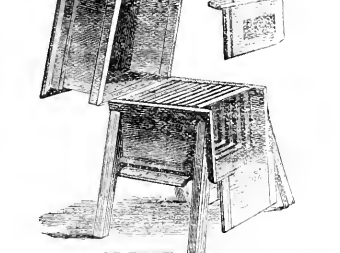
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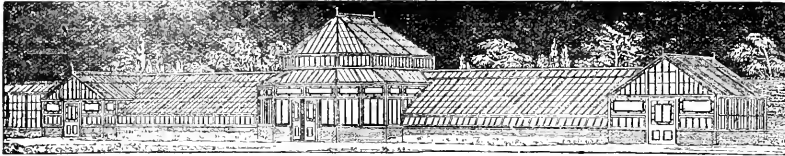
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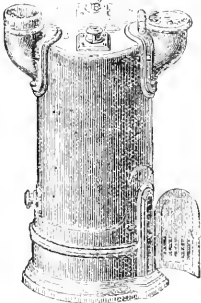
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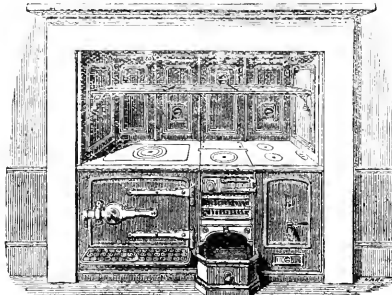


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GARDEN ROLLERS.
Single and Double Cylinders, with Wooden Handles.



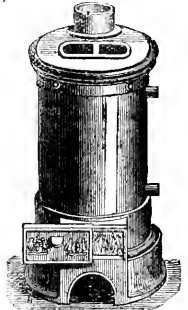
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IRONFOUNDERS AND MANUFACTURERS OF HOT-WATER APPARATUS,
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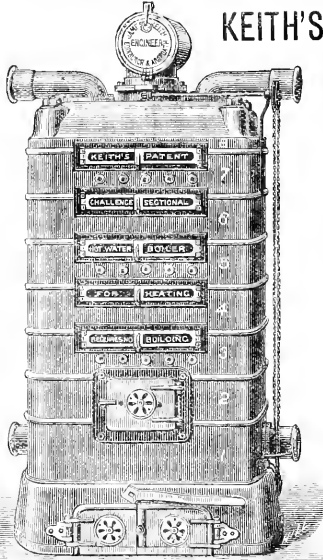


No. 51.
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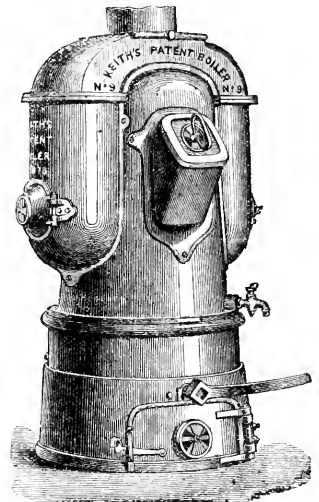
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